House Transportation and Infrastructure, Subcommittee on Aviation

Hearing on the Authorization of the Federal Aviation Administration

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Introduction

Chairman Petri, Ranking Member Costello, distinguished members of the Subcommittee. It is a pleasure and an honor to be able to testify before this committee once again. I represent the Aerospace Industries Association (AIA) – we are an association of over 300 aerospace manufacturing companies and the 624,000 highly-skilled employees who make the aircraft that fly in our airspace system every day as well as the avionics and air navigation equipment that allow them to do that safely. I come before you today to discuss an issue that for too long has remained incomplete, the reauthorization of the Federal Aviation Administration.

Civil aviation underpins the world's social and economic infrastructure. As a vital component of the global transportation system and a major source of employment, civil aviation provides countless travelers and workers with a better way of life on a daily basis. Looking forward, such benefits will multiply dramatically as air transportation services respond to strengthening demand from around the world. However, creating an environment that fosters growth and employment, with all the benefits of a thriving aviation system, first requires addressing a number of key industry challenges. Safely expanding the capacity of our national airspace system and addressing growing environmental and energy concerns are the two most significant challenges facing the U.S. civil aviation industry today. This testimony will address the impact of each challenge and make policy recommendations to ensure the healthy growth of this important sector.

While both of these challenges pose unique technological, financial, regulatory and political hurdles, they are, in fact, inextricably linked. Transformation of our nation's air transportation system so it can safely and efficiently accommodate greater numbers of aircraft—both manned and, eventually, unmanned systems—is vital to reducing the environmental impact and energy use of civil aviation and critical to realizing industry's goal of carbon-neutral growth from 2020 and beyond (CNG 2020+). Indeed, growing pressure to reduce carbon dioxide (CO_2) emissions, oxides of nitrogen (NOx) emissions and noise associated with aircraft operations is one of several compelling rationales for investing in air traffic management (ATM) modernization. The imperative to overcome capacity and environmental challenges could not be stronger for the U.S. civil aviation industry, a vital contributor to the nation's economy. In the most recent economic impact

survey published in December 2009, the Federal Aviation Administration (FAA) found that the sale of goods and services tied directly or indirectly to civil aviation constituted $1.3 trillion, or about 5.6 percent of the nation's total gross domestic product (GDP).

Moreover, the industry sustains nearly 11 million jobs, including many high-skilled, high-technology positions. The U.S. civil aviation manufacturing industry remains the single largest contributor to the nation's balance of trade, exporting $70.5B and importing $22.2B in relevant products in 2009, for a net surplus of $48.3B.[1]

As strategically important as the industry is to the United States now, it will become even more significant as demand for air travel increases and international competition intensifies. Despite flagging air travel in the wake of the 2008 financial crisis and a global recession that persisted throughout 2009, long-range forecasts from a wide spectrum of sources indicate robust demand for air travel over the next two decades. Some regions of the world will fare better than others, as changing wealth demographics and the build-out of aviation infrastructure in emerging markets make air travel more accessible to greater numbers of individuals. Even in mature markets like the United States and Europe, moderate but consistent growth in air travel demand is projected. These mature markets also have the persistent need to recapitalize aging fleets with newer, more fuel-efficient aircraft, generating replacement demand on top of growth for fleet expansion.

Worldwide growth in demand for aviation goods and services will not be limited to the large commercial transport sector. As the global economy recovers and a number of new aircraft models enter the market, demand for general aviation products—from the large-cabin, global business jet to the single-engine piston-powered aircraft—should slowly and steadily improve.

Regulatory policies and other initiatives that seek to address the substantial but surmountable hurdles posed by an aging, ground-based air traffic management system and increasingly stringent environmental standards will help foster the health and competitiveness of the U.S. civil aviation industry. This will ensure the nation can capitalize on projected growth in demand for aviation products and related services over the coming years.

