S. HRG. 112–763

THE EUROPEAN UNION'S EMISSIONS TRADING SYSTEM

HEARING

BEFORE THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

JUNE 6, 2012

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

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THE EUROPEAN UNION'S EMISSIONS TRADING SYSTEM

WEDNESDAY, JUNE 6, 2012

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Committee met, pursuant to notice, at 2:35 p.m. in room SR–253, Russell Senate Office Building, Hon. John D. Rockefeller IV, Chairman of the Committee, presiding.

OPENING STATEMENT OF HON. JOHN D. ROCKEFELLER IV, U.S. SENATOR FROM WEST VIRGINIA

The CHAIRMAN. I'll make my statement, then go to Ranking Member Hutchison and then to Maria Cantwell if she's here, and then to John Thune.

The European Union's emissions trading system has elicited a lot of strong feelings from aviation stakeholders across the globe, which is why it's important for Congress to involve themselves in what is in that and how it would affect us. Secretary LaHood is going to provide us a much-needed perspective from the administration. The United States has always led the world on aviation issues and implementing policies to reduce greenhouse gas emissions should not be an exception to our legacy of leadership in aviation.

I'm approaching this hearing with an open mind regarding the options that should be considered to reduce emissions in the aviation sector. However, nothing happening is not an option which I want to contemplate. Let me be clear. I believe that the airline industry both in the United States and globally needs to take steps to reduce its greenhouse emissions now. I do not discount or dismiss the technical and financial challenges of this effort, but the issue is too important for any business of any sort to ignore.

The aviation industry has consistently expressed that action should be taken to limit pollution from aircraft and I'm sure that all participants testifying at this hearing will confirm their commitment in that direction.

Good intentions don't work. There's some reduction in emissions which has taken place because of technology, but we've got to go farther than that. I want to know what airlines are actually doing to reduce emissions as they're planning today or as they're trying to do today and then their plan for reducing them in the future.

I know that our witnesses believe that a process that is implemented with the agreement of all relevant parties will deliver a far more comprehensive system, with much greater results than any

plan that singles out flights operating in and out of a particular region of the world. However, I have to confess that I have some concerns over what happens if we turn this over to ICAO, which I think is the preferred way around this dais, maybe not by all.

I'm just worried about, for example, if you get a lot of non-European countries, do you actually get an agreement that does something to reduce emissions? I do worry about that and I want to express that, and it could be that maybe they don't want to build consensus. Maybe it's to delay and defer any real action. And I hope that our witnesses will convince me that I'm entirely wrong.

Many concerns have been raised regarding the unilateral imposition of the EU ETS on international and foreign airspace, the ability of the airline industry and its passengers to absorb the additional costs, and the lack of clear understanding of how any funds raised through this system would be spent. That's an important issue.

So these are issues that can't and shouldn't be easily dismissed. So we have a problem. The European Union acted because it believes it needed to make a bold effort to reduce greenhouse gas emissions and I understand why they did so, and I can't criticize them for that. But I believe that their unilateral action is likely not sustainable by international law.

I support the goals, but I have to oppose the action. We all need to work together to find a way to move forward on this issue that is both legally and politically sustainable and one that produces results. It has to produce results.

[The prepared statement of Senator Rockefeller follows:]

PREPARED STATEMENT OF HON. JOHN D. (JAY) ROCKEFELLER IV,
U.S. SENATOR FROM WEST VIRGINIA

The European Union's Emissions Trading System (EU ETS) has elicited strong feelings from aviation stakeholders across the globe, which is why it is important that Congress examine its potential impact on international air travel. Secretary LaHood will provide us a much-needed perspective from the Administration. The United States has always led the world on aviation issues. Implementing policies to reduce greenhouse gas emissions should not be an exception to our legacy of leadership on aviation.

I am approaching this hearing with an open mind regarding the options that could be considered to reduce emissions in the aviation sector. However, doing nothing is not an option. Let me be clear. I believe that the airline industry—both in the United States and globally—needs to take steps to reduce its greenhouse gas emissions now. I do not discount or dismiss the technical and financial challenges to this effort, but the issue is too important for any business to ignore.

The aviation industry has consistently expressed that action should be taken to limit pollution from aircraft. I am sure that all of the participants testifying at this hearing will confirm their commitment to develop a global solution on this issue. Good intentions will not reduce emissions. I want to know what you are actually doing to reduce emissions today and your plan for reducing them in the future.

I know that our witnesses believe that a process that is implemented with the agreement of all relevant parties will deliver a far more comprehensive system with much greater results than any plan that singles out flights operating into and out of one region of the world. However, I fear that the industry's desire to turn this over to ICAO is not to build consensus, but to delay and defer any real action. I hope our witnesses can convince me otherwise.

Many concerns have been raised regarding the unilateral imposition of the EU ETS on international and foreign airspace, the ability of the airline industry and its passengers to absorb additional costs, and the lack of a clear understanding of how any funds raised through this system would be spent. These are not issues that can, or should, be easily dismissed. Again, the difficulty of the challenge should not be the reason that we avoid undertaking it.

The European Union acted because it believes it needed to make a bold effort to reduce greenhouse gas emissions, and I understand why they did so. But, I believe that their unilateral action is likely not sustainable by international law. I support the goals, but I have to oppose the action. We all need to work together to find a way to move forward on this issue that is both legally and politically sustainable.

I hope this hearing and the discussions today will help us to develop a path forward to address aircraft emissions in a global manner in both the short-term and the long-term.

The CHAIRMAN. So I hope this hearing will help, and I know that whatever Senator Kay Bailey Hutchison has to say will help. So I call on her.

STATEMENT OF HON. KAY BAILEY HUTCHISON, U.S. SENATOR FROM TEXAS

Senator HUTCHISON. Well, I thank you, Mr. Chairman, and we are in agreement on the main point, which is that the European Union with this emissions trading scheme is acting outside of their prerogative and the trading scheme will have a negative effect on our aviation community. There are significant flaws.

First, it violates U.S. sovereignty, because a U.S. carrier has to pay the European tax for all segments of a flight from the U.S. to Europe, including the flight time that is strictly over the United States or over non-European international waters. So that's number one. They have certainly overstepped their boundaries.

Second, the tax revenue is intended to mitigate aviation emissions, but there's no obligation in their law that the revenue collected be spent on aviation. So it looks like a revenue-generation scheme that really violates decades of global transportation policy.

Third, we do have ICAO, as the Chairman mentioned. It is ICAO that addresses global policy issues, and for the EU to simply ignore it or not participate in what could be a voluntary global policy really doesn't make sense.

Let me say that the aviation community, talking about the emissions, has had a very good record. Fuel costs are a market force that is causing air carriers to reduce their fuel consumption. They're cutting back on flights. They're filling the flights up instead of having more flights. So that in itself reduces the amount of fuel consumed.

Furthermore, since the 1970s aviation has reduced global fuel use and carbon emissions by 120 percent per passenger mile. Between 2000 and 2009, aviation reduced emissions by 15 percent while carrying over 15 percent more passengers and cargo. So I think the numbers indicate that the aviation community is certainly willing to have voluntary standards if we would discuss this in the forum that has been the normal forum for global aviation issues, which is ICAO. And I think that the EU needs to step back and I'm hoping, Mr. Secretary, that you're going to, when you do finally have a chance to talk, say that we are at one on this issue and that you will be using all the resources that you have to assure that the U.S. aviation community is not penalized by the EU, because it is not in anyone's interest for us to be having a tiff with or a trade war with the European Union, and especially on something that is so black and white wrong for the EU to do.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Hutchison.

Senator Cantwell has asked that Senator Thune, who is Ranking Member on the Aviation Subcommittee, go first.

STATEMENT OF HON. JOHN THUNE,
U.S. SENATOR FROM SOUTH DAKOTA

Senator THUNE. Thank you, Mr. Chairman, and I want to thank the Ranking Member as well, Senator Hutchison, for holding the hearing on what I think is a very important issue. I want to thank our witnesses for testifying today, and I especially want to thank Secretary LaHood, who is a former colleague in the House of Representatives. Always nice to have you with us.

Any system that includes international and other non-EU airspace must be addressed through the International Civil Aviation Organization, or ICAO, policies in which the U.S. and 190 countries are members. In 2005, the European Union began their emissions trading system and starting in 2012 the EU began including civil aviation operators departing from or landing in Europe. Under this program, any airline, including non-European airlines, flying into or out of Europe will be required to pay for EU emissions allowances. It will affect not only commercial carriers, but smaller general aviation aircraft operators, who will bear an unusually large brunt of the cost and administrative burdens.

This change comes at a time when EU allowance prices continue to decline, to a little over 6 euros, and the European Commission is beginning to consider proposals to drive up the prices.

Very simply, the unilateral imposition of such a scheme on the United States and other countries is arbitrary, unfair, and a violation of international law. Plus it is being done without any guarantees for direct environmental improvements.

As a result of this action by the EU, this past December 7 I introduced the bipartisan European Union Emissions Trading Scheme Prohibition Act along with Senator McCaskill from Missouri. The bill gives the Secretary of Transportation the authority to take the necessary steps to ensure America's aviation operators are not penalized by any system unilaterally imposed by the European Union. The bill also requires the Secretary of Transportation, the Administrator of the FAA, and other senior U.S. officials to use their authority to conduct international negotiations and take other actions necessary to ensure that U.S. operators are held harmless from the actions of the EU.

The House of Representatives passed a similar bill by voice vote last October and I'm hopeful the Senate will pass my bipartisan bill as well.

The U.S. commercial aviation community, including airlines and manufacturers, are all supportive of this bipartisan legislation. In fact, a variety of stakeholders have sent letters opposing the EU ETS, including A4A, the NBAA, the ALPA, who are testifying today, the International Association of Machinists and Aerospace Workers, and the U.S. Chamber of Commerce.

I would like to ask, Mr. Chairman, to include these letters into the hearing record.

The CHAIRMAN. It will be done.

[The information referred to follows:]

September 17, 2012

Hon. BARACK H. OBAMA,
President of the United States,
The White House,
Washington, DC.

Dear Mr. President:

The undersigned coalition of aviation stakeholders strongly encourages you to challenge the inclusion of international aviation under the European Union Emissions Trading Scheme (EU ETS) by initiating an Article 84 proceeding in the International Civil Aviation Organization (ICAO). Standing up against the application of this unilateral scheme on U.S. airlines and general aviation aircraft operators is necessary to protect U.S. sovereignty and jobs. And it is the right position for the environment, since it will foster implementation of a truly international approach to aviation greenhouse gas emissions that will produce a better environmental outcome than a unilateral scheme. In fact, draining away any funds through taxation or cap-and-trade schemes to general government funds reduces the ability of our industry to limit emissions.

If this EU breach of U.S. sovereignty—the imposition of an EU tax on U.S. airlines, aircraft operators and citizens while on the ground in the United States, over our airspace and international waters—goes unanswered, it almost certainly will result in other such schemes affecting a variety of sectors of the U.S. economy. In addition, the EU ETS will likely lead to job losses in the aviation, manufacturing and travel industries, which is undesirable under any circumstances, but especially in this time of economic uncertainty.

The aviation sector has a tremendous fuel efficiency and emissions-savings record. We have achieved this by investing hundreds of billions of dollars in new aircraft, new engines and new equipment. Because fuel costs represent about 40 percent of our operating costs, we are already highly incentivized to reduce our fuel consumption and emissions. That's why our industry represents just 2 percent of all greenhouse gas emissions in the United States while driving 5 percent of the Nation's GDP. And we are not stopping there. U.S. airlines have committed billions of dollars toward the purchase of more efficient aircraft like the Boeing 787 Dreamliner and 737 MAX. Mr. President, this is how we reduce emissions, improve our efficiency and create good American manufacturing jobs.

The United States must answer, and an Article 84 action is an appropriate and critical part of that answer. An Article 84 proceeding under the Chicago Convention is the dispute mechanism to which all 191 ICAO Member States have agreed by treaty. Further, contrary to what some have asserted, the private legal action heard by the European Court of Justice ECJ did not resolve the legal questions that would arise in an Article 84 case. In fact, the ECJ refused to hear questions posed under the Chicago Convention and determined that the private parties in that action did not have standing to bring sovereignty claims. Moreover, an Article 84 action will prompt, rather than impede, agreement and implementation of a global framework for addressing aviation greenhouse gas emissions.

Our organizations continue to support the global framework for addressing aviation greenhouse gas emissions as agreed at the 2010 ICAO Assembly. Work is going on now to further flesh out that agreement and to put it into operation. However, the EU ETS has been a roadblock to reaching full agreement and it must be removed.

ICAO has a proven track record of efficiently handling an Article 84 dispute while simultaneously advancing new environmental standards. Indeed, when the United States brought an Article 84 challenge to the illegal EU ban of aircraft fitted with noise "hushkit" technology in 2000, ICAO also was working on a new noise standard for aircraft and on a new international framework for addressing community noise exposure in the vicinity of airports. It was during the time the Article 84 proceeding was pending before ICAO that the EU first stayed and then withdrew its wrongful hushkit ban. The ICAO States not only advanced but unanimously adopted the Chapter 4 noise standard and a global framework for aircraft noise management, known as the "Balanced Approach to Noise". With ICAO currently working on a carbon dioxide standard for aircraft as a means of implementing the global approach to aviation and climate change, the parallels to today's dispute regarding the EU ETS are clear.

While the global emissions reduction program is being further developed, we are continuing to invest billions of dollars in new aircraft and engines, support the deployment of technology and procedures for the "Next Generation" (NextGen) air traffic management system and utilize the creativity of our employees to make operations more efficient without sacrificing safety. Working closely with the Depart-

ment of Defense, we also are driving toward the deployment of sustainable alternative aviation fuels, which will not only bring additional emissions savings but will also allow the aviation industry to advance our shared goal of reducing the dependency of our Nation on foreign oil.

Filing an Article 84 action at ICAO has worked to address difficult environmental issues before and the United States should take the lead again. We believe the Administration has all the tools necessary to prevent the EU ETS from implementing its unilateral scheme, and thus should support the passage and approval of the bipartisan S. 1956, the "European Union Emissions Trading Scheme Prohibition Act". As the aviation sector did during the hushkit dispute and in the ICAO work on the Chapter 4 noise standard and Balanced Approach policy, we are committed to working with the Administration to see the wrong measure overturned in favor of the right one.

Sincerely,

Aerospace Industries Association
Aircraft Owners and Pilots Association
Air Line Pilots Association
Airlines for America
Airports Council International—North America
American Society of Travel Agents
Cargo Airline Association
Consumer Travel Alliance
General Aviation Manufacturers Association
Global Business Travel Association
Independent Pilots Association
Interactive Travel Services Association
National Air Carrier Association
National Air Transportation Association
National Business Aviation Association
Professional Aviation Safety Specialists
Regional Airline Association
U.S. Chamber of Commerce
U.S. Travel Association

INTERNATIONAL ASSOCIATION OF MACHINISTS AND AEROSPACE WORKERS
Upper Marlboro, Maryland, June 5, 2012

RE: E.U. EMISSIONS TRADING SCHEME

Hon. BARBARA BOXER,
United States Senate,
Washington, DC.

Dear Senator Boxer,

As the largest aerospace union in North America, our members have experienced firsthand the devastating impact of the continuing economic crisis on their families, communities, and the economic health of our Nation. Nowhere has the economic impact been more severe than in the business aviation industry where job losses have been in the tens of thousands. In this context we want to express our opposition to the European Union's emissions trading scheme (EU–ETS), which threatens to negatively impact the U.S. aerospace industry, one of the few industries in which we maintain a positive balance of trade with the rest of the world, as well as the commercial aviation industry.

While it is commendable to seek reductions in greenhouse gas emissions, the EU–ETS is in reality nothing more than a revenue raiser for the E.U.; a tax that will also place an unnecessary regulatory burden on both commercial and general aviation. It is important to note that globally commercial aviation contributes only 2 percent of greenhouse gas emissions and general aviation a minuscule 0.04 percent. Instead of a job killing tax, a more sensible approach would be to support investments in fuel efficient engine and aircraft designs, biofuels, and NextGen aircraft traffic control systems. Together, these innovations will actually create meaningful reductions in greenhouse gas emissions.

The anemic jobs numbers in the most recent employment report from the U.S. Bureau of Labor Statistics highlight not only the fragility of our economic situation, but also that of the global economy. It would be a regrettable mistake for the U.S. to embrace the EU–ETS, a scheme without merit, but with the ability to do real economic harm. I strongly urge you to support efforts to exempt U.S. carriers and the general aviation industry from the E.U.'s disastrous tax.

If you have any questions, please contact Legislative and Political Director Matthew McKinnon.

