

House Transportation and Infrastructure, Subcommittee on Aviation
Hearing on ATC Modernization and NextGen: Near-Term Achievable Goals

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Chairman Costello, Mr. Petri, members of the committee – good morning. 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 nearly 300 aerospace manufacturing companies and the 657,000 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’m especially happy to come before you to talk about a subject that today enjoys almost universal support – the Next Generation Air Transportation System. You and I remember when it was N-GATS. Now, of course, it is simply...NextGen.

You know, it’s been said that in this town where you stand on an issue depends on where you sit. Well, when it comes to NextGen, I may have changed seats, but my views on NextGen haven’t changed. Our national airspace system needs NextGen as much today as it did when I was at the Federal Aviation Administration (FAA). In fact, we need it even more. Because NextGen isn’t *just* about reducing delays – although it will certainly do that. And it isn’t *just* about improving civil aviation’s environmental stewardship – although that too will be a welcome benefit of NextGen’s implementation. It isn’t even about the added margin of safety NextGen technology will bring to our complex system of communication, navigation and surveillance. NextGen is no single thing...it’s all of these things. And I would like to explain why we believe it is critical and why the benefits of NextGen may be closer than we think. NextGen is critical to our economy now. To delay or fail to implement the NextGen system risks the U.S. aerospace industry’s position as the last U.S.-dominated manufacturing sector, exporting nearly \$94 billion annually. It has the potential to cost the nation about \$35 billion in annual economic loss by 2014, and approximately \$52 billion in annual economic loss by 2024 just in unmet demand.ⁱ If aviation growth is constrained, job growth suffers. Employment trends in aviation-related industries indicate a possible loss of as many as two million new jobs every five years.ⁱⁱ Only through NextGen will the U.S. retain its global aeronautics leadership, which affects not only aviation but numerous other industries and businesses as well because of aviation’s extensive ripple effect throughout the economy.

Environmental Benefits of NextGen

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 2007ⁱⁱⁱ consumed an additional 740 million gallons of jet fuel, costing carriers more than \$1.6 billion. This produced approximately 7.1 million metric tons of carbon dioxide^{iv}. The cost to the airlines and the cost to the environment are simply unacceptable, especially when we all know they can be significantly reduced. And consider, too, that these are unnecessary costs to consumers. Its simple math, a reduction in fuel consumed equals a reduction in environmental impact. 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 60s flew.

NextGen transformation is key to amplifying aviation's progress in reducing noise and emissions concerns, which are major issues in local communities. NextGen will build on aviation's progress in reducing CO₂, which is particularly challenging given projected traffic growth and global concern about aviation's effect on the environment. 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 60s. These technological advances have brought the aerospace industry a long way, and we are accelerating our programs

One such program is the Pratt & Whitney PurePower PW1000G engine family. Scheduled to enter service in 2013 these engines are slated to substantially decrease fuel burn, reduce CO₂ emissions, and cut NO_x emissions in half.^v

Another example is the dramatic developments in the area of sustainable biofuel. In the span of three short years, Boeing has teamed up on various alternative biofuel feasibility projects with General Electric, Rolls Royce, Pratt & Whitney, Honeywell, Virgin Atlantic, Continental Airlines, JAL and Air New Zealand.

NextGen is Now

NextGen's new operational procedures and technologies will reduce flight time and delays, resulting in lower fuel burn, fewer emissions and less noise. For example, use of high precision avionics-supported area navigation arrivals and departures (RNP and RNAV) could save 2 million tons of carbon dioxide at the top 10 U.S. airport communities annually.^{vi} Further efficiencies can be realized through the adoption of new arrival procedures (continuous descent or profile descents) which can save 3.75 million tons of carbon dioxide annually at these same locations.

These environmental benefits are not limited to approaches and departures. Serving as the new en route automation system, enabling NextGen capabilities to be implemented, Lockheed Martin's En Route Automation Modernization (ERAM) system will enable aircraft operations to reduce San Francisco to New York-JFK flight times by 3 percent. This will save about 6 million tons of carbon dioxide emissions annually.^{vii} My friends in the airline industry can go into the details, but these are big savings. When translated into dollars, they can make a huge difference to an industry struggling through difficult times. NextGen can do this, but not without the resolve of this committee, the FAA and the entire civil aviation community. As you know, FAA recently announced the activation of

two ERAM sites within the next month. FAA's ERAM site in Salt Lake City is expected to begin controlling live traffic within the next month with Seattle coming on line shortly thereafter. Both deployments are being rolled out a full four months ahead of schedule. Once the system has been evaluated at these sites, it will be deployed to the remaining 18 centers nationwide. ERAM, touted as FAA's largest and most complex project ever, is presently operating on budget and on schedule.