[1] US Census Bureau, Merchandise Trade Exports/Imports Quarterly 2009

Capacity and the Importance of NextGen

The United States' ability to safely and efficiently handle more aircraft of all types will not be achieved through incremental modernization but by a significant transformation of the U.S. National Airspace System (NAS). Under development for a number of years, and now entering the implementation phase, the FAA's Next Generation Air Transportation System (NextGen) will move the nation from reliance on an aging, radar-based system of air traffic control to a satellite-based system of air traffic management. By leveraging Global Positioning System (GPS) technology—along with breakthroughs in everything from weather forecasting to data networking to digital communications—the NextGen system will ultimately enable new procedures that will allow more aircraft to fly closer together on more direct routes. The safer, more efficient use of airspace through NextGen will reduce delays and provide significant economic and environmental benefits through reduced carbon emissions, fuel consumption and noise.

A fundamental enabling technology of NextGen is Automatic Dependent Surveillance-Broadcast (ADS-B), which uses GPS technology to pinpoint an aircraft's precise location and constantly broadcast that information and other critical data (altitude and air speed, for example) to nearby aircraft and air traffic controllers. With ADS-B, for the first time, both pilots and controllers will see the same real-time displays of air traffic. This breakthrough in the provision of common, situational awareness in the cockpit and the control tower will enhance safety and enable more efficient use of airspace. ADS-B is undergoing a phased implementation. Installation of 794 ADS-B ground-based transmitters—largely achieving coverage throughout the continental United States—has a contracted completion date of 2013. The project is currently on schedule and under budget. The operational system is being deployed on a limited basis around the nation, with four test sites in geographically diverse areas with unique airspace environments demonstrating the service.[2] Operators in these regions are already reporting significant, tangible benefits directly attributable to the system, including fuel cost savings and reduced delays. In order for the full benefits of ADS-B to be realized in a given area, however, a "critical mass" of operators must be equipped with the capability.[3] For

[2] Test sites located in Alaska, the Houston / Gulf of Mexico region, Louisville, KY, and Philadelphia, PA

[3] Gerald L. Dillingham, Ph.D., Government Accountability Office (GAO), House Transportation and Infrastructure Subcommittee on Aviation. "Hearing on ATC Modernization and NextGen: Near-Term Achievable Goals." Testimony given May 20, 2009

example, proximate spacing is only possible if all aircraft have improved position reporting, as an aircraft not equipped with ADS-B would be "invisible" to the traffic receiver of another aircraft. Not surprisingly, the timing and financing of the equipage of aircraft with ADS-B capability is a core concern of both the FAA and aircraft operators, including airlines and the general aviation community, as well as equipment manufacturers.

ADVANCING NEXTGEN—A NATIONAL IMPERATIVE

The Equipage Challenge

The FAA estimates its own costs associated with full implementation of the NextGen architecture by 2025 will total between $15B and $22B. While industry estimates vary, the agency also acknowledges that billions of dollars will likely be needed by the airlines and other users of the national airspace system (NAS) to retrofit their aircraft with NextGen compatible systems. This clearly represents a sizable investment for an airline industry that continues to struggle with severely weakened balance sheets, and for a general aviation community that counts individual aircraft owner-operators who fly recreationally among its core constituency. In the near-term, aircraft equipage for NextGen technologies will remain largely voluntary, with individual airlines and system users conducting internal cost-benefit analyses to support or reject the business case for investment.

The closing of the business case for equipage depends on a simple relationship between two factors – (1) the cost of equipage, and (2) benefits that are early enough and of sufficient magnitude to offset those costs of equipage.

AIA recommends legislation providing the FAA with authority to pursue innovative financing mechanisms to incentivize the retrofitting of commercial and general aviation aircraft with NextGen avionic equipment.

Although the cost factor for NextGen equipage is quite significant, it can be improved through a combination of reducing the equipment unit costs, the borrowing costs, and the installation costs. It is important to understand that for air carriers with large fleets needing retrofit, the borrowing and installation costs can well exceed the equipment costs.