Sincerely,

R. THOMAS BUFFENBARGER,
International President.

Senator THUNE. Many other countries, including Argentina, Brazil, China, India, Japan, Korea, Mexico, and Russia have voiced their opposition to the EU scheme. Keep in mind, with near-record oil prices, the EU ETS will add to the already high amount that airlines pay for fuel and passengers pay for their tickets.

As was stated earlier, doing nothing is not an option. We need to act now. I would like to see us pass this bipartisan legislation that addresses the EU's unilateral imposition of ETS in order to protect the U.S. aviation industry, and I hope that after the hearing today that our colleagues will agree and that we can move forward with the legislation.

Mr. Chairman, thank you.

The CHAIRMAN. Thank you, Senator Thune.

Senator Cantwell.

STATEMENT OF HON. MARIA CANTWELL,
U.S. SENATOR FROM WASHINGTON

Senator CANTWELL. Thank you, Mr. Chairman, and thank you for calling this important hearing.

Let me say clearly for the record that I believe and trust the virtually unanimous agreement in the scientific community that there is a cause for global warming and it is human-related. Or, to put it another way, there is not one single scientific body of national or international standing that does not support this conclusion.

So while there may be some remaining uncertainty on the timing and the scope about climate change, we cannot continue to ignore this threat to our environment and to America's prosperity.

Today's hearing is on the European Union emissions trading system, and that applies to today in aircraft that fly in and out of the European Union. I believe Congress spoke loud and clear about its concerns when we enacted the FAA bill.

Three issues in particular. First, is the European proposal overly complex and lacking transparency? I have a lot of concern, and so do people in the State of Washington, about cap-and-trade regimes, which typically rely on carbon trading markets that can be volatile, subject to fraud, or provide windfalls to historic polluters.

Last Congress we also had testimony before the Finance and Energy Committees, which I serve on, which raised serious concerns about the veracity of emissions offsets.

Second, it is unclear to me if the auction proceeds collected by the European communities for selling credits will actually be used to reduce or mitigate the impact of global warming. This makes the EU ETS look more like just a tax on air transportation.

Third, while I know it's a challenge, I believe aviation is unique and is best served by a comprehensive emissions reduction agreement, or at least a series of comparable measures tailored to each country. I'm not sure it makes sense that this proposal and the greenhouse gases emitted from a flight from Seattle to London is calculated beginning when the flight leaves SEATAC, even though the majority of the trip is not even over European airspace.

But while many of my colleagues share these concerns, they should not be used for an excuse not to do anything. The United States as the world's sole superpower must act and lead the world to a cleaner energy future. There is a way to create a simple mar-

ket-based system that will reduce carbon while protecting all low and middle income families from the impact of rate increases.

But in the interim, we need to focus on what we know will work, implementing NextGen. The result will be fewer delays and more direct flights. It will reduce carbon emissions by nearly 14 million tons by 2018. We need airlines retiring older aircraft and purchasing new ones that have more energy efficient engines and advanced materials such as composites, which make a big difference, and increased use of domestically sourced emissions-reducing biojet fuel.

It is a win-win situation when the Department of Defense and civil aviation and our Nation try to work together to drive down the cost of aviation biofuels. I know several of my colleagues, maybe more in the House, are trying to stop the Department of Defense from moving forward on this. I couldn't disagree more. I think the Department of Defense is very smart to look at biofuels.

Market-based mechanisms reducing greenhouse gases from global aviation sector or from the global maritime sector requires going through an appropriate international organization. The key international document governing international aviation is the Convention on International Civil Aviation, known as the Chicago Convention, and all of the EU countries signed the document and are obligated to abide by its rules.

So I recognize the challenge of going forward with such an organization, but there are opportunities for parties to work together and to try to get through this situation. I hope, Mr. Chairman, that today's hearing gives us a path to move forward on this. I know it's a thorny issue, but I think that we can find a better solution than what we're currently proposed with that might lead to some sort of trade war, which is what we don't want to happen.

I thank the Chairman and thank him for his indulgence.

The CHAIRMAN. I thank you, Senator Cantwell.

Now it's my honor to produce the—present the Secretary of Transportation, Ray LaHood. You are a friend of this committee. We hope that we're a friend to you, and we're very anxious to hear from you.

STATEMENT OF HON. RAY LAHOOD, SECRETARY, U.S. DEPARTMENT OF TRANSPORTATION

Secretary LAHOOD. Mr. Chairman, thank you. And to every member of the Committee, thank you for your interest in this issue. I also want to thank the Committee for your hard work on putting together what I believe is a very, very good transportation bill that passed the Senate with 74 votes. You all worked hard on that and I can tell you at DOT we're very appreciative of it.

But we're also appreciative of this hearing today to discuss the European Union emissions trading scheme and for your leadership on this important issue. I particularly would like to recognize the leadership of both Senator Thune and McCaskill. Your bipartisan work has sent an important message about Congressional opposition to EU ETS as it pertains to international aviation, and to any other Senator who co-sponsored that bill.

The U.S. Government remains strongly opposed, on both legal and policy grounds, to the imposition of EU ETS on U.S. airlines.

We support reducing aviation impact on the environment and we continue to aggressively pursue that objective both domestically and internationally. However, including international aviation in the EU ETS is the wrong way to achieve that objective.

We have made our opposition clear to the EU at every opportunity. Secretary Clinton and I have written a letter to our counterparts in the EU strongly objecting to the imposition of EU ETS on U.S. air operators. We called on the EU to halt EU ETS as it pertains to international aviation and to find a global solution for aviation greenhouse gas emissions at the International Civil Aviation Organization, commonly known as ICAO.

Absent such willingness on the part of the EU, we advised that the U.S. would be compelled to take appropriate action. I have personally reiterated U.S. concerns to the leadership of the EU and several of its member states.

In addition, the U.S. joined over two dozen like-minded countries in New Delhi and Moscow, in two separate meetings, to adopt strong declarations opposing the EU's go-it-alone policy and support global efforts to address greenhouse gas emissions from international aviation. We continue to work with other countries to have the EU change course.

I have been disappointed by the EU's response to date. The EU must cease application of ETS to U.S. and other non-EU carriers. So let me be clear. The United States Government takes a back seat to no one when it comes to reducing greenhouse gas emissions in the transportation sector. The Department of Transportation has taken unprecedented action to build the foundation for a clean energy economy, to tackle the issue of climate change, and to protect the environment.

U.S. aviation emissions have declined since 2000. They are down more than 12 percent through 2010. At the same time, U.S. carriers have transported 15 percent more passengers during that time.

With the support of this committee, we are working on a wide range of efforts to further reduce aviation greenhouse emissions, including new development of cleaner aircraft technology, an overhaul of our national air traffic control system through our Next Generation initiative, and the development and deployment of substantial alternative aviation fuels.

In addition, under President Obama's leadership DOT and EPA are working together to improve fuel efficiency and lower greenhouse gas emissions from automobiles and trucks. Everybody here knows about those efforts. More recently, we proposed to improve fuel economy for new cars and trucks in model year 2017 through 2025.

We achieved these successes by bringing government, private industry, the environmental community, and other stakeholders together in a cooperative, collaborative process. We didn't do it as the Lone Ranger, the way this EU scheme has been developed. They've been the Lone Ranger in this. What we've done is the best way to solve problems —bring everybody together, sit at a table, talk about the issues and talk about the solutions. We've had success doing that and we're proud of that success.

We ask the EU to take that model and use it for this scheme. Be inclusive. Don't just pass a law and think that we're all going to go along with it.

I appreciate that the EU has expressed support for making progress on aviation emissions in ICAO. However, we need to see real signs of flexibility from the EU. The EU needs to constructively engage to find a global approach, the kind of approach that we've used, that works for the rest of the world and allows it to set aside ETS in relation to the U.S. and other non-EU carriers.

We strongly urge the EU to cease application of ETS to international aviation in order to help accelerate our efforts to forge a global solution on aviation emissions.

I'm happy to take questions, Mr. Chairman. Thank you for holding this hearing.

[The prepared statement of Secretary LaHood follows:]

PREPARED STATEMENT OF HON. RAY LAHOOD, SECRETARY, U.S. DEPARTMENT OF TRANSPORTATION

I. Introduction

Thank you for the opportunity to discuss the European Union (EU) Emissions Trading Scheme, or ETS.

We remain strongly opposed, on both legal and policy grounds, to the imposition of ETS on U.S. and other non-EU airlines. We share the EU's objective of reducing aviation's impact on the environment and continue to aggressively pursue that goal both domestically and internationally. However, including international aviation in the EU ETS is the wrong way to achieve the right objective.

II. U.S. Actions

We have made our opposition clear to the EU member states and institutions at every opportunity, at all levels. Secretary Clinton and I wrote to our counterparts in the EU and member states strongly objecting to the imposition of EU ETS on U.S. air operators. We called on the EU to halt EU ETS application to non-EU airlines and re-engage with the rest of the world to find a global solution for aviation greenhouse gas (GHG) emissions at the International Civil Aviation Organization, also known as ICAO. Absent such willingness on the part of the EU, we advised that the U.S. would be compelled to take appropriate action.

I have personally reiterated U.S. concerns to Transport Commissioner Kallas, Climate Commissioner Hedegaard, and several EU member state transport ministers. In addition, U.S. officials have joined with over two dozen likeminded countries in meetings in New Delhi and Moscow and at ICAO in Montreal in adopting strong declarations opposing the EU's go-it-alone policy and supporting work on global efforts at ICAO. And we continue to work actively with a range of countries to have the EU change course.

III. U.S. Environmental Performance

I want to reemphasize that while we oppose the EU's approach to addressing GHG emissions from international aviation, we strongly support our shared goal of reducing such emissions. The United States Government is committed to addressing the impacts of GHG emissions in the transportation sector while carefully considering the costs and benefits of any regulatory approach to ensure an appropriately balanced decision. The Department of Transportation has taken unprecedented action to build the foundation for a clean energy economy, tackle the issue of climate change, and protect the environment. Our actions are improving the efficiency of the aviation sector and heavy and light duty vehicles, promoting the use of alternative fuels, and accelerating the development of new technologies across all modes of transportation.

In aviation, we are building on a strong record of U.S. fuel efficiency improvements and GHG emissions savings. According to FAA data, U.S aviation emissions have actually declined since 2000: down about 12 percent through 2010, while U.S. carriers have transported 15 percent more passengers and cargo in the same period. With the support of Congress, the Administration is working on a wide range of efforts that will address aviation GHG emissions, including development of new, cleaner aircraft technology, overhaul of the National Airspace System through

NextGen, and the deployment of sustainable alternative aviation fuels. Many of these efforts, including the Continuous Lower Energy, Emissions, and Noise (CLEEN) program and the alternative fuels development efforts, are being pursued in collaborative partnerships with industry as well as other national and international stakeholders. We are working with international partners around the world to accelerate implementation of air traffic procedures to reduce fuel burn and emission. This includes the Atlantic Interoperability Initiative to Reduce Emissions (AIRE) between the U.S. and the European Commission.

Elsewhere in the transportation sector, under President Obama's leadership, DOT and EPA-are working together on a series of actions to improve fuel efficiency and lower GHG emissions from automobiles and trucks, including a joint rule that will build on current standards to improve fuel economy for light vehicles in model years 2017–2025. In developing this proposal, DOT and EPA worked with California and with major stakeholders, including auto manufacturers, automotive suppliers, environmental groups, and the United Auto Workers. These efforts show that government, industry and other key stakeholders can agree to a long term plan for steady improvement in vehicle fuel economy that will reduce emissions and allow consumers to use less fuel.

We achieved these successes by bringing government and stakeholders together in a cooperative, collaborative process. Our experience and record are in marked contrast to the EU approach.

IV. ICAO

International aviation is a quintessentially global industry that needs a global solution for addressing greenhouse gas emissions. For the past six years, the United States and other countries have been urging the EU to work collaboratively with the rest of the world in ICAO to develop a multilateral approach to reducing GHG emissions from international aviation. Far from improving the environment, the EU's go-it-alone approach is impeding international progress on a multilateral agreement for international aviation that will actually deliver on our shared goal of achieving lasting reductions in greenhouse gases.

V. Conclusion

I appreciate that the EU has expressed support for making progress on aviation emissions in ICAO. However, stating support for an ICAO solution is not enough. The EU needs to engage constructively to find a global approach that works for the rest of the world and allows it to set aside ETS in relation to foreign carriers. We strongly urge the EU to cease application of the ETS to international aviation in order to help accelerate our efforts to forge a global solution. We need to see real signs of flexibility from the EU. The global community needs to believe that the EU is genuinely willing to work on a global deal to help us accomplish our shared goals on the environment.

Thank you.

The CHAIRMAN. Thank you very much, Mr. Secretary.

I might start and then we'll continue as we did the opening statements, and then in the order of people's appearances. There is a good turnout and there's going to be a better turnout.

I share the thoughts that you have put forward about the EU ETS. I remain a little bit nervous about their standing on the sidelines and then the United States gets together with all the rest of the countries, which would be China, Russia, Indonesia, India, the Americas, et cetera, under ICAO, whether or not that would in fact be an effort that would result in something or whether in fact it would be, because there couldn't be consensus reached, those countries being poorer and their airlines having fewer resources, etcetera, that there wouldn't be a consensus reached and therefore there would be a delay in all of this. I do worry about that. But I'm interested in the Secretary's response.

Secretary LAHOOD. Well, we believe that ICAO is the place to resolve this. It is the organization that has worked on a number of aviation issues, particularly safety issues. We think that it's really

the place where this can be resolved, and that's why we have suggested that this be taken up.

I've met with the head of ICAO. He came to our office here in Washington. We had a very, very good discussion, and I believe it is the institution that can help resolve this, because all the countries belong, are members, and it's an opportunity for people to actually come together in a collaborative way and begin the discussion.

So we believe it is the institution that probably works the best to get everybody together and try and resolve it.

The CHAIRMAN. I don't doubt that it's the best institution to do that. My question is would the smaller countries be a party to this? Would there be sufficient energy to reduce emissions the way they needed to be reduced, simply because of the cost factor and the financial condition of some of the countries that are involved?

Secretary LAHOOD. Well, obviously that would have to be part of the discussions. But I think our efforts have been to get the discussion going by having people really use ICAO to make this happen.

The CHAIRMAN. All right. It's interesting because when you look at the improvement of commercial aviation and their emissions reductions, a lot of that has come through technology, through new airlines. It's not sort of the policy of airlines to reduce emissions, but it's the policy of airlines to be able to travel in lighter planes that are just as strong, with cheaper fuel, because cheaper fuel is what drives their concern.

So that if you're going to say we just can't make this a technology-based solution, what the technology has done—— for example, the air traffic control system, that's going to have a major effect on reducing the amount of carbon emissions into the air. But there would be more. People should push beyond what has already been legislated, what is already going to happen. I'm interested in what the administration thinks about that.

Secretary LAHOOD. Well, the airlines and the companies that build airplanes, certainly Boeing and Airbus, have done extraordinary engineering work in now building planes that are more fuel efficient. They get it. They understand it. It helps them with their bottom line, obviously, because more fuel efficient planes obviously helps them save on fuel costs.

All the major airlines now are buying much more fuel efficient planes, and obviously that can be helpful. But this notion that one level of government or one form of government can pass a tax on to an industry is just patently wrong.

The CHAIRMAN. OK, Mr. Secretary, and I appreciate that, and I call on the Ranking Member, Senator Hutchison.

Senator HUTCHISON. Well, thank you.

I want to say how much I appreciate what Senator Thune and Senator McCaskill and others have done. But I think they really took the lead on this. I think it is essential that we be very firm. I'm going to ask you outright: Do you support their bill that gives you the ability to say American airlines do not have to comply with this EU scheme?

Secretary LAHOOD. Senator, we haven't been in—since I've been in this job, we really haven't taken a position on legislation, and we're not going to take a position on this legislation right now.

Senator HUTCHISON. Well, I do think it is important, honestly, Mr. Secretary, for you to do so. This is an American position. I think it's very bipartisan, and the things that have been mentioned by Senator Rockefeller and Senator Cantwell, I think are legitimate concerns, which I think you would also agree would be something that needed to be addressed.

But I'd like to see you consider taking a position, because I think this is not a political, but rather an American essential, that we stand up for our airlines against an attack on our sovereignty, if you will. So will you consider that?

Secretary LAHOOD. Senator, I think all of you know that I'm a part of a team of people. I'll run it up the 25 flagpoles I have to run it up, but, look, I don't make these decisions, Senator. In my statement I complimented Senator Thune and Senator McCaskill, and I've told them both personally we're grateful that they're stepping up and providing some leadership on this. But at this point we're not prepared to support legislation, this bill.

