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**AIA/GIFAS Forum
“Pathway to Carbon-Neutral Growth: a cooperative approach”**

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Remarks as prepared for delivery

Opening Remarks

Good afternoon. It's so good to see everyone again to continue discussing our strategies toward making aviation's already-good track record on the environment even better.

This event shows our mutual commitment to tackling the challenge of reducing aviation's contribution to climate change. As we know, the single biggest impediment to the growth of aviation – which is essential for a healthy global economy – is the environmental issue.

I know there will be sessions later today going over some of the specifics, focusing on the mid- and long-term time periods. I look forward to those discussions.

But I would like to say a few words about the challenge before us. The level of agreement and cooperation between the U.S. and Europe on this issue is remarkable, and a very good sign that we can get things done.

At the Air Transportation Action Group meeting in Geneva earlier this year, we all came together and committed to several important ideas. The cornerstone concept is finding a pathway to carbon-neutral growth, and beyond.

With the ideas in place, the challenge now becomes figuring out exactly how to do it. And that's why we are all here today.

Those of us representing aerospace manufacturers today know that we hold the key to putting principle into practice. Manufacturers have shouldered the responsibility of making innovative leaps in our industry, and the environment is only the latest in a long line of challenges.

Today's aircraft are a far-cry from their predecessors. Fuel burned per seat mile today is down more than 70 percent from early jets, and new planes are more fuel efficient than almost all automobiles on a per-passenger-mile basis.

Engines are more powerful and more efficient at the same time, using less

fuel and producing fewer carbon emissions.

Aircraft have incorporated advanced technologies that improve the environmental performance of existing and future fleets. Commonplace, but relatively new items like winglets, for example, improve aerodynamic efficiency by 3 percent. Next time you're at the airport, count how many aircraft have winglets. Actually, they have become so common it would probably be easier to count the airplanes that don't have winglets!

And alternative fuels are almost certain to be part of the picture. We have seen manufacturers teaming up with airlines and others to test new types of fuels to power jet engines while cutting carbon emissions even further.

But it will not be easy. We can't switch to electric or hydrogen fuels, so we've got to focus on petroleum hybrids with non-food biofuels.

Many of us have been following the alternative fuel testing that has already been ongoing. Both Boeing and Airbus have teamed with engine makers and airlines to test alternative fuels in the past year. Both those tests included non-petroleum fuels mixed with traditional kerosene-based jet fuel.

Testing has moved on to biofuels specifically, with more planned.

As you many have heard, a lot of the concentration in this area involves algae, which has all the attributes that a biofuel needs. Algae have already been engineered to produce large amounts of oil, which makes it an excellent fuel source. There is also a great second benefit – they absorb large volumes of carbon dioxide as they grow.

Other non-food biofuels are being tapped as well. Jatropha, a plant sometimes regarded as a nuisance, mystical or evil, depending on where in the world you are; will be used as a biofuel on a test flight planned by Air New Zealand for the coming months.

These fuels must also meet performance and reliability requirements in addition to their environmental benefits. So it represents a formidable challenge, but it's one I am confident we can meet.

So that's where we are today. But, as we know, more is on the way. The incorporation of composite materials in new airframes promises significant gains in efficiency. That's one of the reasons why we have had record orders the last few years, creating a strong and impressive backlog for both Airbus and Boeing.

Just last week I was in Nagoya, Japan visiting three companies that are pioneering some formidable new techniques in composites. For example, they are fabricating an entire fuselage section as a single piece from wound carbon fiber.

Now switching gears, And advanced air transportation systems like NextGen and SESAR will offer even more improvement, possibly as much as 15

percent more in operational efficiency.

One of our challenges here today is to start looking beyond these in-the-pipeline advances to see what's next. If you were at the ATAG event you heard me talk about the need for a new age of global experimentation to push our environmental efforts even further. The early pioneers of flight worked in a highly charged atmosphere of parallel efforts around the world. This is the type of scenario we need to continue to make even greater gains in environmental performance.

Aviation's track record shows there is potential for great breakthroughs all over the world. Early jetliners emerged here in France as well as Great Britain, Canada, the United States and the Soviet Union. And credit for all kinds of major advances are spread around the world, be it for supersonic flight or fly-by-wire technology or composite fuselages.

As we know, one of the areas of greatest potential to improve aviation's environmental performance is instituting modernized air transportation systems like NextGen in the U.S. and SESAR here in Europe. These systems must be globally seamlessly interoperable.

This is an excellent way to ensure environmental gains can be spread around the world. In our work today, we should keep in mind the needs of the Third World, where the challenges are greatest and some of the fastest advances are possible.

We have seen advanced technologies like ADS-B instituted in pockets internationally, with projects either planned or in place in Australia, Africa, Indonesia, China, Japan and India.

The African example also shows how non-traditional structures and funding methods can work as well. In that program, Kenya, Tanzania and Uganda are working to set up a regional ADS-B system with loans from the World Bank. Both governments and private industry are helping pay back the loans.

These international examples have an advantage over places like the U.S. and Europe when it comes to implementing new technologies. Since they don't have a legacy infrastructure in place, they can simply leapfrog that technology and go to advanced systems like ADS-B much more efficiently.

So we need to look around the room today as manufacturers, researchers and public servants, and realize that we are the ones who will be relied upon to make the next wave of great environmental innovations a reality. Looking back on how far aviation has come in just a little more than a century, we must be the ones who take the baton and run with it.

The declaration I signed as ICCAIA's representative at ATAG stated that we would accelerate action to mitigate our environmental impact and preserve our

driving role in the sustainable development of our global society. As they say, we have our walking papers on this one and we know the challenge before us well. And we accept that challenge.

I'd like to make one final point. I have 100 percent confidence that we, as a global industry, can come together and reach this collective goal together. When you consider the achievements of the early aviation pioneers as they worked on shoestring budgets and hunches based on watching birds, it's nothing short of miraculous that we are transporting more than a billion people all over the world safely each year. So if anyone can do this, it's us!

Thank you.

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Closing Remarks

I am certainly impressed with today's discussion. This event has helped map out the pathway to meeting our commitments to tackle the task of reducing aviation's contribution to climate change.

In my opening statement I said one of our challenges here today is to start looking beyond the in-the-pipeline advances to see what's next. I also mentioned the need for a new age of global experimentation to push our environmental efforts even further, and the need to include emerging economies.

The highly charged atmosphere of parallel efforts around the globe that brought us from the first flights to the jet-age continues here today. It is this type of atmosphere we need to continue to make even greater gains in environmental performance.

Within this context, we also look forward to working closely with our European counterparts to explore specific steps in the future. An important part of this is an ongoing dialogue and open lines of communications.

We are already working with our industry colleagues in countries like Brazil, Japan and Canada through our joint efforts to support the work of ICAO's GIACC. Industry's input into GIACC's working group products will insure ICAO promotes a global framework for CO2 reduction based on measures and metrics we all agree on and helped develop.

While the work done by ACARE, NASA, FAA and EASA is important, we must be careful to recognize the work of ICAO and include the emerging nations – where a lot of future aviation growth will take place.

I have 100 percent confidence that we, as a global industry, can come together and reach this collective goal together.

Thank you.

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