The benefits factor is more complicated since it is driven by both the magnitude of the benefit itself and the timing of when the benefit will be delivered. Both depend on actual ATC procedures that leverage the installed NextGen technologies into an operational improvement in the National Airspace System. Progress is being made in this area. An example of this is the work toward implementing ADS-B based interval management procedures that has been endorsed by the ADS-B In Aviation Rule Committee. However, other major benefit dependencies have never been addressed.

Studies have shown that unlocking much of the benefits of NextGen requires a large percentage of aircraft be equipped. This creates an early-adoption problem that driven by two main time-related issues, First, time becomes a critical part of the business case because the investment dollars for equipage are largely borrowed. The carrier that equips first is subject to high debt-carrying costs well in advance of benefits – discouraging early equipage. This problem is made even worse by the known history of very significant FAA implementation delays.

Secondly, the time element is also burdened by the air transport installation requirements where NextGen upgrades must be scheduled during their scheduled heavy-maintenance cycles. This means that to achieve the level of equipage needed for benefits to flow in the defined “mid-term” time frame, the air carriers need to be begin making near term decisions to equip.

This is why government support for equipage -- either through direct funding or by other more creative financial incentives -- is welcomed by the majority of the user community. Innovative and careful structuring of government support to address these important cost and benefit factors can help resolve these obstacles to equipage. However, with the recognized need to address the growing federal deficit, this should include looking at ways to leverage the available private-sector capital markets.

To this end, AIA recommends equipage funding incentive legislation which encourages participation of private-sector investment capital, and gives FAA the authority to enter into government guaranteed loan arrangements that can be used in innovative ways to incentivize the retrofitting of commercial and general aviation aircraft with NextGen avionics equipment.

Any plan must link government (FAA) performance to user equipage obligations. The proposal would include the following broad principles:

- Measured FAA accountability for NextGen programs that includes appropriate financial risk sharing among FAA and operators to close the business case for early equipage; and
- Government financial support structured in a way to attract private-sector capital to carry most of the costs of equipage.

Establish Clear Performance Metrics

A key message from industry throughout the FAA Reauthorization deliberations is the need for accountability for achieving progress. First, FAA needs to establish and empower a NextGen organization that clearly defines the budget, schedule, project organization, leadership and the specific transition/implementation steps needed to make NextGen a reality. Second, the FAA must establish a set of progress metrics so that the NextGen organization, the Administration, the Congress, industry stakeholders and the public can measure and track the operational improvement that is actually being achieved by the program. These metrics need to track performance outcomes, not just activity. It is imperative that industry and the regulators are capable of determining whether efforts are actually improving safety, capacity, efficiency, etc. For example, when implementing new Required Navigation Performance (RNP) and Area Navigation (RNAV) approaches and departures, quantity – total number of new procedures – means nothing if the quality of the procedures do not bring measurable benefits to the system.

Performance Based Navigation and Environmental Streamlining

FAA and industry have partnered on a number of innovative pilot programs to demonstrate the benefits of new operational procedures using NextGen avionics equipment. Both the RTCA Task Force 5 report and the Future of Aviation Advisory Committee (FAAC) recommend a procedures implementation schedule based on a comprehensive benefit analysis. Procedures should be developed and implemented where needed most. As these procedures are implemented and begin delivering measurable benefits, more operators will equip.

In addition, these operational and procedural changes will produce sizable fuel savings and emissions reductions. System-wide operational improvements ultimately afforded by NextGen will take emissions and noise reduction to a new lower level. FAA analyses indicate that full implementation of NextGen could reduce aircraft GHG emissions up to 12 percent by 2025—the equivalent of taking 2.2 million cars off the road for one year.[4]

The precision of performance-based navigation procedures (PBN)[5] enables flight routing along specific ground paths that minimize an aircraft's noise signature on takeoffs and descents. The environmental benefits of NextGen—including both reduced emissions and noise—are obvious and compelling, but require innovative policy solutions to embedded obstacles before those benefits can be fully realized. The redesign of terminal airspace by the FAA—which is necessary to accommodate CDAs, tailored arrivals and quieter RNP and area navigation (RNAV) arrivals and departures—requires compliance with the National Environmental Policy Act (NEPA). NEPA is effectively the nation's charter for considering potential environmental impacts before an action is implemented.