Senator HUTCHISON. Well, it could be that the President might want to look at this as well. But he has other issues with the EU, I'm sure. But I just think that when you are representing our position internationally it would be nice to have a clear position from the administration.

Secretary LAHOOD. Well, Senator, I have talked to many of my colleagues, transportation ministers. Nobody has been bolder, nobody has been more frank, than Ray LaHood representing this administration, somewhat to my detriment. Some of them have complained to some people in the administration that I've been too frank with them.

I have not minced words with them. They know we think this is a very lousy, bad policy that they should not be doing. They know that. I told them. They don't like to be told that by one of their transportation ministers. But we've told them. There's no equivocation on this. We think this is a lousy policy, a lousy law that they've passed.

Senator HUTCHISON. I think we're in a bipartisan way giving you a way to actually do something and be effective. So we're trying to help you.

Let me ask you one other question. On NextGen and the importance of NextGen to all of us, the aviation community is going to have to make significant contributions to it. NextGen is going to lower emissions because we're going to use the airspace more efficiently. So I'd like to ask you your opinion of how this European Union policy is going to affect the ability for us to move forward as expeditiously as possible on NextGen?

Secretary LAHOOD. NextGen is the top priority at the FAA, it really is. We're working very hard on it. You all have been—Congress has been good enough to give us plenty of resources. The FAA bill that you passed made it a very, very important priority. We're grateful. That FAA bill was a very good bill, a good bipartisan bill. You all worked hard on it. We appreciate the work that was done on it. It gives NextGen the kind of priority that everybody feels is necessary.

Senator HUTCHISON. Will NextGen also lower emissions?

Secretary LAHOOD. Absolutely. When NextGen is fully implemented, it will lower emissions because it will be able to guide planes in and out of airports more efficiently, in a way that will help airlines save jet fuel.

Senator HUTCHISON. Would you say that if aviation companies have to divert money from NextGen to pay these emissions taxes that that would be a detriment to U.S. efforts to improve fuel efficiency and safety derived from NextGen technology?

Secretary LAHOOD. I know our friends from the airline industry are going to be up here sitting in my seat pretty quickly here and I'm sure they can answer that much better than I can. But we've appreciated the great support we've had from the airline industry on implementing NextGen. They've been good partners and we know that will continue.

Senator HUTCHISON. Mr. Secretary, I just hope very much that you will see your way to being a little more forthcoming on something that's pretty clear to all of us that we need to do for America.

Thank you.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman.

I'm tempted to ask you about legislation that you can't comment on, so I won't. But I will say I don't know that this is the intent of this legislation, and maybe I'll talk to Senator Thune afterwards, but this provision about holding harmless from any trading scheme, I just want to flag that as something I think we need to think about what that means or what the unintended consequences of that means. But maybe we'll get somebody from your office to give you—get us an interpretation of how the Department views that language.

My question is more about just the noncommercial aviation and how this thing got developed. I want to make sure I understand it. But it seems that one of the reasons is that it appears like Chilean national airline carrier, LAN, flies four times a week from Santiago to Madrid on an Airbus 340. So that adds up to a lot of—but they're exempted. So that adds up to a lot more greenhouse gas emissions on an annual basis, and yet these other non-commercial aviation jets aren't exempted.

So I'm trying to understand what you think the European Union is trying to do with de minimis standards for greenhouse emissions and how are they drawing this line, because I would think that this would cause some very unfair competition on flights, you know, if you had people exempted within Europe, saying they're de minimis, and then having other carriers have to comply.

Am I perceiving that right? Is there some unlevel playing field here?

Secretary LAHOOD. I don't know the answer to that, Senator. I could maybe look into it, but I don't know what their thinking is on that particular aspect of exempting. I don't know the answer.

Senator CANTWELL. OK. Well, Mr. Chairman, I think I'll wait for our next panel then to ask the question.

But clearly I think this is part of the challenge, too, is that the U.S. aviation industry or the general aviation industry wants to know that it's going to be a level playing field and they're not going to be disadvantaged when certain carriers with inside Europe are

going to be exempted from it, saying, oh, we don't really have that much of an impact, and then everybody else on the outside will have to comply.

So I thank you.

Secretary LAHOOD. Thank you.

Senator CANTWELL. And I hope that we'll continue to move forward on freight mobility issues and streamlining and improving our transportation system. So thank you.

Secretary LAHOOD. Thank you.

The CHAIRMAN. That's it?

Senator Thune.

Senator THUNE. Mr. Secretary, supporters of the EU ETS have argued that it is really no different than arrival and departure taxes that other countries, including the U.S. charge. The ability of sovereign countries to impose user fees has long been recognized internationally and in the case of the U.S. we use these fees to fund our aviation system and to ensure that it's the safest in the world.

EU ETS on the other hand is assessed on our airlines as a condition of operating into or departing from their member states, something explicitly forbidden under international aviation law. I believe that ETS is completely separate from the user fees that countries might apply on passengers and I'm interested in knowing your opinion on that, whether that's something with which you agree?

Secretary LAHOOD. The fees that you're talking about are agreed-to fees. This particular tax was never agreed to. It was passed by the EU, as far as I can tell with little or no discussion with those that were going to have to pay the tax. These other fees that you're talking about are fees where people actually talked to one another about them and talked about what they were going to be used for and then agreed to them. That's the difference.

Senator THUNE. Well, that seems like a fairly important difference.

It has been 6 months since you and Secretary Clinton sent a letter to the EU urging them to cease and desist on ETS, noting if they didn't the U.S. would be, and I quote, "compelled to take appropriate action," end quote. Thus far we haven't seen any change in policy at the EU and I guess my question is what is the current status of negotiations with the EU and what are the United States Government's next steps?

Secretary LAHOOD. There has been a lot of discussion about this within the administration, and there are a lot of moving parts. This is not just up to Ray LaHood. It's a part of administration policy, and we've had lots of discussions and they will continue. We've participated in meetings in Delhi and also in Moscow where a lot of countries came and were represented, and they put together a paper in opposition to this, which has been submitted to the EU.

I know these issues have been raised at higher levels between our government and EU and leaders in the EU. So the direct answer to your question is there's a lot of discussion and debate going on, not only within the administration about how to proceed and when to take further action, but also with our friends when discussions are held, when bilaterals are held.

Senator THUNE. Has the United States Government drafted a formal Article 84 complaint at ICAO or considered filing something similar with the World Trade Organization against the ETS?

Secretary LAHOOD. Well, WTO doesn't have much authority in this, and we've had lots of discussion within the administration about Article 84.

Senator THUNE. Are you considering other legal retaliatory actions?

Secretary LAHOOD. Probably the thing—probably the next thing and where our discussions are really going are discussions of Article 84.

Senator THUNE. But your conclusion on this is this is, like most of us I think conclude, this is a violation of international law?

Secretary LAHOOD. Absolutely.

Senator THUNE. And unfair and arbitrary.

Secretary LAHOOD. Absolutely.

Senator THUNE. OK, good.

Mr. Chairman, I will reserve my questions for the next panel. Thank you.

The CHAIRMAN. Thank you very much, Senator Thune.

Senator DeMint—Senator Lautenberg.

STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM NEW JERSEY

Senator LAUTENBERG. Thank you, Mr. Chairman.

Mr. Secretary, always good to see you here, and I thank you for your hard work and your diligence in on solving problems and getting to the bottom of things. You have experience having been in the House and know how to get things done.

Now, what is it—the airlines in the U.S. would not have to comply with EU law if there was either an equivalent international agreement or U.S. policy in place. If an international agreement can't be reached, would you support domestic policies to reduce global warming emissions from aviation?

Secretary LAHOOD. As I said in my testimony, Senator, we take a back seat to no one. This administration takes a back seat to no one when it comes to environmental issues, emissions issues. If you look what we've done with our friends in the car industry on emissions and you look what we've done on other emissions issues, we've been right out front and we've been leaders on it.

But it's all been done in a collaborative way, where people talk to one another, reach an agreement, and then solve a problem.

Senator LAUTENBERG. Well, you've been in touch, as you described, with people from the—senior people from the EU. What's their problem as they express it to saying, hey, we have enormous amounts of business from America to our country? Why wouldn't they want to have a better understanding with us, because there are other issues that they worry about being cut off from in this country? Do they give you any logic to say, well, here's what we would like to do cooperatively?

Is there anything at all that they offer?

Secretary LAHOOD. Well, I'm not going to impugn the motives of those in the European Union.

Senator LAUTENBERG. Of course not.

[Laughter.]

Secretary LAHOOD. Well, because——

Senator LAUTENBERG. No, I'm kidding.

Secretary LAHOOD.—you know, we have many friends there.

What I believe is is that they want to—they want to be environmentally pure. They want clean air, and apparently they felt this was the way to reach that goal. My reaction to that is that they should have done it in a more collaborative way and they should have done it with everybody having a chance to express their opinion, in a way that really reflects the way that we've solved other issues, whether they be safety issues or airport issues or other issues, without doing it in an arbitrary way.

Senator LAUTENBERG. Well, can we point to actions being taken by us that gets onto the problem of reducing the emissions, regardless of whether or not we've got an agreement with them? I mean, if we can do it we should do it based on the needs that we have for our own health and well-being. Are we putting anything forward that says, OK, here's where we'd like to go? Is there any start to discussions with ourselves and them?

Secretary LAHOOD. Most of the discussions I've had, Senator, are really around the idea that this is a bad tax, it's a bad way to treat your friends. But when we get beyond that, obviously I've talked to other transport ministers about the fact that we're getting into next generation technology which will save jet fuel, that most of our companies now—and I'm sure A4A will substantiate this—most of the companies now are buying planes that are more fuel efficient and are using jet fuel that's more environmentally better.

So there's a lot of activity going on.

Senator LAUTENBERG. Well, I would hope that we could get something going, because aviation produces so much of the toxic emissions that are emitted in this world.

Mr. Chairman, for one quick question, on a different subject, the aviation subject obviously. Airlines have been charging more fees for basic services, choosing an aisle or a window seat. These fees can be especially onerous for passengers traveling with children, who need to book side-by-side seats.

Does the Department have any power at all to limit the proliferation of these fees?

Secretary LAHOOD. Well, we can't tell airlines what fees they can charge. But I want you to know that I have personally talked to CEOs about the idea of selling certain seats or charging a certain amount of money for an aisle seat versus a window seat, and making flying very unfamily friendly. So I've been doing a little jawboning about this with our friends in the industry, with the CEOs of the companies.

But obviously, we can't tell airlines what seats they can——

Senator LAUTENBERG. It's irritating the public to the point, I think, that you're going to have very tough responses to these fees being imposed. They don't yet charge a breath fee, but who knows, or the lavatory.

Thanks very much.

The CHAIRMAN. Thank you, Senator Lautenberg.

Senator DeMint.

STATEMENT OF HON. JIM DEMINT,
U.S. SENATOR FROM SOUTH CAROLINA

Senator DEMINT. Thank you, Mr. Chairman.

Thank you, Mr. Secretary. It's good to see you again. I'm glad to see a little indignance here about a country arbitrarily slapping a tax on us and us trying to protect our own sovereign ability to make decisions. We all know that America does more business around the world than any other country, and if any one of hundreds of countries can arbitrarily tax us, not just for what we do over their airspace, but all the way from L.A. to Europe, the whole route is now taxed under this rule, as you know.

But it is important. It reminds me that we have to have our policies right at home, because it wasn't but two years ago when I remember reading a letter from the Europeans about us putting an arbitrary tax on travelers to the U.S. in order to pay for a travel promotion agency of our own. They didn't like that, and I think we need to work with our partners around the world to make sure that we're not living in a glass house.

I would remind all my colleagues and everyone here that we're talking about our sovereignty and a bill by Senator Thune and Senator McCaskill that would say we need to stand up and not comply with this. But there are people in this administration and this body who are promoting a treaty which will take that completely out of our hands. The Law of the Sea Treaty will deal directly with this issue of emissions over the oceans, and not only with airplanes, but eventually deal with cars and trucks in our country because of those emissions that move all over the world. And it'll no longer be in our hands to decide; it'll be arbitrated and it will be decided by the Secretary-General of the United Nations.

So I think as we get our backs up about this, we need to realize that all of our policies do make a difference, and we need to use our technology. As has already been pointed out, we need to recognize that a lot of our companies, like Boeing, are making very fuel efficient planes with composites and better engines and technology is moving us forward.

Mr. Secretary, you're exactly right. Working with our friends all over the world to do this in a concerted way that does not allow arbitrary decisionmaking is real important. But I think we need to start here at home in making sure that we don't get ourselves into treaties that are going to subject us to this kind of—not just from one country, but any country in the world who wants to complain about our emissions over the oceans can drag us into an international court now that we no longer have control of.

So a lot of things come to mind as we consider this, but I'm glad to see my colleagues get a little exercised about another country arbitrarily taxing us and telling us how to run our business.

So I don't have a question, Mr. Secretary. I appreciate all your work and your comments today, because I think generally we're in agreement. Thank you for being here.

Secretary LAHOOD. Thank you.

Senator DEMINT. I yield back, Mr. Chairman.

The CHAIRMAN. Thank you, Senator DeMint.

Senator McCaskill.

STATEMENT OF HON. CLAIRE MCCASKILL,
U.S. SENATOR FROM MISSOURI

Senator MCCASKILL. Thank you, Mr. Chairman.

Welcome, Senator LaHood. I will be sorry to see you go.

Secretary LAHOOD. Thank you.

Senator MCCASKILL. I think you're a good one.

Secretary LAHOOD. Thank you.

Senator MCCASKILL. We kind of had a bad beginning, because you and I kind of went at each other about the earmark thing, I remember, when you were being confirmed. It turned out I really like you.

[Laughter.]

Senator MCCASKILL. I want to talk about this from the context of what you have the authority to do without Congressional action, just hypothetically. I understand that your hands are tied in many ways, because this is more complicated than just this issue, because obviously, in case anyone isn't paying attention, a lot of our friends in the European Union are stressed right now and we are trying to do everything we can to make sure our export market remains in the European Union. It's important to our economy.

I get that it's complicated, but some people have been opposed to Senator Thune's and my legislation on the basis that this is something the administration can do without legislation. Do you believe that's the case?

Secretary LAHOOD. I believe that we could—we have the opportunity to probably not go as far as your legislation goes, but what we could do is send this to ICAO and have them take it up and consider it.

But, Senator, we don't—I don't have the authority really to go as far as your legislation goes.

Senator MCCASKILL. That's what I assumed, and that's why I thought that some of the objections to our legislation was misplaced, because I don't think that you have the authority to do what our legislation purports to do.

The other thing I wanted to cover with you is that what is upsetting to me about this is the notion that they would tax us on complete routes, not airspace over the European Union; and that this money would not even need to be used to do anything to impact emissions or global warming or the environment. Am I correct in saying that every dime of this tax they're trying to put on our domestic airline industry could go toward anything they wanted to spend it on in their government?

Secretary LAHOOD. That's correct.

Senator MCCASKILL. So not only is it taxing us for flying over airspace that has nothing to do with the EU, it also does not even have to be used for the stated purpose of why they're collecting the money in the first place.

Secretary LAHOOD. That's correct.

Senator MCCASKILL. Let me also ask you how the airline industry is working with the administration on—I know you've talked about this a little bit, but if you would elaborate in any way you're comfortable with. I know that the Canadian airline industry just finalized their agreement with the Canadian government and that they will voluntarily achieve a 2 percent reduction in emissions

each year through 2020. That was done through agreement with the Canadian airline industry and the Canadian government.

The airline industry indicates to my office that they are working well with your administration on reaching an agreement. Do you agree with that? Do you think we're making progress toward an agreement?

Secretary LAHOOD. We have a great relationship with our friends in the airline industry, every one of them.

Senator MCCASKILL. Let me try again. Do you think that you are making progress toward an agreement on a voluntary reduction in emissions?

Secretary LAHOOD. The answer is definitely yes, we're moving in the right direction.

Senator MCCASKILL. One option for the U.S. and other nations opposing this is to file an 84 complaint under the Chicago convention. Do you believe the U.S. should file an Article 84?

Secretary LAHOOD. We're debating that within the administration, Senator. That decision hasn't been made.

Senator MCCASKILL. I think that Senator Thune and I would agree that you should, for what it's worth. I can't speak for the rest of the Senators, but anybody who co-sponsors this legislation would think that an Article 84 would be necessary.

What's the down side of a country other than the United States filing the 84 against the EU, as opposed to us taking the lead?

Secretary LAHOOD. There's a provision that allows us to do that. I don't know if that same provision is allowed by other countries. I just don't know the answer to that. I know that we have the ability to do it.

