Committee on Science and Technology
Subcommittee on Space and Aeronautics
U.S. House of Representatives
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Introduction

Good morning Madame Chairman Giffords, Ranking Member Olson and members of the Subcommittee. I am grateful for the opportunity to testify before you today on such an important topic as the NASA Reauthorization bill.

As the largest aerospace trade association in the United States, the Aerospace Industries Association (AIA) represents nearly 300 manufacturing companies with over 660,000 high-wage, highly skilled aerospace employees across the three sectors: civil aviation, space systems and national defense. This includes over 140,000 workers who make the satellites, space sensors, spacecraft, launch vehicles and ground support systems employed by NASA, DoD, NOAA, NRO and other civil, military and intelligence space efforts. Our member companies export 40 percent of their total output, and we routinely post the nation's largest manufacturing trade surplus, which was over $57 billion in 2008. Aerospace indirectly supports 2 million middle class jobs and 30,000 suppliers from all 50 states. The aerospace industry continues to look to the future, investing heavily in research and development, spending more than $100 billion over the last 15 years.

AIA appreciates the efforts of the Congress to keep the requirements of the nation's historic U.S. Space Exploration Policy on schedule. The policy remains essential to reducing the U.S. human spaceflight gap between the retirement of the shuttle and the launch of the Orion-Ares I, as well as completion of and access to the International Space Station. NASA's Science Directorate provides a better understanding of our Earth and the universe. NASA's Aeronautics Research and Development endeavors are crucial to the completion of the Next Generation Air Transportation System (NextGen) and continued efforts to reduce aviation's environmental impact. Additionally, NASA's work remains an excellent inspiration for our youth to study science, technology, engineering and mathematics and to enter our aerospace workforce on which much of our nation's transportation, security and satellite infrastructure depend.

Recommendations for the 2009 NASA Reauthorization Bill

AIA was extremely pleased with the 2008 NASA authorization bill and the overwhelming bi-partisan support it received. As this committee works to shape NASA's policies moving forward, AIA would like to see continued support across all of NASA's mission directorates. NASA's budget must continue to reflect both adequate and stable

funding to prevent disruptions to the planned lifecycle of critical, multi-year space and aeronautics programs.

We strongly support the current proposed NASA budget of $18.7 billion, as we believe this is an excellent starting point for NASA funding over the next several years. However, going forward the President's budget is completely flat through 2013. We ask for Congressional support in communicating to the administration the need for a more robust NASA budget over the next several years. We urge the committee to have policy drive the budget, rather than have the budget drive policy.

We are also very concerned about the recent House Appropriations Committee decision to withhold increased funding for human space exploration pending the results of the Augustine Committee on the future of the U.S. manned spaceflight missions. Given the implications of delaying our spaceflight program further, AIA is concerned about any delays that withholding this funding may cause. Our main question is: from where will the additional funding come if the Augustine Committee recommends that NASA continue to stay on course? We fear that no additional dollars will be available from the appropriations committee and progress on this important program will yet again be delayed.

In addition to ensuring a strong and balanced budget, AIA makes the following recommendations on specific areas that should be addressed in the authorization bill.

Recommendation 1: Keep U.S. Space Exploration Policy a Priority

Both the U.S. Space Exploration Policy and the Constellation Program should be treated as national priorities and given the support needed to keep development on its current schedule and to minimize the impending gap in U.S. human spaceflight.

In January 2004, NASA adopted new far-reaching goals that point toward a next generation human spacecraft, returning humans to the moon and looking toward Mars and destinations beyond. Our industry finds these goals thoughtful, technically feasible and marked with reasonable milestones. Over the last five years, the Constellation program has steadily moved forward and a great deal of progress has been made. NASA has weighed the options on how to best accomplish its goals, designed a strategy and architecture, has awarded several major contracts, and along with industry has lined up the talented individuals needed for these tasks. The Constellation Program is "bending metal" and conducting critical tests. This has produced jobs that are not only "shovel ready" but also "brain ready."