NEPA requires consideration of lower-impact alternatives and it stipulates disclosure of environmental information for all federal agency actions with the potential to impact the human or natural environment. Public and other government agency involvement is required in the process and concerns raised by the public or other agencies must be addressed prior to any federal agency reaching a decision on a proposed action.

The FAA has authority to determine that actions involving the establishment, modification, or application of airspace and air traffic procedures fall under what is known as a "categorical exclusion," sometimes referred to as CATEX. With this authority, the FAA can determine—based on past experience with similar actions—that the airspace redesign in question does not have an adverse impact on the environment,

[4] Figure cited by Dr. Gerald L. Dillingham in May 2008 testimony before the House Transportation and Infrastructure Subcommittee on Aviation

[5] PBN is a framework for defining performance requirements in "navigation specifications." PBN framework can be applied to an air traffic route, instrument procedure, or defined airspace. PBN provides a basis for the design and implementation of automated flight paths as well as for airspace design and obstacle clearance. The two main components of PBN framework are Area Navigation (RNAV) and Required Navigation Performance (RNP). Once the required performance level is established, the aircraft's own capability determines whether it can safely achieve the specified performance and qualify for the operation [FAA Fact Sheet – NextGen Goal: Performance-Based Navigation, April 24, 2009].

thereby limiting the need for a more time-consuming environmental review as long as there are no extraordinary circumstances. The FAA's experience with airspace redesigns indicates that, while there will be overall environmental benefits, there are typically potentially negative impacts to some areas that must be assessed.

AIA does not propose or endorse routine CATEX determinations. It is clear that in most cases, new terminal area procedures change the aircraft-generated noise signature, thus warranting review. It is also clear, however, that most new PBN procedures represent a significant *overall* reduction in noise and emissions.

More often than not, airspace redesigns require an Environmental Assessment (EA)—which applies to a project or proposal not initially thought to have the potential to cause significant environmental impact. EAs require reviews by other agencies, as well as public comment, but they are significantly less time-consuming and less costly than the lengthier environmental impact statement (EIS) associated with NEPA.

Based on 2009 data, the average duration of NEPA reviews for FAA actions involving EAs was 1.5 years. The duration for NEPA reviews involving EISs was four to five years. The costs of such reviews can also be substantial, depending on the type of NEPA review and the complexity of the proposal. The EA submitted for the Houston Area Air Traffic System redesign, for example, took 1.2 years for approval at a cost of roughly $1M. In contrast, the EIS required for the proposed New York/New Jersey/Philadelphia Metropolitan Airspace Redesign Project took eight years and cost $17M.[6] In some cases, congressional input can result in additional options to the proposed action being considered, thereby increasing the number of public meetings and extending the length of the review process.

While industry stakeholders in NextGen implementation agree on the importance of the NEPA process, many are frustrated with the time-consuming and costly nature of the reviews and consider it a major impediment to the timely rollout of the system. Given the volume of expected airspace redesigns required to maximize the benefits of the system;

AIA recommends including NextGen-related airspace redesigns in the Airport Streamlining Approval Process.

[6] Data provided by the Air Transport Action Group, May 2009

the fact that these new procedures are, by definition, quieter and more fuel efficient; and the strain these NextGen-related NEPA reviews put on FAA resources, AIA recommends including NextGen-related airspace redesigns in the Airport Streamlining Approval Process as defined in Sec 304 of Vision 100 and an FAA-EPA interagency review to produce a more streamlined process.

Provided the NEPA process is streamlined, NextGen implementation remains predicated on the installation of literally thousands of PBN procedures and the FAA lacks the resources to design and install these procedures in a timely fashion on its own therefore the agency recognized the need to enlist the support of third parties who specialize in the design and deployment of PBN procedures.