Senator MCCASKILL. Can you list for us what other countries have instructed their airlines not to participate in the EU ETS?

Secretary LAHOOD. Could I just get that for the record for you, rather than try to say it off the top of my head or look?

Senator MCCASKILL. Sure.

Secretary LAHOOD. I don't want to thumb through all these pages. I'm sure it's in this book somewhere.

Senator MCCASKILL. Sure.

I would love for, at least for the administration to indicate what is in the way, and there may be other complicating factors that are not directly related to this issue. But you've said clearly you think our legislation is important. I think you've said clearly you oppose this policy. It would be very helpful if the administration could let us know why they cannot come out in favor of our legislation. If we could get any specificity, and that may be another flagpole that you need to talk to as it relates to that.

But I think it's important for us to know, because the administration can help with this if they would come out in favor of it and I think it would be helpful if they would.

Thank you, Secretary LaHood.

Secretary LAHOOD. Thank you.

The CHAIRMAN. Thank you, and now Senator Isakson.

STATEMENT OF HON. JOHNNY ISAKSON,
U.S. SENATOR FROM GEORGIA

Senator ISAKSON. Thank you, Mr. Chairman.

Mr. Secretary, Ray, how are you doing?

Secretary LAHOOD. Fine, thank you.

Senator ISAKSON. I took from Ms. McCaskill's salutation to you that you were going someplace. Is that right?

Secretary LAHOOD. I'm not leaving here until I answer all your questions.

Senator ISAKSON. OK, because she said she thought you were one of the best. I happen to agree with that——

Secretary LAHOOD. Thank you.

Senator ISAKSON. But it sounded like she was talking in the past, and I wanted to make sure you weren't going anywhere, because we kind of like you.

Secretary LAHOOD. Thank you.

Senator ISAKSON. And I'm a co-sponsor of the Thune-McCaskill bill and I associated myself with the remarks of Senator McCaskill from Missouri.

In listening to your answer to Senator Thune regarding the Article 84, you seemed to back away from filing an Article 84 at this time; is that correct?

Secretary LAHOOD. There's a debate within the administration about the Article 84 and when's the right time, if there is a right time. So there has been no decision made.

Senator ISAKSON. OK. I know it's in your little book there and you deferred the answer to after the hearing, but if I'm informed correctly neither China nor India airlines are paying the ETS.

Secretary LAHOOD. That's correct.

Senator ISAKSON. So we've got a situation where China and India are not paying, we are complying but complaining, and we can't make a decision on whether or not to file an Article 84, which is the logical place to go if you have a grievance with another entity, country, or organization; is that not correct?

Secretary LAHOOD. Everything you said is correct.

Senator ISAKSON. Well, when the next time you get a chance to talk to those others in the administration that are discussing it, this is a huge issue for the United States. I represent the State of Georgia, which houses Gulfstream, which builds all the G–4's, G–5's, and G–650s; Delta Airlines, which is the international carrier out of the Southeast; and Southwest and Airtran, who have merged and eventually will be doing overseas travel as well.

This is a huge impact on the U.S. economy, on aviation, and on fairness. I just don't think it's fair to let China and India sit there and tell their airlines, don't pay the fee, they still land at Heathrow, they still go into the EU, and here we are trying to represent our airlines and the American people, yet we don't do what we need to do to get their attention.

So I would associate myself with the Thune-McCaskill bill and, for what it's worth, my opinion would be we should move forthright on an Article 84 to get an answer to the question.

Secretary LAHOOD. Thank you, Senator.

Senator ISAKSON. Thank you, Mr. Secretary.

Secretary LAHOOD. Thank you.

The CHAIRMAN. Thank you, Senator Isakson.

Now it's Senator Kerry.

STATEMENT OF HON. JOHN F. KERRY,
U.S. SENATOR FROM MASSACHUSETTS

Senator KERRY. Mr. Chairman, I've been listening to this and I've got to tell you, you know, if this wasn't so sad you might laugh at what's going on here, because it really represents a failure of over 20 plus years of people to be serious about an issue, and that's why we're here.

Let me just say to my colleague from South Carolina, there is nothing, nothing in the Law of the Sea Treaty, nothing, that will wind up dealing with global climate change or emissions, and that will become clear to people as we go forward. Lawyers galore, including George Bush's lawyers, Ronald Reagan's lawyers, will make it clear, because they negotiated it, that it's not there.

So let's deal with facts, not paranoia. The fact is that obviously there's huge interest in the aviation industry about, and in our government, about ensuring that the emissions trading system is fair to our airlines and our consumers. We're at a stalemate today and tensions are high as the clock ticks toward 2013 and the start of the program.

But let's be serious about why we're here. In a couple of weeks people are going to meet in Rio to celebrate the 20th anniversary of the efforts that George Bush, George Herbert Walker Bush, signed onto. The world entered into a voluntary system for emissions control. Subsequently they met in Kyoto and signed an agreement that a lot of people didn't like, and I understand why, because they were afraid the China wouldn't be part of it.

But the truth is we dragged our feet. The United States of America has been one of the principal foot-draggers in this entire effort. And the coal industry and a whole bunch of other people have continually spent huge amounts of money to prevent anything from happening on a real system of emissions control in this country.

There isn't anywhere in the world today where you can't look and see the impacts of climate change that are hugely negative—species that are moving into new habitat, places where things don't grow any more, bugs that chew up millions of areas of acres of forest because they don't die any more because it doesn't get cold. You can run the list of things —the melting of the Arctic, and so on and so forth, the change of ecosystems—all in danger because we're procrastinating.

And we've been the principal procrastinator. China has actually engaged in a more robust effort to spend money, until this last year when we caught up to them in some expenditures. We don't have any regime. We have no effort to control carbon, except for the individual efforts of cities' mayors. Mayors are doing more than the Federal Government, more than the states. More than a thousand mayors joined together in a consortium to try to live up to the standards of production.

So what does Europe do? Europe looks at that and says: What are we going to do? I mean, I laugh at this discussion of whose airspace is whose. The stuff that goes up there goes to everybody's airspace. It doesn't stay in the United States. We get China's fumes, we get Indiana's and Ohio's in Massachusetts. And we had a huge fight about acid rain that came about because it was killing our

lakes a number of years ago because of that. Now we have acidification and all these other issues.

So the problem here is that we tried to forge a global agreement, we dragged our feet, and frankly the Europeans have now chosen to do—I don't agree with what they've done, and there's a better way to do it. And so I agree with all those statements that have been made here. But they're trying to protect themselves. They're trying to do what they think is important in order to have a future with respect to this issue of climate change.

So the EU, we all know, signed on individually country by country. And obviously, it's laughable that they should suggest that as a unit the EU, which didn't sign it as a unit, is now somehow exempt. I get it. I understand. But that's what makes this really so absurd.

Secretary Clinton and Secretary LaHood have clearly and correctly stated that this application of the ETS is inconsistent with the legal regime that governs international aviation, and for the EU to argue they're not bound by it is absolutely ridiculous.

So the question is where are we going to go. Congress in the FAA Modernization and Reform Act said the EU should work through ICAO, address this issue. Secretary Raymond Benjamin has pledged to have a proposal on how to regulate these on a global basis by the end of this year. There are other solutions that could be reached through negotiated equivalency standards or the like.

My point is there are many options to explore besides passing a new law that simply threatens unilateral prohibitions on flights to Europe or establishes new authorities for the Secretary on our side, and we ought to pursue that. But the Europeans, my friends, are right to question the motives of some of those who oppose their efforts in India and China, and they're right to question whether or not the United States is serious about this issue, because we haven't been.

So my hope is the only way to deal with this is a global consensus through hard outreach, and I would urge our European friends to follow it. I'd urge us to follow it. But this ought to be an underscoring of what's to come. Do you think these fights are tough? Wait until we get into the fights on water on fights on nutrition and fights on global refugees and all the other things that are coming down the pike because we are failing to step up and be responsible with respect to global emissions. And they belong to all of us, not anybody's single airspace.

No question, Mr. Chairman. Maybe one question if I have a moment left. Maybe, Mr. Chairman, you can tell us. You've said, Mr. Secretary, you've said that you think we ought to have—I think you've said that we ought to pursue this international agreement. Can you share with us, what's the administration framework for that international agreement? How would you think an international agreement that would bind all of us and be responsible in balancing this, what would it look like?

Secretary LAHOOD. I think that's what we have organizations like ICAO are for, Senator. That's how we've made flying safe all over the world, where people sit around a table and talk about——

Senator KERRY. Is ICAO going to create a global emissions trading system or a global emissions reduction system?

Secretary LAHOOD. That's a good place to start, not by one government saying, OK, we're going to tax you all. That's not the way to do it.

Senator KERRY. I agree with that.

Secretary LAHOOD. OK.

Senator KERRY. I've said that.

Secretary LAHOOD. Well, there is an organization. It's called ICAO. It's an organization where everybody can sit around, and if they need to set up some other organization they'll do that.

Senator KERRY. What do you think is——

Secretary LAHOOD. But the idea that one government establishes a tax and says the hell with everybody else——

Senator KERRY. We agree with that, but what do you think——

Secretary LAHOOD.—is not right.

Senator KERRY—is the reason that they haven't been able to do that?

Secretary LAHOOD. Well, we're trying to persuade them to do it.

Senator KERRY. Why haven't they done it?

Secretary LAHOOD. Why hasn't ICAO done it? Because, frankly, they haven't been pushed to do it, and we're pushing them.

Senator KERRY. Thank you, Mr. Chairman.

The CHAIRMAN. Well spoken, Senator Kerry.

Senator Begich.

STATEMENT OF HON. MARK BEGICH,
U.S. SENATOR FROM ALASKA

Senator BEGICH. Thank you very much, Mr. Chairman.

Mr. Secretary, good to see you. All the comments that Senator Kerry said are important, and I'm glad you were here to respond to Senator DeMint, because I was going to be on a rant here, but I'm glad he did and so that's on the record. I appreciate those comments.

Also, I appreciate the administration's effort on this issue. I guess I want to follow up on ICAO if I can. Let me ask it a different way. Do you think ICAO has the capacity to deal with a global discussion and, I'll call it an agreement—maybe it's something different—with regards to emissions? Do you think they have the capacity to do that?

Secretary LAHOOD. I do. I think they have the capacity, at least to begin the discussion.

Senator BEGICH. Do you think that if they started there might be other elements that come into play to help?

Secretary LAHOOD. I do.

Senator BEGICH. That's probably what you're thinking ——

Secretary LAHOOD. I do.

Senator BEGICH.—is that there's a need to move it forward.

Secretary LAHOOD. I do. I think on this one they're probably going to need other resources, other smart people. And I don't think they'd be bashful about trying to get them involved.

Senator BEGICH. Do you think this issue might, the issue that we're engaged in now with the EU, will kind of help trigger this realization that they have a role or a partial responsibility?

Secretary LAHOOD. I've talked to ICAO about this and they know they need to play a significant role. They need to get the discussion

going. And I believe that they have the capacity to really begin the discussion.

Senator BEGICH. Do you think the—as you've said that this might be the right place to get this first issue resolved, which I agree with everything you have said on the record here about, and also what I've heard you say out publicly about this issue, that it just seems unfair, it's unilateral, and we can go through the list of all the reasons again.

But do you think that ICAO can first resolve this issue and then move to the next without creating some tensions that they can't get to the next stage?

Secretary LAHOOD. Well, I think there needs to be a starting point. They need to get this discussion moving, and we'll see where it takes us.

Senator BEGICH. You had mentioned some data points, and I forget the year period, but I think it was up to 2010, that emissions are down about 12 percent, but ridership or passengers are up about 15 percent over that same period.

Secretary LAHOOD. Correct.

Senator BEGICH. Which means more people traveling, less emissions. That's good from both ends, the industry standpoint, but also from the health of our environment.

Once NextGen, because we haven't even really implemented NextGen——

Secretary LAHOOD. That's correct.

Senator BEGICH. That's going to have some—I'll use this word; I may be using it too strongly, but—— significant impact to our emissions. But have you done any modeling or has your agency or maybe EPA done any modeling to say once NextGen is in play here's what it does to emissions?

Secretary LAHOOD. We have, and I'll be happy to submit that for the record.

Senator BEGICH. Would you do that?

Secretary LAHOOD. Absolutely.

[The information referred to follows:]

The Federal Aviation Administration has done extensive modeling of the expected impacts of NextGen air traffic management (ATM) improvements on fuel usage and CO_2 emissions. As reported in the 2012 NextGen Implementation Plan, NextGen is projected to reduce CO_2 emissions by 14 million metric tons between now and the year 2020, relative to what they would be if we did not implement NextGen. These savings increase to 44 million metric tons through 2030. Note that these model results only consider NextGen ATM improvements, and not the advanced research on renewable alternative jet fuels and improved aircraft technology which the FAA also sponsors under NextGen. Work is underway to estimate the effects of these additional measures on aviation emissions.

Senator BEGICH. That would be great, because I know when we had this discussion on NextGen through the FAA bill there was, besides safety, saving fuel, which also has impact, time delays, which again has impacts to emissions. The less fuel you're using, the less time you're in the air, the less time you're on the ground idling waiting to take off—all that has a direct impact to emissions.

Secretary LAHOOD. Absolutely.

Senator BEGICH. Is that fair to say?

Secretary LAHOOD. It is.

Senator BEGICH. I think that would be a great document to have. I think your advocacy on NextGen and I know the industry's advocacy on NextGen—and several of us on here fought hard to make sure that that was speeded up, actually. I don't remember the exact timetable. We moved it by five years or more to get this in the middle, mainly for safety, but these other two pieces, fuel savings and emissions savings, was part of the equation. Is that fair?

Secretary LAHOOD. Yes, it sure is.

Senator BEGICH. Great.

Secretary LAHOOD. And earlier on, I complimented the Committee on an FAA bill that we thought was a very, very good bill, particularly as it relates to NextGen for one thing, and safety for another.

Senator BEGICH. Right.

Let me end with this and again say I agree—I'm not sure—I'm still looking at the legislation, but I think your positioning and what you are doing on behalf of the administration and what the industry is doing is saying, look, we're all for reducing emissions, but let's make it a global, fair system. And to hear certain folks are exempted, large users, China, India, creates this unfair balance. I think that's one of the pieces of your equation, that, look, we're all about working together, but don't make the system unfair and we get the penalty and we write the checks, and they get to use the money for who knows what, which really, if it's about emissions, then they should use it to lower emissions.

Secretary LAHOOD. Sure.

Senator BEGICH. And in the FAA and the airline industry, it's pretty fair to say all the systems that we have in the domestic airline industry, if you pay a fee it goes back into the system to support capital improvements or passenger or TSA, or whatever the list might be. We generate that money and we put it back in; is that a fair——

Secretary LAHOOD. Correct.

Senator BEGICH. So in our industry, we understand that it's part of the relationship between government and the private sector, is once we negotiate out these fees they recognize there's a value coming back in service or capacity.

Secretary LAHOOD. That's correct.

Senator BEGICH. In this system it really doesn't say that.

Secretary LAHOOD. It doesn't.

Senator BEGICH. Well, I'll leave it at that and just say thank you very much for your testimony.

Secretary LAHOOD. Thank you.

Senator BEGICH. And if you could get that for the record, I'd look forward to that.

Secretary LAHOOD. We'll do it. Thank you.

Senator BEGICH. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Begich.

Senator Snowe and then Senator Boozman.

STATEMENT OF HON. OLYMPIA J. SNOWE,
U.S. SENATOR FROM MAINE

Senator SNOWE. Thank you, Mr. Chairman.

Welcome, Mr. Secretary. To follow up on some of the issues that have been raised regarding this proposal, would you not describe this as being precedent-setting?

Secretary LAHOOD. Precedent-setting, yes.

Senator SNOWE. It is. So this could be the beginning of multiple initiatives on the part of the European Union, for example, to impose fees or levies for environmental purposes and so on.

Secretary LAHOOD. That's not the way to treat your so-called friends.

Senator SNOWE. Do you have any idea about what type of retaliation we could expect in the event that our airline industry did not comply? Have you had that discussion at all?

Secretary LAHOOD. I really haven't, no.

Senator SNOWE. So in 2013 when this is to go into effect, what then if no measures have been taken to address this situation?

Secretary LAHOOD. I think we need to begin to resolve it before then.

Senator SNOWE. You're assuming it's going to——

Secretary LAHOOD. That's really where we've put our efforts.

Senator SNOWE. In the ICAO?

Secretary LAHOOD. I've talked to the head of ICAO about this. He came to my office. We had a very, very extensive discussion about this, and we continue those discussions and we continue a pretty spirited discussion within the administration about it.