While AIA is pleased with the progress of Constellation so far, we are deeply concerned about the budgetary implications for the future of the program. The FY 2010 budget request for NASA provides only $25 million a year for the Ares V heavy-lift vehicle and zero funding for the lunar lander. Even small delays to current plans may cause NASA and the aerospace industry permanent loss of human capital and reduce options for retaining the specially trained and skilled workforce from the retiring shuttle

program. Without moving forward on these vehicles NASA and the space industry face losing a workforce with vital and unique skill sets to non-space projects or even to other industries. Those taking jobs elsewhere may not return should future jobs in our industry become available.

Another important element to our national space exploration policy is the International Space Station. Final completion of the station is approaching and its crew capacity is now at six. This U.S. National Laboratory is ready to conduct unique and possibly groundbreaking research. The ISS will provide valuable lessons for future voyages to the moon and beyond, as it functions much like a lunar outpost or a spacecraft on a long duration flight. Most importantly, the ISS is a prime example of international cooperation in space. Sharing expertise and costs with other nations will be critical for future long-duration space missions and the ISS provides a platform to continue to build international cooperation.

We urge the committee to maintain the ISS at least through 2020 by authorizing the appropriate levels of funding without taking away from other critical NASA mission objectives. We also recommend Congress continue to support NASA's use of commercial launch services and on-orbit services to the ISS when they are available.

Recommendation 2: A Robust NASA Science Program and Addressing the Nation's Earth Science and Earth Observation Programs

The work being done in NASA's science mission directorate is another critical mission area for NASA, particularly given the current political and scientific concerns about global climate change. NASA's science program is perhaps best known for its host of satellites and robotic probes that have combed the outer limits of our solar system. A host of early satellites preceded our human space flights. The Ranger and Surveyor series preceded our Apollo astronauts to the moon. And we have rovers on Mars and probes that have visited or are en route to all the planets in our solar system. These programs are a necessary precursor to human space exploration and must be sustained.

A healthy science program at NASA not only provides valuable information about the cosmos, but also crucial data on the Earth's ecosystem. NASA's earth science and climate change research and development programs provide NOAA with valuable operational weather and climate monitoring satellites.

It is incumbent upon Congress to provide a stable level of funding required to sustain robust, operational monitoring systems and investing in next generation, R&D Earth observation systems. Further, the NASA authorization bill should continue to provide the framework for the transition of these R&D programs to operational status whenever possible, and Congress should provide OSTP, NASA and NOAA every tool necessary in developing a process to appropriately transition these missions. Private sector capabilities should also be employed to the maximum extent possible to enable improved delivery of observations and decision support tools.

Recommendation 3: A Healthy NASA Aeronautics Program

Historically, AIA and academic research organizations have expressed concern over the amount of focus placed on NextGen-related research and development. While NASA is uniquely positioned to undertake this crucial R&D work, the Aeronautics Research Mission Directorate (ARMD) has failed to keep pace with NextGen R&D requirements to date, leaving FAA to fill the breach. NextGen is critical to continuing the dramatic decrease in the environmental impact of aviation by applying technology and operational improvements that lower emissions. Federal R&D funding is the cornerstone of the advancement of NextGen, with NASA doing work that is then directed to FAA or to industry for further refinement.

Addressing climate change is high on everyone's agenda, including those of us in aerospace. We at AIA see NextGen and environmental improvement as inseparable. Delays in today's air traffic control system result in millions of gallons of fuel wasted annually. For instance, more than 4.3 million hours of delays in 2007 consumed an additional 740 million gallons of jet fuel, costing carriers more than $1.6 billion.[i] This produced approximately 7.1 million metric tons of carbon dioxide.[ii] Manufacturers are designing and building 21st century aircraft. However, our air traffic system has not moved into the 21st century – it is virtually the same system in which the noisier, dirtier aircraft of the 1960s flew.

NextGen transformation is key to amplifying aviation's progress in reducing noise and emissions concerns, which are major issues in local communities. Innovative engine design, airframes, avionics and materials have all resulted in a 75 percent reduction of noise and 70 percent improvement in civil aviation fuel efficiency since the late 1960s. These technological advances, spurred by NASA-funded R&D, have brought the aerospace industry a long way, and we are accelerating our programs. NextGen will build on that progress, which is a particular challenge given projected traffic growth and global concern about aviation's effect on the environment.