3rd Party Development of Performance Based Navigation Procedures

In September 2009, GE Naverus and Jeppesen—both leaders in the development and certification of PBN procedures around the world—were granted approval by the FAA to design and validate RNP flight paths under what is known as an Other Transaction Agreement (OTA). While the OTA does not allow the same latitude and responsibilities as an Organization Designation Authorization (ODA), it does effectively engage the private sector in the development of navigation procedures.

Under the ODA program, the FAA has the ability to delegate a number of its statutorily-authorized functions to qualified, third-party organizations. ODA status has been generally limited to aircraft and related equipment manufacturers, air carriers, repair stations and other maintenance organizations. However, the current ODA program does not extend to firms that design and install PBN procedures.

Even with the assistance of capable third parties, the FAA still faces a daunting task in installing thousands of PBN procedures needed throughout the nation for full NextGen implementation. For this reason, extending full ODA status to qualified companies is still a worthy policy objective. Although the existing OTA process allows the FAA to contract with individual providers, it is a lengthy process undertaken only on a case-by-case basis. For example, the FAA-GE Naverus OTA took three years to produce its first public RNP approach. As a matter of policy, the busiest corridors and airports should receive top priority when it comes to installing and certifying RNAV and PBN procedures, a

seemingly obvious recommendation, but one that is still not strictly adhered to as the build-out of the system moves forward. Finally, consistent with the recommendation above, contracting with third party PBN providers using discretionary Airport Improvement Program (AIP) or Passenger Facility Charge (PFC) funds should be permitted if an airport authority elects to do so.

Required Navigation Performance, Continuous Descent Arrivals, and Ground-Based Augmentation Systems are three core technologies that have been shown to provide significant environmental benefits. AIA recommends the inclusion of proper resources for the FAA Office of Aviation Safety to certify and oversee performance based procedures developed by 3rd parties.

History tells us that huge improvements in efficiency – both economic and environmental – follow at airports that install PBN procedures. Technologies and procedures can be deployed to save fuel and reduce emissions. Congress should expand discretionary AIP grant eligibility to cover the development of RNAV, RNP and other NextGen technology-enabled approaches. AIP provides federal grants to airports, with funding typically limited to construction projects (runways, taxiways and aprons, for example) and expenditures on safety, emergency or snow removal equipment.

AIA recommends authorizing the FAA Office of Aviation Safety to more broadly certify and oversee performance based procedures developed by 3rd parties

The FAA has also spent over $5B in AIP funds since 1982 on the study and implementation of noise compatibility projects, including home and business soundproofing, land acquisition and noise monitors.[7] This raises a potentially compelling economic argument for allowing AIP funds to cover the development of new approaches employing NextGen technologies and procedures, including RNAV, RNP and ground-based augmentation system (GBAS) approaches. Many of these procedures can be designed to avoid noise-sensitive areas and CDAs are significantly quieter than standard approaches. AIA does not recommend or endorse a policy whereby scarce AIP or PFC funds are denied or reduced in one category to subsidize another. In this case, using AIP funds for new approach development could reduce expenditures on physical noise

[7] Figures provided by the FAA and cover expenditures through December 2009.

mitigation projects, providing significant community benefits while simultaneously accelerating NextGen deployment.

As recommended by the Future of Aviation Advisory Council (FAAC),[8] enabling airports to partner with tenants to build more efficient approaches and departures, will incentivize aircraft equipage and provide environmental benefits in the form of reduced noise and emissions. Further, efficient operational procedures have the potential to increase aircraft and passenger throughput, thereby generating additional revenue for the airport. The economic benefits of a more efficient, better served airport extend well beyond the airport perimeter to the broader community.

Whether a business is looking to relocate its corporate headquarters or an airline is seeking to expand its service, the efficiency of the airport in question plays a critical role in the decision. Therefore, AIA recommends the extension of Section 47133 of Airport Improvement Program (AIP) grant eligibility to include NextGen technology-enabled procedures.