Senator SNOWE. Is it likely that ICAO could take action that's expeditious under the circumstances?

Secretary LAHOOD. Well, I don't want to speak for them, Senator. They know how big an issue this is for us.

Senator SNOWE. They have addressed it in prior deliberations, have they not, on the whole issue of emissions and a trading system?

Secretary LAHOOD. Yes.

Senator SNOWE. They have?

Secretary LAHOOD. Yes.

Senator SNOWE. But have they ever—my concern is how long it's going to take for them to make a decision, to come to some kind of determination.

Secretary LAHOOD. Well, I think they're trying to figure that out.

Senator SNOWE. So do you expect that they would take some action?

Secretary LAHOOD. I don't want to speak for them.

Senator SNOWE. Well, I guess part of the point is that what measures that are allowable or stated by the European Union in terms of what could happen, which is obviously very high fees and fines, seizure of aircraft, preventing aircraft from landing. So there are a number of retaliatory measures that could be implemented by the European Union.

Secretary LAHOOD. Well, I haven't really—I've really focused my attention on trying to find a path forward here and a mechanism to do that.

Senator SNOWE. You don't think the legislation would be an assist in that regard and give impetus to the administration?

Secretary LAHOOD. We at this point have not taken a position on the legislation.

Senator SNOWE. Well, hopefully it can be resolved. I mean, I know we'll hear from other witnesses that would suggest that they intend to go forward, obviously, with this initiative. So with no interim steps in the meantime, that makes it inordinately difficult if you have no backstop in terms of legislation.

Secretary LAHOOD. I can tell you, this is something that I care a lot about, and we will continue to talk about it within the administration and I will continue to talk about it with other transportation ministers.

Senator SNOWE. Mr. Secretary, in the whole current structure of this cap-and-trade system and providing allowances, are there enough safeguards to ensure that these fees would be going for environmental purposes?

Secretary LAHOOD. I don't know that we really know that.

Senator SNOWE. So you can't be certain by the way it's structured?

Secretary LAHOOD. That's correct.

Senator SNOWE. So it could be—in other words, it could be the fees could be diverted for other purposes?

Secretary LAHOOD. That's correct.

Senator SNOWE. Even for budgetary purposes.

Secretary LAHOOD. That's correct.

Senator SNOWE. Thank you, Mr. Secretary.

The CHAIRMAN. Thank you, Senator Snowe.

Senator Boozman.

STATEMENT OF HON. JOHN BOOZMAN,
U.S. SENATOR FROM ARKANSAS

Senator BOOZMAN. Thank you, Mr. Chairman.

Very quickly, because I know you are busy and we do appreciate you being here, and appreciate your leadership on this issue. It's interesting. This is a great committee. It's a very bipartisan committee and we work hard on the issues and really try and reach agreement. It's interesting, though. You've got a lot of people on the panel, we don't agree necessarily on CO_2. In fact we don't agree. You've got a real mix of opinions as to how much that's hurting the environment, what we need to do about that.

But it seems like there is almost complete agreement here that the mechanism that the EU has chosen to solve the problem as they see it is not reasonable, it is unreasonable. I think that it's illegal.

So we do appreciate your leadership. The question I was going to bring up was the one that Senator Snowe—that even if they are successful in getting this levy, there is no assurance that this actually goes into a fund that actually reduces CO_2 emissions. So again I just—so that is your opinion?

Secretary LAHOOD. That's correct.

Senator BOOZMAN. That we simply don't know that.

Secretary LAHOOD. That's correct.

Senator BOOZMAN. I would associate myself with the rest of the panel and again have great concern for this. If you can solve the problem without legislation, great. If you can't, then I know that you'll follow up with us and let us help you in making sure that we move forward so that we are not obligated in this way.

Thank you very much.

Secretary LAHOOD. Thank you.

The CHAIRMAN. Thank you, Senator Boozman.

Mr. Secretary, you've emptied the room.

Secretary LAHOOD. Pardon me?

The CHAIRMAN. You have emptied the room.

Secretary LAHOOD. Yes. You're happy about that, right?

The CHAIRMAN. No, not particularly. But you're some kind of a rock star.

Secretary LAHOOD. Senator, can I just—I know you're going to wrap up here and I'm happy——

The CHAIRMAN. No, we're not going to wrap up. We've got a second panel.

Secretary LAHOOD. Oh, OK. I know it's not a second panel for me.

I want to reiterate what I said before. This committee has been terrific in working with our Department in fashioning good legislation, and the FAA bill is certainly an example of that. I know that a number of people around here are trying to get a transportation bill. Your piece of the transportation bill is very, very good. It's excellent, particularly on safety in transportation.

I just want to say we are grateful at DOT for your leadership, for the Ranking Member's leadership, and every Member's leadership in putting together a very, very good, excellent transportation bill that passed the Senate with 74 votes. We need a transportation bill in this country, we really do. There are a lot of people out of work. They're ready to go to work. The states are ready to do the work. And thank you for the work you did on your piece of the transportation bill.

Senator THUNE. Mr. Chairman.

The CHAIRMAN. Yes?

Senator THUNE. That sounded very much like an endorsement of a piece of legislation.

[Laughter.]

The CHAIRMAN. No. I thought the Secretary——

Secretary LAHOOD. Well, Senator Thune, it's a bill that already passed. Of course I'm going to support a bill that passed.

The CHAIRMAN. All right.

Senator THUNE. Where's the love? That's all I want to know.

[Laughter.]

Secretary LAHOOD. Pass your bill and I'll support it, Senator.

[Laughter.]

The CHAIRMAN. From my point of view, before I introduce the next panel, I want to thank you for your passion on the safety part of it, which is what we basically do on this committee, and particularly the whole area of drunk driving and distracted driving, which I know are totally key in your thinking, as they are in mine.

So thank you very much.

Secretary LAHOOD. Thank you, sir.

The CHAIRMAN. And you might wave at the folks behind you. They may not talk to you.

Thank you, Mr. Secretary.

All right. Now, I'm going to call the second panel to come up, and they're going to have to be efficient, by which I mean—well, I think I'll wait until they get up there.

[Pause.]

The CHAIRMAN. If the witnesses could take their seats, please. All right, if we could have order starting right now. Conversation will cease.

I want to introduce Mr. Jos Delbeke, who's Director General of the European Commission, and I want to say—I want to acknowledge that Dr. Delbeke is testifying before this committee in his official capacity as Director General of the European Commission. The purpose of his testimony is to help us better understand the European Union's emissions trading policy.

I would like to thank Dr. Delbeke for this courtesy, and I want to make it very clear to the members here that, and for the record, that his testimony and appearance today are voluntary.

Second, Captain Sean Cassidy, First Vice President, Air Line Pilots Association; Mr. Edward Bolen, President and Chief Executive Officer, National Business Aviation Association; Ms. Annie Petsonk, International Counsel, Climate and Air, Environmental Defense Fund; Ms. Nancy Young, Vice President, Environmental Affairs, Airlines for America.

With that, Mr. Director General, I would call on you.

STATEMENT OF JOS DELBEKE, DIRECTOR-GENERAL, DG CLIMATE ACTION, EUROPEAN COMMISSION

Mr. DELBEKE. Thank you, Mr. Chairman, and thank you for this opportunity to speak about the EU ETS. European citizens consider global climate change as a very urgent and important problem, and to date we have no silver bullet to combat climate change, so all the sectors of the economy should contribute and Europe has decided to address aviation emissions through a comprehensive approach. It covers a range of policy measures, including the EU ETS.

So let me focus my introduction on five points. First, we are asked if we in Europe are committed to a global solution. We are. We fully share with the United States a strong commitment to work in ICAO on a global approach to reduce international aviation's climate impacts. We are pleased to see good progress in ICAO over the last few months, and let me state very clearly the EU is willing to modify its ETS in the light of a constructive outcome in ICAO.

Second, I also want to state loud and clear that the EU ETS is not extraterritorial. It respects all rules and guidance developed by ICAO. This view was also confirmed by the European Court of Justice, which is our highest court in the EU. The reason is that no obligations are imposed in the territory of another state. The EU ETS regulates at the point of arrival or departure within the EU. It's thereby irrelevant how the precise obligations are calculated.

I would like to state that this seems to be very similar to the very important post-9/11 security measures implemented by the United States on flights arriving or departing from U.S. airports.

My third point is that the EU ETS is based on the principle of non-discrimination between airlines. So no differentiated require-

ments are applied to aircraft operators operating on the same route. Perhaps no other business sector is as international as aviation, so the EU ETS is non-discriminatory and applies to all airlines operating in the European market without any distinction to nationality.

Fourth, Mr. Chairman, the EU emissions trading is neither a tax nor a charge. It is a market-based approach to incentivize cuts in greenhouse gas emissions. It sets a limit on emissions, let's the market determine on a daily basis the price for carbon, and gives companies the flexibility to manage their operations. Through that, it encourages innovation, new technology, and new jobs. So this makes it very distinct from a tax, where the price is set by law.

By the way, the impact on the ticket price for a transatlantic flight would not be more than a few dollars.

The member states from the EU expressed explicit commitment to spend all revenues from auctioning of aviation allowances to efforts to reduce emissions.

Fifth and final point, Mr. Chairman: There is no prospect of simply suspending the EU legislation, but the EU is open to modifying it. It is strongly supported by all member states and as recently as the 15th of March 2012 the European Parliament plenary adopted a statement calling for the EU to continue to implement the EU ETS legislation. But, as I said, the EU ETS can be modified in two respects. The legislation explicitly allows for changes to take into account the global agreement, and on top of that also incoming flights can be exempted in exchange of efforts undertaken by other states.

Let me conclude, Mr. Chairman, that the ICAO process provides a very good opportunity to develop a renewed momentum for substantive talks at the global level. However, countries must be clear on how they intend to deliver and when they intend to deliver. Through the ICAO process and by working together, the EU and the United States are presented with an excellent opportunity for leadership.

Thank you very much.

[The prepared statement of Mr. Delbeke follows:]

PREPARED STATEMENT OF JOS DELBEKE, DIRECTOR-GENERAL, DG CLIMATE ACTION, EUROPEAN COMMISSION

Introduction

For more than 15 years, the EU has been seeking global agreement through the United Nations to tackle aviation's increasing contribution to greenhouse gas emissions, in particular through the International Civil Aviation Organisation (ICAO). The EU remains committed to the multilateral process and reaching a global agreement within ICAO. ICAO is the right place to advance global action on measures, including market-based measures, to address the climate change impacts of international aviation and the EU strongly supports this work. The EU welcomes ICAO's ongoing and intensive work programme in 2012. The EU continues to constructively engage in full with ICAO to find a solution, and wants in particular to engage with all States that are willing to work together to find a global solution.

The EU ETS is already applied by 30 sovereign states, with a combined population of over 500 million people, working together to implement a common approach to reduce aviation emissions as part of a comprehensive package of policy measures. Such a mechanism could serve as a building block for future global action.

Although it is the focus of this testimony, aviation actually only comprises around one-tenth of the overall EU ETS. In fact, the EU ETS covers more than 10,000 in-

dustrial plants—power plants, oil refineries, steel mills and pharmaceuticals. Since it began operation in 2005, it has included some installations operated in the European Union of large U.S.-based companies such as Intel, IBM, Exxon-Mobil, U.S. Steel and General Electric.

It is important to have an understanding of context. It is no longer generally questioned that human activities are affecting the composition of the atmosphere in a way that is expected to result in climate change. Climate change is an urgent problem and one that is important to EU politicians and to their constituents. The European Union is committed to transforming Europe into a highly energy-efficient and low greenhouse gas-emitting economy and made a firm independent commitment for the EU to reduce its greenhouse gas emissions to at least 20 percent below 1990 levels by 2020. The EU ETS is a cornerstone of the EU's climate policy.

The vast majority of countries in the world, including the United States, have agreed that average global temperature increase should be kept below 2 degrees Celsius as compared to pre-industrial levels.[1] To achieve this goal, G8 leaders have as recently as last month "recognize[d] the need for increased mitigation ambition in the period to 2020"[2]. To date there is no silver bullet to combat climate change. In order to achieve the global goal, all sectors of the economy should contribute.

Globally, CO_2 emissions from the aviation sector have been growing rapidly and are forecast to continue to increase. By 2020, global international aviation emissions are projected to be around 70 percent higher than 2005 levels. According to ICAO forecasts emissions could further grow by some 300 percent to 700 percent by 2050. Europe has decided to address these emissions through a comprehensive approach comprising a wide range of policy measures, including technical and operational measures, as well as through the inclusion of aviation in the EU ETS.

For 2012, the expected reductions from application of the EU ETS to aviation are 27.9 million tonnes.[3] Given growth in aviation emissions, over the period up to 2015, the emission cumulative reductions are expected to be 176.4Mt.[4]

EU and the United States—A Shared Objective

Both Europe and the US have clearly stated in the 2010 ICAO Assembly that they support global goals to limit global international aviation emissions at or below 2005 levels by 2020.[5] For the EU to contribute to achieving such a global goal, the implementation of our domestic climate change policy is vital. All analysis shows that market based measures are needed in Europe if this goal is to be reached in a cost-effective way. All the technical and operational measures being implemented in the EU are insufficient to achieve such an ambition level.

The EU values the important relationship with the United States on transport and climate change issues. In recent years, we made significant progress on a number of transport issues and particularly on aviation through the EU–U.S. air transport agreement. The EU recognises that the United States has strong concerns about the application of the EU ETS to aviation. The EU respectfully takes a differing view, seeing the EU legislation as a potential building block for a future agreement at international level.

The EU shares with the United States a strong commitment to work in ICAO on a global approach to reduce international aviation's climate impacts. The EU is keen to make progress on the issue. If an agreement on a global solution can be found within ICAO, then the EU is ready to review the EU ETS legislation. A major obstacle to progress has been differences of view between countries on the concept of Common but Differentiated Responsibilities and Respective Capabilities (CBDRRC) that is included in the UN Framework Convention on Climate Change and whether

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[1] G8 summit: *13. We agree to continue our efforts to address climate change and recognize the need for increased mitigation ambition in the period to 2020, with a view to doing our part to limit effectively the increase in global temperature below 2 °C above pre-industrial levels, consistent with science.*

[2] *http://www.whitehouse.gov/the-press-office/2012/05/19/camp-david-declaration#.T7nkWPly1lw.*

[3] Expected growth in emissions beyond free allocation and 32.2m aviation allowances offered at auction, meaning reductions in other sectors or through international credits, calculated on basis of projections at *http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/631.* Actual aviation emissions for 2012 may be lower. These projections do not include the reduction from reducing demand for aviation services. If costs of purchasing allowances and credits are passed on to consumers, future forecasted demand relative to business as usual levels has been estimated to be reduced by 1.7%–2.9% for an allowance price of €30, while the increase in revenue tonne kilometres would still be a minimum of 135 percent, *http://ec.europa.eu/clima/policies/transport/aviation/docs/sec__2006__1684__en.pdf.*

[4] See *http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/631*, sum of emission reductions calculated in accordance with footnote 3.

[5] *http://legacy.icao.int/icao/en/assembl/a37/wp/wp186__en.pdf.*

this concept is at all relevant in the context of international aviation emissions. Last month's UN climate negotiation session in Bonn has shown that differences between countries' views continue to make progress difficult. The EU is committed to work with the US and other States to make progress on this issue.

It should be noted that, in the absence of stronger action, the global goals that the EU and United States are aiming for in relation to international aviation emissions will not be met.

The EU ETS—An Introduction

Europe's comprehensive approach to reducing emissions from aviation includes a major modernisation of the EU's airspace, research and development of clean aviation technology, development of sustainable biofuels and market based measures.

As part of the EU's comprehensive approach, aviation is covered by the EU ETS from 2012. The legislation only applies to aircraft operators active in the EU market, *i.e.,* to flights landing at or departing from European airports. Under the EU ETS, aircraft operators have been monitoring their CO2 emissions since 2010, and reported them for the first time in March 2011. Aircraft operators are required to surrender allowances in respect of their reported CO2 emissions on an annual basis, with the first compliance to take place by 30 April 2013 in respect of 2012 emissions.

The EU ETS is neither a tax nor a charge. It is fundamentally different from a tax or a charge, because airlines can meet their obligations by remaining within their caps or by purchasing additional allowances, either from government or on the open carbon market. Not only are allowances allowed in unlimited quantities from other sectors, but a proportion of international credits (JI and CDM credits)[6] may be used to meet requirements under the system. The price of allowances is fixed by the market and not determined by a State. Even in respect of the small proportion of allowances which are offered at auction,[7] the primary purpose is to limit emissions and not to increase revenues for the Member State Governments. Unlike taxes and charges where money is paid to the state funds or to cover the specific cost of a service provided, an operator who buys an allowance in an auction receives an allowance in return. An allowance has a value and can be bought and sold on the market for profit.