AIA is pleased to see NASA directing effort towards Integrated Systems Research, which should include modeling and simulation work. This work will greatly expedite NextGen and its layered implementation, including incorporating Unmanned Aerial Systems (UAS) into the civil airspace. Once NASA and the implementation agencies identify the development priorities, industry is committed to leverage its full arsenal of expertise towards the development of the NextGen system.

Moving forward, AIA remains concerned with the Administration's FY 2010 budget request and is committed to working with NASA to pursue mutually beneficial research initiatives. Dating back to the early days of NASA aviation aeronautics R&D, the mission directorate has been responsible for revolutionary safety and efficiency initiatives that have saved countless lives. We appreciate this Committee's acknowledgment of this tradition of excellence in the FY 2009 NASA Authorization.

Recommendation 4: Continue to support NASA's role in education and workforce development

AIA members have identified that a "lack of trained technical workforce for the future" is one of the most important long-term issues facing our industry. Our companies are taking action to develop the future workforce, each investing on average $10 million a year on science, technology, engineering and mathematics (STEM) education initiatives nationwide. NASA's programs are not only important for its own workforce, but also our industry. As the National Research Council (NRC) stated in 2008, "NASA has a unique and important role to play in motivating and inspiring students to consider STEM careers."

We are encouraged by NASA's FY 2010 education priorities. In particular, we support programs stimulating competitive research that prepares young people for future employment with student activities that are directly tied to real-world experiences (i.e., Constellation, Mars Exploration; global climate change; aeronautics). It is also important to provide opportunities for student flight projects to gain access to space through partnerships with NASA Centers, universities and industry.

Despite the tremendous opportunities NASA's education programs provide towards inspiring our youth, we are disappointed that the President's FY 2010 request for NASA education initiatives is only $126 million. This is particularly disappointing when you consider that just one of AIA's companies spends $60 million on STEM programs. The funding request for FY 2010 for NASA education initiatives is $43 million, or 25 percent, below the FY 2009 enacted funding level of $169 million.

Recommendation 5: Renewing the Commercial Space Launch Amendments

Since 1988, the U.S. government has had a risk allocation regime that has addressed the exposure of companies providing FAA-licensed commercial launch services to third party liability resulting from launch-related activities. While the U.S. launch industry is considered mature, our launch providers – whether commercial or government – operate within narrow margins of return on their endeavors. Over the last 20 years, competition from foreign launch systems and providers – all of which benefit from some form of government indemnification – has grown significantly. Elimination of U.S. government indemnification would drive even more launch business overseas. In a competitive market with narrow returns, the loss of indemnification could cause U.S. companies to reconsider the risks and benefits of staying in the commercial launch business and suspend activities or even exit the market. This could also impact launches of U.S. civil and national security payloads. This regime has been extended by Congress four times, but it will expire at the end of this year.

AIA recommends that Congress remove the amendment's tier two cap of $1.5 billion and eliminate the sunset provision in advance of its expiration on December 31, 2009. AIA believes that, at a minimum, the amendment should be extended another five years.

Conclusion

Over the last 50 years, space technologies have increasingly become an important part of our nation's economic, scientific and national security capabilities. Over time, all sectors of the U.S. economy have become inextricably reliant upon space systems. As other nations make rapid advancements in acquiring or exploring space capabilities, America's leadership in space is no longer guaranteed and the securing of its space assets is no longer assured.

NASA stands front and center as the most visible representation of the U.S. space program. It's continued work in space exploration, aeronautics research and development, Earth and solar system observation, scientific research, and manufacturing technology programs remains of critical importance to America and deserves the utmost support from Congress.

I thank the committee for their time and attention and would be happy to answer any questions.

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[i] *Your Flight Has been Delayed Again,* Delay measurement excludes padding of block times to increase on-time performance; p. 3.

[ii] *Ibid,* emissions during taxi and flight time, p. 5.