UAS Integration

AIA, along with FAA, recognizes the growing importance of unmanned aircraft systems (UAS). These aircraft have tremendous potential to contribute to the economic, technological, and competitive well-being of the U.S. Integrating UAS into the NAS stands to create tens of thousands of new jobs and hundreds of millions in wages for the U.S.[1] To ensure continued U.S. leadership in this new, fast-growing field of aviation, top UAS manufacturers believe the safe and orderly integration of UAS into the NAS requires a UAS-specific strategic plan. This will lay the foundation for productive government-industry collaboration across the UAS industry.

AIA recommends the accelerated release of the small UAS standard (CFR 107), the inclusion of UAS in FAA Aerospace Forecast, in addition to finalizing a strategic plan for UAS -national airspace integration

[8] Federal Aviation Advisory Council Recommendation #8: Eligibility Criteria for Airport AIP and PFC Programs
[1] *Unmanned Aircraft System Integration into the United States National Airspace System: An Assessment of the Impact on Job Creation in the U.S. Aerospace Industry*, pg. 3. (2010) Association for Unmanned Vehicle Systems International.

While FAA addresses restrictions on UAS flights for the long-term, the agency should not lose focus of the near-term hurdles such as the need to flight test non-military UAS, and the accelerated development of UAS-specific safety standards. Moving forward, AIA and industry support the development of a UAS research and development plan linking specific milestones and outcomes to current NASA, Department of Defense, and FAA research and flight trials.

AIA's member companies stand ready to contribute to any of these efforts and other activities including design, engineering and standards development through RTCA and other organizations.

CLEEN Technology and Alternative Fuels

Cooperation in fundamental R&D between relevant government agencies and industry has enabled significant breakthroughs in civil aviation dating back to the earliest days of flight. The government can augment industry's efforts to reach Carbon Neutral Growth by 2020 (CNG 2020+) by continuing to make targeted investments in the areas of aircraft engine design, airframe design and the development of sustainable alternatives to jet fuel.

The FAA's CLEEN program is an excellent example of such targeted investments, with industry partners advancing technology breakthroughs that could be incorporated in aircraft platforms in less than five years. Alternative fuel research is an area that seems especially promising for advancing industry's goal of CNG 2020+—given already impressive levels of cross-agency and government industry cooperation. The U.S. Air Force has been an important player in the development and use of alternative fuels and it has been a vital partner to the U.S. civil aviation industry in terms of advancing the commercial viability of biofuels. Although the Air Force is DOD's leading user of jet fuel, its annual consumption is dwarfed by that of the U.S. civil aviation industry, which consumes roughly 10 times that of the service. The Air Force is sharing its experience in alternative fuels—gleaned not just through recent demonstration flights, but through years of laboratory, rig and component testing—by closely cooperating with industry as part of the Commercial Aviation Alternative Fuels Initiative (CAAFI). CLEEN funds are critically important to help advance alternative aviation fuel certification work.

The ambitious goal of CNG 2020+ will only be achieved if government and industry can continue to work together, rationalizing financial investments and pooling technical expertise. The foundations for successful cooperation are already in place through programs like CLEEN and knowledge-sharing forums like CAAFI. Building upon these strong foundations will enable future technological breakthroughs—from revolutionary engine and airframe designs to commercially viable biofuels—that firmly establish the civil aviation industry as the global benchmark for safe, environmentally-responsible transportation.

AVIATION SAFETY—CONTINUEING THE GOLD STANDARD

Certified Design Organizations

A wide range of aerospace products are poised to enter the market. These products are linked to a number of national and international goals, such as more efficient (greener) aircraft and are also key to adding jobs and increasing manufacturers' . However, as a regulated industry, part of bringing new products to the market includes FAA certification. Any restriction to FAA's ability to certify new products directly hampers U.S. aerospace industry growth and its positive impact on overall U.S. trade.

AIA believes there is a strong need for all FAA-recognized design organizations to have the ability to receive a design organization certificate for the activities they perform.