The EU ETS is a cost effective measure, inspired in part by one of the most successful pieces of United States environmental legislation ever designed, the SO_2 allowance trading system under the Clean Air Act. Cap and trade systems such as these incentivise cuts in emissions by setting a limit but allowing companies to freely manage their operations in the light of these limits. These types of measures are commonly referred to as market based measures (MBMs) because of the market (or carbon pricing) element inherent in their design. The benefit of emissions trading is that it enables reductions in emissions across the economy in the most cost-effective manner (at least cost). Reductions are incentivised where costs of abatement are lowest while the environmental outcome is guaranteed by the overall emissions ceiling. Hence, it allows the sector to continue to grow by becoming more efficient and by purchasing offsets and allowances from other sectors where emission reductions are more cost-effective. Market-based measures also have the potential to generate revenue that can be used for climate change mitigation and adaptation within and/or outside of the sectors covered by the measure.

Market-based measures also encourage technology improvements as they strengthen the business case for making investments in new technology that can reduce emissions. The EU ETS, as a market-based measure, improves the rate of return and reduces the payback period for technology investments that reduce fuel consumption. The EU ETS also incentivizes commercial use of sustainable biofuels for aviation. This is because the system gives a long term, predictable price incentive for take-up of these fuels because they count as zero emissions.

That means, for example, that to the extent sustainable biofuels are used by airlines, aircraft operators do not need to surrender any allowances or international credits in respect of the proportion of biofuels used during their flights. This also incentivises fuel producers to invest in the production of sustainable biofuels.

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[6] For emissions in 2012 aircraft operators may use international credits up to 15 percent of the number of allowances they are required to surrender, for emissions in the period from 2013 to 2020 it may be not more than 1.5 percent.

[7] Fifteen percent of aviation allowances are offered at auctions in 2012 and in the period from 2013 to 2020.

EU ETS and International Law

Aircraft operators operating flights to or from EU airports are subject to the rules of the EU ETS. The EU legislation contains no regulation of how aircraft operate, either within or outside EU airspace, and there is no constraint on activities except for flights that arrive at or depart from EU airports.

The EU ETS uses an approach based on the total emissions from a given flight, as a parameter applicable to flights which take off and land in the EU. This approach was identified by ICAO as one of the options States should consider when implementing market based measures.

ICAO has previously identified an approach based on the nationality of airspace to allocate responsibility for emissions as "impracticable."[8] The same conclusion was also reached by the United Nations Framework Convention on Climate Change (UNFCCC) as early as 1998.[9] Moreover, allocating responsibility for emissions on the basis of nationality of airspace has not subsequently been proposed by any country in discussions in ICAO or in the UNFCCC.

Regular commercial flights between the United States and Europe are operated not only by EU and US airlines, but also by other airlines such as Air India, Jet Airways based in India and even by airlines from our least developed country partners, such as Ethiopian Airways. In addition, US carriers like UPS and Fedex operate substantial flights within the EU. It is clear that applying differential requirements on aircraft operators of different nationalities would distort competition between those operating on the same routes. Hence, the EU ETS is non-discriminatory and applies to all airlines operating in the European market without distinction as to nationality.

The EU ETS is fully consistent with the Chicago Convention and bilateral air service agreements which clearly state that Contracting States have the sovereign right to determine the conditions for admission to or departure from their territory and require all airlines to comply. There is no extra-territorial effect because no obligations are imposed in the territory of another State. The EU fully recognizes that this is a fundamental principle of international aviation law, and should be fully respected. The requirement to report emissions and to surrender allowances under the EU ETS only arises when an aircraft enters or departs from an airport in an EU Member State.

Perhaps no other business sector is as international as aviation, and non-discrimination between aircraft operators is crucial. Creation of any distortive effect for airlines operating in a global competitive marketplace must be avoided. In line with this, the EU is working for climate measures to be agreed in ICAO or applied by States that are non-discriminatory for all airlines.

In December 2011, the European Court of Justice, the highest court in the EU, reached a final judgement in light of a challenge by several airlines based in the United States against the EU legislation. The Court confirmed that the EU ETS law is fully compatible with the relevant principles of customary international law and with the provisions of the EU/US Open Skies Agreement.

In addition to the principle of non-discrimination, which is key under the Chicago Convention, equal treatment is important for effective policy. Many airlines based outside the EU and the United States fly to and from US and EU destinations.

The EU and ICAO

ICAO has long recognised the role that market-based measures can play in achieving environmental goals cost-effectively and in a flexible manner.

ICAO first endorsed the use of "open emissions trading" for international aviation in 2001. It has long been recognised in ICAO that offsetting emissions growth in aviation through reductions in other business sectors by means of an open system is an attractive option. This is due to the high growth in demand forecast in the aviation market and the limited number of cost-effective abatement opportunities within aviation.

Following on from this endorsement in 2001, ICAO studied three options for implementation. In 2004, this work led ICAO, with United States' backing, to conclude that implementation of a unified global system based on a new legal instrument under ICAO auspices should not be pursued further. Instead, ICAO States unanimously agreed to pursue implementation through other avenues, one of which was

[8] ICAO Doc 9885, para 3.2.34: ". . . delimitation of geographical scope based on national airspace appears impracticable."

[9] Report of the Subsidiary Body for Scientific and Technological Advice on the work of its fourth session, Geneva 16–18 December 1996, Item IV.B.2.—conclusions.

"to incorporate emissions from international aviation into Contracting States' emissions trading systems." [10]

This is precisely the avenue that the EU followed. Legislation to include aviation in the EU ETS was first proposed in 2006 and entered into force in 2009. This legislation was developed, negotiated and adopted with complete transparency.

In the intervening years, discussions on aviation and climate change have continued at ICAO and UNFCCC. A breakthrough has not yet been achieved in ICAO and the States represented there have been unable so far to agree on binding global goals and measures to address emissions from international aviation.

An aspirational goal to limit emissions was adopted in ICAO's 2010 Assembly Resolution on international aviation and climate change. However, the medium-term goal is only in respect of limiting emissions from 2020 onwards at 2020 levels. As such, this goal falls short of both the EU and US goals for global aviation emissions in 2020 to be no higher than 2005 levels. The 2010 ICAO Assembly Resolution also recognises that some States may take more ambitious action before 2020, and includes 15 principles for the application of market-based measures by States. The EU ETS is fully consistent with these principles.

In recent months ICAO has re-started its discussions on aviation and climate change. In January 2012, the President of the ICAO Council, Mr Roberto Kobeh, initiated a process to develop options for global market-based measures to address aviation emissions. His aim is to come forward with a proposal by the end of 2012. To that end, a working group of six ICAO Council members (one from each ICAO region) and an aviation industry representative was set up to define and develop a shortlist of possible options for global market based measures for international aviation. The EU strongly supports this ICAO process and is actively engaged in this work together with experts from the United States and other countries.

The EU ETS is the world's largest market based measure for GHG mitigation. While the EU ETS legislation is an important step, the EU seeks greater global reductions to be agreed through ICAO. The EU has also made it clear that it is willing to employ flexibilities in its legislation, in light of meaningful action in ICAO.

In terms of what the EU wants to achieve in ICAO, there are three key elements.[11]

- The first is that what is agreed on market-based measures in ICAO should deliver environmental benefits in terms of emissions reductions, equal to or beyond those delivered from the measures currently in place in third countries and in the 30 countries applying the EU emissions trading system.
- The second point is that, whether market-based measures involve taxes, levies or emissions trading, the system adopted by ICAO or applied by States must be non-discriminatory for all airlines. Non-discrimination is one of the most important principles of international aviation law, and should be fully respected. We must avoid creating any distortive effect for airlines operating in a global competitive marketplace.
- Third, a robust worldwide system should contain targets and measures for ICAO member countries.

Flexibility in EU legislation

The EU fully supports global action on aviation emissions. The EU legislation therefore contains two flexibilities.

First, the legislation foresees that it could be amended to take into account any future agreement adopted at global level. Indeed, given our commitment to finding a global solution, it is not overstating the case to say that our legislation is designed to be amended in the event of an agreement on global measures to reduce greenhouse gas emissions from aviation. The European Commission is required by the law to review the EU ETS legislation in light of such an agreement on global measures in ICAO. Pending the entry into force of such a global agreement, the EU legislation will continue to apply.

Second, the legislation contains provisions to recognise the measures by other States to reduce the growth of aviation emissions. This would allow for the exemption of all incoming flights operating from those countries to the EU on a non-discriminatory basis. This flexibility contained in the EU law can be exercised on the basis of action by other countries, which could include measures set out in state Action Plans that are submitted to ICAO.

There is no prospect of suspending the EU legislation. The legislation to include aviation in the EU ETS has been adopted after three years of intensive public de-

[10] *http://legacy.icao.int/env/a35-5.pdf.*
[11] *http://ec.europa.eu/clima/news/docs/speech_en.pdf.*

bate and negotiation. It has been adopted unanimously by the 27 Member States that are represented in the Council of Ministers and with a more than 90 percent majority in the European Parliament. Any significant amendment to the legislation other than exempting incoming flights, as outlined above, would need to undergo the same legislative process. Aviation in EU ETS is strongly supported by all Member States, and as recently as 15 March 2012, the European Parliament adopted a statement calling for the EU to continue to implement the EU ETS legislation.

Compliance Costs

In the EU ETS, the large majority of emissions allowances are allocated to individual aircraft operators free of charge. All commercial airlines with significant operations to or from EU airports submitted applications for free allocation in early 2011.

For administrative ease, each aircraft operator is administered by a single Member State for all of their aviation activities covered by the system. Under this approach, most U.S.-based airlines are regulated by either the United Kingdom or Germany.[12] Comparing the published [13] free allocation figures with recent emissions (*e.g.,* in 2010) indicates that for major aircraft operators based in the United States these free allowances do not deviate substantially from expected needs. On top of these free allowances a certain amount of international credits can be used for compliance.[14]

The level of free allocation is fixed in the legislation for all future years up to 2020, subject to adjustments if any incoming flights were to be exempted from the system. Allocations to aircraft operators are based on their respective flight activity in 2010 (measured in terms of the total distance travelled and the total mass of passengers and freight carried). Allocations are therefore based on activity and not emissions, and thus reward those that are more efficient and those that have already invested in fuel efficiency.

In 2012, 85 percent of aviation allowances will be distributed to airlines for free and 82 percent in subsequent years (up to 2020). This high free allocation of allowances also means that the costs for the aircraft operators should be modest. For example, using the ICAO carbon calculator,[15] 0.448 tonnes of CO_2 is emitted per passenger on a typical flight from Brussels to Washington, D.C. As airlines will receive the majority of their allowances for free, the cost per passenger would be less than $2 each way at current carbon prices. This is less than most airport taxes and charges. Many airlines, like several major United States airlines, have included a $3 fee to compensate for the EU ETS in their ticket prices.

The EU ETS allows for additional flexibility as it enables the aviation sector to increase its emissions by offsetting a portion with international credits. As part of a comprehensive approach, it makes sense to enable aviation to fund emissions reductions through other sectors to allow for further continued growth in aviation activity.

There have been some exceptionally high estimates of costs, which are unfounded. The degree of costs passed through to passengers depends inter alia on the commercial decision of airlines. An IATA study in 2007 [16] suggested cost pass through of 75 percent of the marginal cost onto airfares, and a MIT study [17] has also looked into this issue, concluding that in case of full pass through all costs, including the opportunity costs associated with free allowances, to consumers, profits for United States carriers would increase. Reports have also been prepared by the U.S. Government Accountability Office [18] and the U.S. Congressional Research Service. Other publicly available analyses include one by Bloomberg New Energy Finance.[19] Given the inconclusive nature of studies, empirical evidence in this area is useful to progressing on market-based measures in ICAO.

Revenue from auctioning aviation allowances

The EU Member States agreed in the legislation that all revenue from EU ETS auctions of aviation allowances should be used to tackle climate change in the EU and in third countries. This includes the funding of research and development in

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[12] Aircraft operators based in the United States are administered by Belgium, Denmark, France, Germany, Ireland, Romania and the United Kingdom, see *http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:039:0001:0132:EN:PDF*.

[13] *http://ec.europa.eu/clima/policies/transport/aviation/allowances/links_en.htm*.

[14] See footnote 6.

[15] *http://www2.icao.int/en/carbonoffset/Pages/default.aspx*.

[16] IATA—Financial impact of extending the EU ETS to airlines—9th January 2007.

[17] *http://www.sciencedirect.com/science/article/pii/S0969699711001268*.

[18] *http://www.gao.gov/new.items/d09554.pdf*.

[19] *http://www.newenergyfinance.com/free-publications/white-papers/*, "Including aviation in the EU ETS—the burning question."

the fields of aeronautics and air transport. This degree of commitment is unprecedented in EU legislation. In addition, the legislation requires Member States to publicly report the use of revenues for these purposes. No auctions of aviation allowances have yet taken place, so no revenues have yet been generated.

The extent to which the EU ETS will raise revenue in the future for EU Member States has sometimes been overstated. Accurate figures have been published online.[20]

Year	2012	2013	2014	2015
Number of aviation allowances auctioned (rounded)	32.2 m	31.6 m	31.6 m	31.6 m

In terms of the quantities of revenue likely to be generated, this will of course depend on the carbon price, which varies according to supply and demand. Over the period 2013–2020, 31.6 million aviation allowances will be auctioned each year. At current carbon prices of approximate €6.32 (~$7.81), less than €200 million ($247m) per year would be generated across 30 countries. The majority of flights covered by the EU ETS are between airports in the EU or by airlines based in the EU. The proportion of flights operated by airlines based in the United States is less than 10 percent of the total.

Airlines make up around 10 percent of the total EU ETS, and auction revenues from aviation allowances are estimated to make up a small fraction (only 6 percent) of overall EU ETS auction revenue that Member States have agreed should be used to tackle climate change, inter alia to fund research and development for mitigation and adaption, including in particular in the fields of aeronautics and air transport.[21]

Nor does any aircraft operator have to participate in auctions. It is their decision how to comply, including by reducing emissions, acquiring aviation allowances from other airlines, acquiring allowances from other companies from the other 90 percent of the system, or acquiring international credits.

If an airline wants to buy allowances from an auction and be sure that the revenues are used to tackle climate change, then this can be done today with certainty from any auction by Germany. According to existing German legislation, all revenues from auctioning of allowances, including aviation allowances, go directly into the Energy and Climate Fund and are dedicated by law to climate purposes.[22]

Related to the introduction of aviation in EU ETS, Germany reduced its Air Passenger Duty as of 1 January 2012.[23]

Conclusion

The EU wants to see a comprehensive and non-discriminatory multilateral agreement in ICAO on aviation emissions as soon as possible, and the US, EU and other players now need to work together to develop renewed momentum for substantive talks in ICAO at global level.

The European Union and the United States have a key role to play in crafting such an international consensus. Our strategic partnership on aviation issues has produced positive results before, with Open Skies and Aviation Safety agreements being just two examples, and we should build on this. Working together also requires respecting each others' rules and regulations.

We very much look forward to continued cooperation with the United States to tackle the important challenges ahead of us in ICAO and to working together with the goal of achieving an effective global agreement.

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[20] *http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/631&format=HTML&aged=1&language=EN&guiLanguage=fr.*

[21] *http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/631&format=HTML&aged=1&language=EN&guiLanguage=fr;* an independent estimate of auctioning shares has been made by the German Aerospace Centre: *http://www.trforum.org/forum/downloads/2010__14__Economic__Impact__EU__Emissions__Airlines.pdf.*

[22] *http://www.bundesfinanzministerium.de/nn__3380/DE/BMF__Startseite/Aktuelles/Aktuelle__Gesetze/Gesetze__Verordnungen/005__a,templateId=raw,property=publicationFile.pdf; http://www.bmu-klimaschutzinitiative.de/en/news.*

[23] *http://www.buzer.de/gesetz/10010/a174272.htm.*

Further to Mr. Delbeke's testimony at the hearing on June 6, the EU Delegation submitted an additional document to substantiate Mr. Delbeke's statements, the impact assessment of the Commission proposal to include aviation in the EU Emissions Trading System:

COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 20.12.2006

SEC(2006) 1684

COMMISSION STAFF WORKING DOCUMENT

Accompanying document to the

Proposal for a

DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

amending Directive 2003/87/EC so as to include aviation activities in the scheme for

greenhouse gas emission allowance trading within the Community

Impact Assessment of the inclusion of aviation activities in the scheme for greenhouse

gas emission allowance trading within the Community

{COM(2006) 818 final}

{SEC(2006) 1685}

This document can be found at *http://ec.europa.eu/clima/policies/transport/aviation/docs/sec__2006__1684__en.pdf.*

The CHAIRMAN. Thank you very much, Director General.