We are experiencing the safest period in aviation history, because significant improvements continue to decrease the number of serious aviation accidents. Accidents, although rare, are still a reality, and we will strive for continual improvement. We have had more than four decades to refine our 60s-era, radar-based air traffic control system. It has served us well but it has reached its limits. NextGen provides 21st-century transformational technological improvements that can't be grafted into our current air traffic control system.

NextGen capabilities will include, for example, Trajectory-Based Operations (TBO), Closely Spaced Parallel Operations (CSPO) and a myriad of new technological initiatives. One of the foundations of these new capabilities is Automatic Dependent Surveillance-Broadcast (ADS-B), providing pilots and controllers with better situational awareness allowing them to detect and avoid other aircraft, substantially reducing runway incursions and enhancing overall traffic flow efficiencies; all with increased safety. ADS-B and other NextGen-enabling improvements have already helped reduce the accident rate in southwest Alaska by 47 percent. Additionally, FAA activated the first 11 sites of the national system late last year in South Florida. The FAA and ITT expect to extend this capability by installing ADS-B ground equipment across the entire U.S. by 2013.

Due to the performance of the ERAM and other deployment projects, in 2008 the General Accounting Office removed FAA modernization from the list "high-risk" federal programs. Further, the Office of Management and Budget (OMB) required project management tool – called the Earned Value Management (EVM) system (for federal contracts of \$10 million or more) has scored the ITT ADS-B contract .97 out of a possible 1.0 for deployment of ground infrastructure and an above perfect score of 1.04 for being under budget.

While these new capabilities will enhance safety, their accuracy will also allow closer separation of aircraft. This will increase system capacity, maintain safety, and deliver economic benefits. These economic benefits are critical for operator investment in NextGen avionics equipment. ADS-B can also provide surveillance to areas without radar coverage such as the Gulf of Mexico, safely reducing aircraft separation over the Gulf from 100 miles to a standard 10-mile en route separation.

I also want to draw attention to the growth of the use of unmanned systems for civil missions and the importance of their integration in the NextGen system. Even now, unmanned aircraft systems (UAS) are being used by Customs and Border Protection for surveillance and border patrol. They have the potential to support first responders in disaster relief; provide important

weather data; and are a cost-effective solution for local law enforcement in a variety of missions. AIA is encouraged by the FAA's efforts to provide a means to operate these aircraft in the National Airspace System (NAS), while working to establish safety and operating standards. If the FAA hopes to meet current and projected demand for more routine military training missions as these aircraft return from Iraq and Afghanistan, and support other government agencies in their missions, adequate certification resources must be made available. With the projected demand in UAS services in the coming years, AIA encourages Congress to place more emphasis on this important issue.

How Best to Accelerate NextGen

Most of us have lived through the roller coaster ride of the last few years of attempting to obtain stable and sufficient FAA funding – it reminds me of that curse, “May you live in interesting times.” I would add, “may you come together in interesting times to overcome the obstacles and the inertia of the past.”

FAA projects NextGen will be fully operational in 2025, but we know the system will be evolving after that as well. I believe we can do much better than 2025, but even under an accelerated schedule, NextGen is a multi-year, multi-billion dollar, nationwide transformation. It is not something that can be accomplished in 90 days at a time. Yet, that is how we've treated the FAA's funding and expenditure authority for almost two years. As FAA is dependent on periodic legislation to modify, sustain and improve this essential program, the start-stop process of funding and authorization is impairing the ability to rebuild our aviation infrastructure.

The Funding Dynamic

Since the current reauthorization expired at the end of FY07, FAA has been funded by a series of continuing resolutions and extensions. FAA is a 44,000-employee organization responsible for a multi-billion dollar operation that touches virtually every part of our nation's commercial economy. If FAA were a private entity, it would be a Fortune 500 company, yet we expect it to sustain excellence and global leadership without long-term authority, confidence, or stability in its programs and funding.