Certified Design Organizations (CDO) provide an ideal opportunity for the FAA and manufacturers to leverage the experience and expertise of aviation design organizations to streamline the certification process. Such collaborative efforts allow FAA to greater focus resources on safety critical items and overall system safety management rather than on arbitrary oversight regimes. CDOs are cost effective and optimize FAA's existing workforce. This allows FAA to shift its role from product auditor to process auditor without a compromise in safety. This enables the FAA to leverage manufacturing industry expertise and free up existing FAA resources to focus on primary safety objectives.

Prioritized Review and Application of Rulemaking

AIA supports the FAAC recommendation[1] to review existing FAA regulatory and safety initiatives and the criteria used to prioritize each. Key to this effort, and also included in the FAAC recommendation, is coordination with industry. The aerospace manufacturing industry has a proven record of effectively implementing safety improvements in a timely fashion – typically much quicker than today's rulemaking process supports. As pointed out in the FAAC recommendation, the rulemaking pipeline is full of mandates, not all of which are founded in data-driven analysis to ensure an overall improvement in either safety or system efficiency.

AIA recommends FAA undertake a balanced review of rulemaking priorities in response to FAAC recommendations

There is nothing more difficult or more important than the prioritization of safety initiatives. AIA supports broadening the application of the proactive Commercial Aviation Safety Team (CAST) model as an alternative to reactive rulemaking. AIA, FAA and other government and non-government CAST members have a long history of safety accomplishments realized without Congressional mandates or NTSB recommendations.

FAA Repair Station Oversight

Given the FY11 budget pressures, arbitrary Foreign Repair Station safety inspection regimes would strain FAA resources. Requiring the physical inspection of every FAA certificated repair station in the world twice annually without regard to a risk assessment is arbitrary. AIA recommends the U.S. and FAA honor existing bilateral and multilateral aviation safety agreements with regard to the certification and inspection of Foreign Repair Stations. AIA also recommends FAA employ a risk-based model for inspections in order to use its valuable personnel in the most efficient manner possible. A risk-based schedule is safer overall as it will force an evaluation of the safety records of repair stations around the world, detailing which stations need more and which stations need fewer inspections.

AIA supports a risk-based approach to repair station oversight currently utilized by the FAA rather than an arbitrary inspection regime.

[1] FAAC Recommendation #22, "Identification of Safety Priorities"

Conclusion

The civil aviation industry is an economic engine directly and indirectly contributing more than $1.3 trillion — or 5.6 percent of gross domestic product — to the U.S. economy. It supports nearly 11 million jobs with a payroll of $369 billion.[9] Civil aviation contributes positively to the U.S. trade balance, creates high paying jobs, keeps just-in-time business models viable and connects all Americans to friends, family and business opportunities. All of that economic activity is funneled through the nation's air traffic system. As long as the system can accommodate the demand for air travel and just-in-time express delivery, the growth of jobs and economic activity associated with civil aviation will continue. Full NextGen deployment requires the production and installation of hundreds of thousands of high-tech avionics products assembled by skilled workers in U.S. factories and maintenance stations in every state.

Implications on the trade front are also important. U.S. leadership in ATM technology and procedure development is being challenged in Europe and Canada. China and India will see the greatest growth in aviation travel for years to come. Both look to the United States or Europe for leadership as they develop their respective air traffic control systems. If the United States does not promptly deploy these technologies, opportunities for U.S. manufacturers and workers will be lost.

The key to sustainable growth in the aviation sector is the accelerated implementation of the Next Generation Air Transportation System, or NextGen, the 21st century, satellite-based air traffic management system designed to replace the current 1960s era infrastructure. Without NextGen, our national airspace will remain cluttered and inefficient and undermine the economic benefits of America's commercial aviation industry.

As Congress continues the consideration of this important legislation, the Aerospace Industries Association stands ready to leverage knowledge and experience of approximately 624,000 aerospace employees to advance this NextGen initiative. Thank you once again for the opportunity to testify on this important issue and I am happy to answer any questions you may have.

[9] The Economic Impact of Civil Aviation on the U.S. Economy, FAA, Dec. 2009.