I call now on Captain Cassidy.

STATEMENT OF CAPTAIN SEAN CASSIDY, FIRST VICE PRESIDENT, AIR LINE PILOTS ASSOCIATION

Mr. CASSIDY. Good afternoon, Chairman Rockefeller and members of the Committee. I'm proudly here representing the 53,000 pilots in the United States and Canada from 37 different airlines. I heard your comments about making comments a little bit more brief. I'll try to apply a little bit of NextGen technology to my emissions during my speaking here.

The European Union's emissions trading scheme is an ill-advised, legally questionable job-killer for U.S. airline industry employees. Because the EU's unilaterally implemented tax scheme could cost billions of dollars in just the next few years, it could seriously compromise the economic viability of a very tenuous U.S. airline industry and threaten the tens of thousands of jobs of our workers.

ALPA strongly supports reducing aircraft emissions, just as airlines do. The solution, however, is through investment in high tech engines and airframes, as well as NextGen's procedures, not regressive tax schemes concocted by foreign governments that will harm our employers' ability to sustain and create new jobs.

In addition, proponents of the ETS are disingenuous in implying that the tax revenue it generates will be used for environmental purposes. In fact, no requirement exists for EU member states to

use the revenue for an environmental purpose. They can use the revenue in any manner they wish.

To this point, a May 2012 Council of the European Union conclusions paper makes clear the true purpose of the scheme. It encourages the EU and its member states to further engage effectively in negotiations at ICAO and the IMO to support carbon pricing schemes that primarily incentivize mitigation, but also have the potential to generate revenue.

The scheme also dismisses the U.S. airline industry's significant emissions reductions accomplishments to date. By adding yet another cost for the already overtaxed U.S. airline industry, the ETS could also hinder airlines' future emissions reduction efforts by reducing available capital that is needed to purchase more fuel-efficient aircraft and invest in NextGen infrastructure.

For these reasons and others, I appreciate the opportunity to express ALPA's adamant opposition to the EU emissions trading scheme and to state our gratitude to Congress for formally opposing the scheme in the recent FAA reauthorization. We encourage Congress to take further action to strongly urge the EU to seek a solution through ICAO.

As this committee knows, U.S. commercial aviation contributed to $1.1 trillion in economic activity in 2010. It is responsible for more than 5 percent of the U.S. gross domestic product and drives the employment of more than 10 million people. ALPA is keenly interested in making certain that the U.S. airline industry remains economically robust and competitive in the global marketplace.

Fuel is the airlines' largest expense and our employers are already under tremendous pressure to reduce fuel consumption and emissions. According to the Environmental Protection Agency, U.S. commercial aviation contributes just 2 percent of domestic greenhouse gas emissions, which is a very small fraction of the 25 percent produced by the balance of the transportation industry.

In this context, U.S. commercial airlines have made tremendous voluntary strides in reducing the environmental impact of aircraft operations. The Bureau of Transportation statistics confirms that the U.S. airlines burned almost 14 percent less fuel in 2009 than they did in 2000, resulting in a 14 percent reduction in CO_2 emissions, even though they carried 7.3 more passengers and cargo on a revenue ton-mile basis.

As Senator Hutchison pointed out earlier, the aviation industry has had a tremendously successful record, in fact the most successful, in limiting its impact on the environment while increasing its productivity. Compared to aircraft used in 1972, aircraft in the current U.S. inventory actually used 60 percent less fuel per passenger seat mile. Along with this remarkable progress, the U.S. airline industry has also voluntarily committed to making additional improvements, including an average annual carbon dioxide efficiency improvement of 1.5 percent per year and an industry-wide cap on CO_2 emissions from 2020 forward.

As airline pilots, we are key players in the industry's success in safely reducing fuel burn, noise, and emissions through innovative technology, flight operations, and international cooperation. Examples include technology-enhanced departure and arrival procedures,

optimal altitudes in speed and flight plans, continuous descent-arrival procedures, which are all aspects of NextGen.

The true solution to reducing emissions is pursuing the voluntary efforts I have already mentioned and creating international emissions guidelines through ICAO. The Kyoto Protocol, the G–8, and the United Nations Framework Convention on Climate Change all make it clear that ICAO is the appropriate organization to guide the global airline industry's efforts.

We urge Congress to explore every available option to support the administration's action to exclude U.S. airlines from this harmful and misguided scheme. As an important part of achieving this goal, we thank Senators Thune and McCaskill for their leadership on this issue and encourage all Senators to co-sponsor S. 1956, the European Union Emissions Trading Scheme Prohibition Act of 2011.

Thank you for the opportunity to present our views.

[The prepared statement of Mr. Cassidy follows:]

PREPARED STATEMENT OF CAPTAIN SEAN CASSIDY, FIRST VICE PRESIDENT, AIR LINE PILOTS ASSOCIATION

Mr. Chairman, Ranking Member Hutchison and members of the Committee, I am Captain Sean Cassidy, First Vice President of the Air Lines Pilots Association (ALPA). It is a pleasure and an honor for me to be here today to testify on behalf of more than 53,000 pilot members who fly for 37 airlines in the U.S. and Canada. We appreciate the Committee's interest in the European Union's (EU's) emissions trading scheme (ETS) and the opportunity to present our views on it today.

The EU ETS is a Job Killer

The EU ETS could have a significant adverse effect on U.S. airline employment. Commercial aviation contributed $1.1 trillion in economic activity in 2010 and is responsible for more than 5 percent of U.S. gross domestic product, and the employment of 10 million people. It is no exaggeration to say that commercial aviation is an important component of the very foundation of our Nation's economy—safely transporting people and cargo on millions of flights each year and generating enormous revenues for multiple sectors of the economy. For evidence of this fact, we need only remind ourselves of the tremendous damage done to our economy when the industry came to a standstill for just a few days following the 9/11 attacks.

The ETS could be no more than a thinly disguised tax on commercial aviation as the proceeds of the scheme do not need to be used to reduce GHG emissions or for any other environmental purpose. Rather, the proceeds can go in to Member State treasuries to be used as that Member State pleases. The intent of the EU ETS as a revenue raiser is made clear by the Council of The European Union conclusions paper circulated May 15, 2012. The paper states "ENCOURAGES the EU and its Member States to further engage effectively in negotiations at ICAO and IMO to support carbon pricing schemes which primarily incentivize mitigation and also *have the potential to generate revenue*." This clear statement once again demonstrates that for the EU, this is nothing more than another revenue raising tax.

It is our strong contention that *the industry already pays more than its fair share of taxes.* According to A4A, the industry's non-income tax burden has grown from $3.7 billion in 1993 to approximately $17 billion now. In 1972, the taxes on a $300 domestic round-trip ticket totaled $22, or 7 percent of the total. In 1992, the tax bite on that same $300 ticket had nearly doubled to $38, or 13 percent of the total. Today, the taxes on a $300 airfare are $61, or 20 percent of the fare and represent *nearly a 300 percent increase* over the ticket taxes levied on the airlines in 1972.

The EU ETS taxes will ultimately cost more American jobs at a time when unemployment is high and job creation is everyone's goal. The airlines simply cannot afford any new taxes and we must do all that we can to keep from losing any more jobs in this industry.

The EU ETS is Legally Questionable and Ill-Advised

ALPA has a keen interest in ensuring the ongoing viability of the U.S. airline industry. Our employers are under tremendous stress to reduce fuel consumption and corresponding emissions; fuel is the airlines' largest expense and unless managed

properly, can threaten the very existence of an airline. Since 1978, U.S. commercial airlines have made great progress in reducing the environmental impact of aircraft operations, improving fuel efficiency by more than 115 percent. Moreover, the U.S. industry has committed voluntarily to making additional improvements including an average annual carbon dioxide (CO_2) efficiency improvement of 1.5 percent per year and an industry-wide cap on CO_2 emissions from 2020 forward. The industry is also promoting the creation of international emissions guidelines through the International Civil Aviation Organization (ICAO).

It is most unfortunate, therefore, that the EU has decided to unilaterally implement a stand-alone taxation scheme, ostensibly for the purpose of reducing aircraft emissions. This emissions trading scheme (ETS) would cap emissions at a set amount per airline per year, and then allocate a specific number of free emissions allowances to individual airlines. By April 30 of each year, an airline would be required to surrender a number of allowances equivalent to the amount of its total emissions during the preceding calendar year. An airline that does not surrender sufficient allowances will be held liable for paying a penalty of 100 Euros for each ton of carbon dioxide emitted for which the airline has not surrendered allowances. These penalties could amount to thousands of dollars per flight. All emissions from flights to and from the EU are covered including emissions from those parts of the flights that are outside the territories of the EU member states.

The cost to U.S. airlines for acquiring allowances sufficient to cover their projected emissions could be several billion dollars between 2013, when the first allowance surrender is scheduled, and 2020.

The EU ETS is legally questionable on many grounds. First, to the extent that the EU seeks to regulate activities occurring outside the territories of its member states, it is at odds with the principle of customary international law that each state has complete and exclusive sovereignty over the airspace above its territory, with several provisions of the Chicago Convention, and with the Air Transport Agreement between the EU and the United States. Second, the ETS is inconsistent with the obligation imposed by the Kyoto Protocol of 1997 to address aircraft emissions issues through ICAO. Third, the ETS runs afoul of the prohibitions on fuel taxes or charges set forth in the Chicago Convention and the Air Transport Agreement.

Another significant concern with the ETS is that it may spawn conflicting or redundant emissions schemes in other countries. The ETS permits the exclusion of a country's aircraft from the scheme if that country adopts measures that have "an environmental effect at least equivalent to" those of the ETS. If multiple countries attempt to craft emissions reduction programs that satisfy the EU, airlines may be confronted with a range of schemes that will be complex, costly and perhaps redundant. Such a result must be avoided.

We greatly appreciate the clear statement in the FAA Reauthorization Act that Congress views the ETS as "antithetical to building international cooperation to address effectively the problem of greenhouse gas emissions by aircraft" and that the European Union and its Member States should work through ICAO to develop a consensual approach to address such emissions. We believe that Congress' strong position in this regard is in part responsible for the recent indications from the EU that it would be willing to dismantle the ETS if ICAO were to develop appropriate emissions standards. Unfortunately, the EU and its Member States have not yet committed to working through ICAO to develop those standards.

Industry Progress in Reducing Emissions

As stated above, the commercial airline industry has made significant and meaningful emissions improvements for decades. Airlines have an inherent economic incentive to reduce fuel consumption and greenhouse gas (GHG) emissions because fuel accounts for a significant and volatile part of an airline operating budget. According to the Department of Transportation, in March 2012 the average cost of a gallon of jet fuel was $3.09 per gallon, not including taxes, which represents more than a 10 percent increase compared to its cost in March 2011 (*i.e.,* $2.80) and more than a 41 percent increase over February 2010 (*i.e.,* $2.15). Fuel prices have been trending upward over the last several years and can be rather volatile while doing so. According to Airlines for America (A4A), a one-penny-per-gallon increase in the cost of jet fuel results in an additional cost to the airlines of $175 million over the course of a year. One airline has even resorted to buying an oil refinery to bring some stability to their fuel costs.

The commercial aviation industry improved fuel efficiency by more than 115 percent between 1978 and 2010, and saved an amount of CO_2 that would be equivalent to taking approximately 20 million cars off the road each year. Between 2000 and 2010, GHG emissions and fuel burn were reduced by 10 percent while transporting 15 percent more passengers and cargo.

These impressive efficiency and GHG-reduction improvements have come about, not from the unilateral and ill-advised actions of a consortium of foreign governments, but through the research, development and implementation of new engine and airframe technology by the airline industry. If the EU's planned imposition of expensive, new taxation on the airline industry is enacted, we would expect several unintended consequences to result, including a reduction of capital available to be invested in new technology, and older, more-polluting aircraft being kept in use longer.

Not content to rely solely on new aircraft technology, the airlines are also helping develop and implement renewable energy sources and cutting-edge operational procedures and navigation technologies, described further below. Seven U.S. airlines have signed letters of intent with a synthetic fuel production company for a future supply of jet fuel derived exclusively from biomass. It is expected that by 2015 the company's facility in Northern California will be able to produce up to 16 million gallons of jet fuel to support airline operations in California. The FAA, along with A4A and other industry organizations, have worked since 2006 in a consortium called the Commercial Aviation Alternative Fuels Initiative (CAAFI) to enhance energy security and environmental sustainability for aviation through alternative jet fuels. CAAFI is promoting the development and deployment of alternative fuels that offer equivalent levels of safety and compare favorably with petroleum-based jet fuel on cost and environmental bases. CAAFI has several notable accomplishments to date, which include development of a new American Society for Testing and Materials International (ASTM) specification for a drop-in alternative aviation fuel. ALPA is fully supportive of the CAAFI effort.

As an indicator of where these kinds of initiatives are leading, in November 2011, United Airlines flew the first U.S. commercial passengers on a Boeing 737 powered partly with biofuel made from algae. Also that month, Alaska Airlines made its first biofuel-powered passenger flights. New research suggests that plant-based biofuels could meet 30 percent of global demand for transportation fuel and slash the greenhouse gas emissions that come from burning fossil fuels.

The Pilot's Perspective

Pilots literally sit at the intersection of new technology, operational measures, air traffic control procedures, and varying aircraft capabilities. Pilots and the airline industry as a whole continue to make great strides toward reducing total fuel burn, noise, and tailpipe emissions. These gains have been realized through technological advances and implementation of operational efficiencies.

Airlines and the aviation industry face unique challenges in making these improvements. First are the long and expensive lead times for the research, development, design, and certification implementation for new technologies to improve operational efficiencies and realize significant fuel reductions. Second is the immediate lack of any economically viable alternative to fossil-based fuel.

Aviation arguably has the most successful record of limiting its impact on the environment, while increasing its productivity, of any industrial sector. Airlines have greatly reduced carbon-based emissions through engine technology which reduces fuel burn and emission of undesirable gases and particulates. Compared to aircraft in use in 1972, the U.S. airline industry now carries six (6) times more payload using 60 percent less fuel and has reduced by 95 percent the number of people significantly impacted by aircraft noise. This outstanding record of environmental achievement has resulted in large measure from the airlines continually demanding new aircraft from the manufacturers that burn less fuel, carry greater payloads, and create less noise. Boeing's new 787 is designed to use 20 percent less fuel-and thereby create 20 percent less greenhouse gas (GHG) emissions-than current aircraft of the same size. This aircraft is just one example of the kinds of investments that the airlines make in a very heavily capitalized industry.

It should be noted that according to the Environmental Protection Agency (EPA), U.S. commercial aviation contributes just 2 percent of domestic GHG emissions; a small fraction of the 25 percent produced by the balance of the transportation industry.

Airline pilots can, and do, save fuel and emissions through various operating techniques. Safety is our utmost concern, of course, but where safety is not impacted, airline pilots will reduce fuel usage through such measures as:

- Single-engine outbound taxi—Under certain conditions, it is not necessary that all aircraft engines be operated to taxi on the ramp or on taxiways. When conditions permit, only one engine may be started out of two or more available engines until reaching the end of the runway for takeoff.

- Engine shut-down during inbound taxi—Once the aircraft has exited the landing runway and is headed to the gate or parking stand, one or more operating engines may be shut down, as conditions permit, either in the taxiway environment or on the ramp.
- Technology enhanced departure and arrival procedures; new procedures are being developed with the aid of satellite-based navigation. Area Navigation (RNAV) and Required Navigation Performance (RNP) technology permit shortening the distance and time traveled during departure and arrival.
- Optimal altitude—Each jet aircraft, based on weight and ambient conditions, has an optimum altitude where fuel burn is minimized. To the extent that conditions and circumstances permit, pilots often request that optimal altitude in order to conserve fuel, which reduces emissions.
- Optimal-speed flight plans—Planning and operating a flight at an efficient speed can save fuel. Pilots can optimize fuel burn based on aircraft weight, winds, and atmospheric conditions.
- Continuous Descent Arrival (CDA)/Optimized Descent Procedure (OPD)—Normal approach and landing procedures require an aircraft to reduce power, descend to a new altitude, and then add considerable power to level off, before descending again in stair-step fashion. That process may be repeated several times during any approach and landing. A new approach procedure, the CDA, or what we refer to as an OPD, is being developed that permits pilots to reduce power on all engines and not use significant thrust until safety concerns dictate establishing a stabilized approach configuration prior to landing. This procedure cannot work at all airports at all times due to operational constraints, but at those locations where it can be used, it can save substantial fuel on a single approach.
- Reduced Vertical Separation Minimum (RVSM)—Taking advantage of improved technology, appropriately equipped aircraft can now fly within 1,000 feet—compared with 2,000 feet previously—vertical separation at higher altitudes. This operational change added six additional useable altitudes increasing the opportunity for pilots to fly their aircraft at the optimal, most fuel efficient altitude, in addition to permitting much greater airspace utilization.