Despite this committee's efforts, the absence of a new FAA authorization has delayed vitally important progress. Much of what is needed for NextGen falls under the category of “new starts” which, as you well know, are prohibited under funding extensions. A large number of FAA NextGen pre-implementation issues – including development and acquisition decisions, have been adversely affected. Failure to fund these NextGen development and application programs as a national priority has a disastrous domino effect on near-, mid-, and long-term NextGen efforts. We can not continue this. We have to accept the responsibility of providing cutting-edge air transportation system services on a schedule that is not constantly sabotaged by funding battles. And underlying this is a basic question: will the U.S. commit to retaining its global leadership position in civil aviation, or will it cede the “gold standard” in aerospace technology development and deployment to the EU, or Australia or Canada?

This is not just jingoistic rhetoric. It is critically important that we keep pace with the rest of the world in our modernization efforts to maintain any hope of creating a globally harmonized air traffic system. Whoever sets the standards for equipment and procedures will define the global system. If we want to maintain a leadership position in this market, we need to be in the vanguard of air transportation system modernization. And let's not forget that although NextGen has entered the implementation phase, delayed funding of NextGen R&D will push the timeline further to the right while the European system – SESAR – and others are moving ahead smartly.

This delay in development and deployment of NextGen is harmful for two simple economic reasons. Every year that R&D work is delayed, the costs of the work increase. Additionally, every year that NextGen is delayed, our economy is denied the benefits of an improved ATC system — and that costs more in fuel, delays, environmental benefits, etc. Perhaps it's ironic, but the cost of promptly and fully funding NextGen is far less than the cost of delay.

The Equipage Equation

Operator equipage has always been considered the “long pole in the tent” with regard to getting NextGen fully implemented. I think it is a shame that we obligated billions of dollars in last month's recovery package toward national infrastructure priorities, but, outside of money for airports, we spent virtually nothing on the global transportation infrastructure of the 21st Century – air transportation modernization. I think we missed an opportunity that we will all regret. Equipage is crucial to realizing the benefits of NextGen. If the commercial fleet has less than the critical amount of requisite avionics, implementation will not succeed.

We need a two-pronged strategy with regard to user equipage. First, we need to make the purchase and installation of the avionics economically viable in these difficult economic times. Second, we need to define NextGen's economic and environmental benefits in a way that makes the equipment purchase defensible to corporate boards and shareholders. The government should not mandate the purchase of new equipment if it is not prepared to identify and commit to its benefits at a point in time.

It is important to note that NextGen progress has expansive ramifications for our national economic growth, job creation, and environmental benefits. Aviation is the glue that holds the high-value global economy together. It has been described as the physical internet. More than surface or water transportation, civil aviation has a tremendous ripple effect on our economy. For every dollar invested or job created in aviation, 2.6 to 4 more are created. Aviation carries only two percent of the world's goods – but 40 percent of the value.

FAA and industry are presented with significant funding challenges. But government, industry, and many lawmakers are united on one issue – increased funding of FAA from the General Fund is needed to cover FAA operations and to pay for NextGen. While the recently approved omnibus bill increases the general fund allocation from 18 percent to 24.6 percent that is just enough to pay current FAA expenses. What is required is a

general fund contribution well above 25 percent that supports full NextGen implementation.

The important point is that NextGen cannot, must not, be deferred – it has to be developed and implemented concurrently with full funding of FAA’s present operational and capital needs. In this time of limited resources, both the private and public sectors must be extremely judicious in our expenditures, but we need to act boldly. There is no doubt of the public benefit that will be gained, and the boost to economic and job growth, that will come from timely and full funding of FAA and NextGen needs.

ⁱ JPDO.

ⁱⁱ AIA projected estimates based on industry forecasts, incorporating lower commercial airline employment expectations.

ⁱⁱⁱ Delay measurement excludes padding of block times to increase on-time performance; *ibid*, p. 3.

^{iv} *Your Flight Has been Delayed Again*, emissions during taxi and flight time, p. 5.

^v CAEP 6 effective January 1, 2008

^{vi} Energy & Environmental Benefits, New Procedures Significantly Reduce Noise & Emissions, Honeywell.

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