We anticipate that if the European ETS is fully implemented, airlines will take measures to avoid flying through European airspace whenever possible. Measures may even include an intermediate stop prior to entering EU airspace. This could result in situations where operational and safety decisions are made on the basis of purely economic considerations. The irony in such a situation would be that to avoid ETS charges, airlines may well fly longer, less fuel-efficient routes and actually emit more GHG than would otherwise be required. In addition, when European taxes are paid, those expenditures will affect airlines' abilities to make capital investments in more fuel-efficient aircraft or develop time-and fuel-saving procedures.

Recommendations

As pilots, we deal with facts, and the facts clearly show that while aviation is a contributor of greenhouse gas and other emissions, it plays only a very small role in the overall issue. Indeed, we could ground the entire world's fleet, and not make any significant impact on climate change. The industry is poised to continue to make great strides in reducing emissions through technology and operating procedures. We believe that the best way to achieve those results is the same way that we have made such great advances thus far, namely, through industry's investments in increasingly advanced technology, alternative fuels and better operating procedures. Allowing the EU to impose an ETS will have very little, if any, actual impact on the amount of GHGs released into the atmosphere by U.S. airline aircraft. However, it will take away from investments in new fuel-efficient aircraft and infrastructure while adding to an already high tax burden.

The EU's ETS is a job killer that has the potential to do severe economic harm to the U.S. economy and U.S. airlines at a time when taxation of the airline industry and unemployment are already very high. Congress should determine what it can do to support the Administration's effort to obtain an exclusion of U.S. carriers from the scheme and act accordingly.

Thank you, again, for the opportunity to testify today. I would be pleased to address any questions that you may have.

The CHAIRMAN. Thank you very much, Captain.

I call now upon Mr. Ed Bolen, President and Chief Executive Officer, National Business Aviation Association.

STATEMENT OF EDWARD M. BOLEN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL BUSINESS AVIATION ASSOCIATION

Mr. BOLEN. Thank you, Mr. Chairman.

Mr. Chairman, there is a lot wrong with the European Union's emissions trading scheme. In fact, I would submit that it's fatally flawed. This afternoon you're going to hear a lot from the aviation community about what is specifically wrong with it, and as a part of that aviation community we certainly agree with much of what you're going to hear.

But I want to be very specific in my comments today because, as unfair as the EU ETS is on commercial aviation, it is even more onerous and more unfair to non-commercial aviation. And as closely as we work with the commercial aviation industry, we do not represent them.

Our members at NBAA are thousands of U.S. companies, small, medium, and large, from a wide variety of industries. Our members manufacture tractors, they install restaurant equipment, they sell plumbing supplies, they build computers, they're in construction, they're in farm operations. About the only thing that our members have in common is that they rely on non-commercial aviation to get people and equipment to places where they need to be, when they need to be there. That's how they survive in a very unforgiving global marketplace.

The planes that our members fly are built in the United States or they have most of their components built in the United States. So make no mistake about it, business aviation is predominantly a U.S. industry. It's a U.S. industry that helps create jobs and spurs economic development. It's a U.S. industry that enhances productivity and assists in humanitarian efforts. It's a U.S. industry that connects people in the global marketplace.

As I mentioned before, with the EU ETS the Europeans have singled out business aviation for especially onerous and unfair treatment. As badly as the commercial airlines are treated, non-commercial operations are treated worse. Let me give some specific examples building on a question that Senator Cantwell asked earlier.

A commercial airline based in South America can fly from Chile to Europe twice a day using an Airbus A340, a large commercial transport airplane. Yet they are not subject to the requirements of the EU ETS. Why? Because commercial carriers who operate only two flights per day are exempt as "small emitters." They enjoy a small emitter exemption from the EU ETS requirements.

A European-based airline that flies less than two flights per day in Europe is also exempt, also deemed a small emitter, not big enough to worry about.

Yet a U.S.-based company that builds farm equipment in the Midwest, that flies one flight per year to Europe, is subject to all of the requirements of the EU ETS. Why? Because it's non-commercial aviation and the EU treats non-commercial aviation differently than commercial aviation.

How can this be? How did they set a threshold where they have different threshold standards for commercial aviation and non-commercial aviation? I don't know. But I do know it also applies to ground-based systems. There's a small emitter exemption for fac-

tories in the EU. They are not considered as big enough to be part of the EU ETS unless they emit more than 25,000 metric tons per year. And yet a U.S. company flying one flight on a U.S.-based airplane, a U.S.-built airplane, is part of these requirements. We think that that's wrong.

Why is it a big deal to be made part of the EU ETS requirements? It's because it creates a lot of onerous administrative burdens. You've got to submit records. You've got to submit bank files. You've got to put forward a lot of private information that then becomes public. So there's an administrative burden to it, as well as the cost of flying.

Now, we appreciate all that the U.S. Government has been doing to date, but we think more needs to be done. We're excited about the bill that is being considered by this committee. We support it. We think it is important that the aviation community not be treated differently and we think that everyone within the aviation community ought to be treated similarly.

Thank you for the opportunity to talk here today.

[The prepared statement of Mr. Bolen follows:]

PREPARED STATEMENT OF EDWARD M. BOLEN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NATIONAL BUSINESS AVIATION ASSOCIATION

Chairman Rockefeller, Ranking Member Hutchison, members of the Committee, on behalf of the more than 9,000 members of the National Business Aviation Association (NBAA), we appreciate this opportunity to provide our views on the European Union's Emissions Trading Scheme (EU ETS) and its impact on general aviation aircraft operators based in the United States.

We commend the Committee for holding this important hearing. NBAA and the entire industry believe that when it comes to aviation operations, environmental stewardship is an imperative. The industry continually works to develop reasonable, effective and balanced policies that support the twin goals of promoting the mobility and growth of aviation while safely minimizing its environmental footprint. While business aviation has steadily reduced its emissions and represents only 0.04 percent of global man-made carbon emissions (as illustrated by the chart below), the industry has developed aggressive and measurable goals to achieve further reductions (which will be described in more detail later in the testimony).

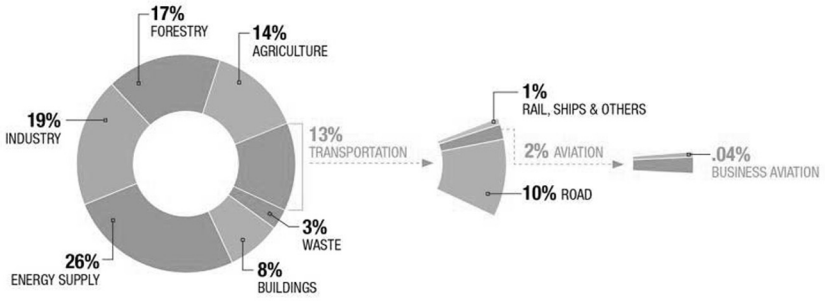

Chart courtesy of IBAC and GAMA

Aviation is an inherently global industry. Aircraft are routinely flown across borders and from continent to continent. Given the global nature of aviation and the prevalence of international operations, a critical need exists for globally harmonized policies, rules and procedures to ensure safe, efficient and balanced operations. A global approach is needed to avoid a costly, cumbersome and divisive patchwork of differing national and regional requirements. The efficient movement of aircraft between countries and the need to globally mitigate the impact of greenhouse gas

(GHG) emissions demands a global sectoral approach to further emissions reductions and monitoring.

Despite these facts and the industry's clear progress and environmental commitment, the EU made a decision to move forward in a unilateral and divisive fashion with the ETS. Business aviation is aligned with the rest of the aviation community in strongly opposing the ETS's application to international aviation and in reiterating our belief that resolution through a global sectoral approach will best advance our shared environmental goals. The International Civil Aviation Organization (ICAO) is the appropriate body to establish the targets and mechanisms.

Facts About Business Aviation

From creating growth opportunities and global connectivity for America's small towns and rural areas to supporting the Nation's productivity, business aviation is an important economic engine, creating jobs and investment, while contributing to the world's leading aviation system. Business aviation is absolutely essential as U.S. companies work to compete in a global marketplace. Simply put, business aviation is a vital part of the Nation's economy and transportation system.

Business aviation is defined by the FAA as the use of any general aviation aircraft (piston or turbine) for a business purpose. NBAA was founded 67 years ago to represent companies that utilize general aviation aircraft as a tool for meeting some of their transportation challenges. While NBAA member companies purchase billions of dollars per year in commercial airline tickets, there are critical situations where the use of a general aviation aircraft is indispensable. For U.S. companies to be successful in these challenging economic times, every business tool must be available—including general aviation aircraft.

General aviation is an essential economic generator, contributing more than $150 billion to annual U.S. economic output, and employing more than one million people. Most general aviation aircraft operating around the world are manufactured and/or completed in the U.S., and our industry is continuing to build a strong American manufacturing and employment base that contributes positively to our national balance of trade.

General aviation includes diverse operations, with business uses that range from agriculture, to law enforcement, to fire and rescue services, to varied government, educational, nonprofit organizations and businesses of all sizes. Servicing and supporting these organizations are FBO's, maintenance technicians, suppliers and service providers.

Business aviation is not only an economic lifeline for thousands of our Nation's smaller communities; it also supports people and communities in times of crisis in the U.S. and around the world.

General aviation has snapped into action when there's a need to confront floods in the Midwest, fires in the West, or a whole host of other natural disasters. The business aviation community—working mostly on a volunteer basis—has always been quick to help assess damage, rescue those affected by these disasters, and carry in lifesaving support and supplies to the affected regions.

In addition, hundreds of GA operators carried thousands of passengers and over a million pounds of supplies to and from Haiti after the devastating earthquake there. In fact, Congress passed a resolution commending general aviation for its response to the crisis.

The people who rely on a general aviation aircraft for business are also dedicated to helping provide lifesaving flights to the communities in which they live and work. Operations like the Corporate Angel Network arrange free air transportation for cancer patients traveling to treatment using the empty seats aboard business airplanes. Angel Flight America's seven member organizations and 7,200 volunteer pilots arrange flights to carry patients to medical facilities.

The Veterans Airlift Command uses business airplanes and unused hours of fractional aircraft ownership programs to provide free flights for medical and other purposes for wounded service members, veterans and their families. Veterans Airlift finds volunteers in the business aviation community to fly missions on request and contribute the full cost of their aircraft and fuel for the missions flown.

Economic Challenges Facing Business Aviation

Unfortunately, the people and businesses in general aviation, like other industries, are weathering one of the worst economic storms anyone has ever seen. The impact of the flagging economy on the companies and communities that rely on general aviation is visible in all parts of the country.

Over the past few years, we saw business aviation flying decrease by as much as 35 percent in some locations—which unfortunately led to thousands of layoffs across the industry and country. While we have seen some uptick in flight activity in re-

cent months, activity is still below the 2008 levels and experts agree that the recovery will be slow and gradual over the next several years.

Business Aviation's Commitment On Climate Change

While much has changed for the industry as a result of the recession, one constant is our commitment reducing the industry's already small environmental footprint. Business aviation's global CO_2 emissions are a small fraction of global man-made carbon emissions (less than one half of 1 percent). Nevertheless, business aviation has established an excellent record of constantly improving fuel efficiency and lowering emissions.

As previously mentioned, business aircraft are operated for specific missions and fly efficient, direct routes between airports. Modern navigation equipment combined with the latest technologies in aircraft and engine design and operational improvements provide for ever-improving fuel efficiency and reduced GHG emissions.

Business aviation has made substantial progress in lowering emissions, but we are resolved to do more. Together, the business aviation manufacturing and operating communities have developed an aggressive program for further improvement.

To this end, the business aviation community has publicly committed to the following specific targets:

- Carbon-neutral growth by 2020;
- An improvement in fuel efficiency of an average of 2 percent per year from today until 2020, and;
- A reduction in total CO_2 emissions of 50 percent by 2050 relative to 2005.

Achieving the above targets will require not only sustained effort on the part of the entire business aviation community, but will also require partnership between industry and government to develop solutions that balance economic growth and environmental goals. We anticipate reaching these objectives through advances in the following areas:

- *Technology.* Improvements in aircraft frames through aerodynamic design changes and weight reductions with composite materials. Engine advances will also reduce emissions.
- *Operational Streamlining.* Through collaboration with air traffic management, fully implement efficient procedures and modernize ATC.
- *Alternative Fuels.* The aviation industry is driving the research, development and deployment of commercially viable, sustainable alternative aviation fuels. Based on current research and the encouraging results already demonstrated in flight, business aviation anticipates a CO_2 reduction of 40 percent in absolute terms from biofuels by 2050. This is an area that holds huge promise for significant GHG reductions, but will require a sustained commitment to fund research and development.
- *Market-based measures.* The successful achievement of carbon neutral growth by 2020 will be challenging. During this interim period, business aviation operators are open to offsetting their emissions through market-based economic measures. Conceptually, market-based emissions should be limited in their focus and duration. They should not create onerous administrative burdens or excessive costs. These measures should also treat all segments of aviation in equivalent measures (unlike the ETS, which clearly singles out certain segments for punitive and discriminatory treatment). And, most important, they must be developed in the context of a global sectoral approach to aviation emissions.

NBAA would like to again recognize the efforts of this Committee to complete the important multi-year FAA reauthorization legislation that will undoubtedly expedite the transformation to the Next Generation Air Traffic Control technology—or NextGen. In fact, when implemented, NextGen has been projected to reduce emissions by an additional 12 percent.

In addition, Section 509 of the FAA reauthorization bill included a Sense of the Congress provision that accurately sums up the issue:

It is the sense of Congress that—

1. *The European Union directive extending the European Union's emission trading proposal to international civil aviation without working through the International Civil Aviation Organization (in this section referred to as ICAO) in a consensus-based fashion is inconsistent with the Convention on International Civil Aviation, completed in Chicago on December 7, 1944 (TIAS 1591; commonly known as the Chicago Convention), and other relevant air*

services agreements and antithetical to building international cooperation to address effectively the problem of greenhouse gas emissions by aircraft engaged in international civil aviation;

2. *The European Union and its member states should instead work with other contracting states of ICAO to develop consensual approach to addressing aircraft greenhouse gas emissions through ICAO; and*
3. *Officials of the U.S. Government, and particularly the Secretary of Transportation and the Administrator of the Federal Aviation Administration, should use all political, diplomatic, and legal tools at the disposal of the United States to ensure that the European Union's emissions trading scheme is not applied to aircraft registered by the United States or the operators of those aircraft, including the mandates that the United States carriers provide emissions data and purchase emissions allowances from or surrender emissions allowances to the European Union Member States.*

Aviation Requires A Global Sectoral Approach

In 1944, the first Convention on International Civil Aviation was convened in Chicago. It was clear that aviation would change the world with its global reach and that the promise of aviation for all countries could only be realized through global coordination and cooperation. At that meeting in Chicago (now referred to as the Chicago Convention), 52 nations formed the International Civil Aviation Organization (ICAO). According to ICAO's website, "the International Civil Aviation Organization was created in 1944 to promote the safe and orderly development of international civil aviation throughout the world. It sets standards and regulations necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection. The Organization serves as the forum for cooperation in all fields of civil aviation among its 191 Member States."

What was true in 1944 is magnified today—the world is truly a global marketplace, and aviation is the physical connector. And today, aviation is a safer and more secure mode of transportation due to ICAO and its harmonized approach international aviation operations.

ICAO seeks to harmonize aviation regulations from one country to another and facilitate aircraft movements across borders. The ICAO process has a proven track record of success. Just as the ICAO process has worked for safety and security advances; it is working for the environment.

Contrary to almost 70 years of international collaboration, treaties and precedent, the EU's ETS is a unilateral, regional dictate that does not promote harmonization and instead sets in motion a patchwork of separate, distinct and potentially conflicting regulations.

The ETS creates a series of onerous reporting, monitoring and verification requirements that are costly to administer. This also raises serious privacy and business confidentiality concerns, because the scheme requires U.S. companies to provide a huge amount of sensitive data, including bank account information, flight data, personal information and other disclosures—all of which would be made available to the public. These intrusive, administratively burdensome and expensive requirements are all before the actual cost of the ETS is even assessed on operators.

As wrong as the EU ETS is for the airlines, its impact is even more significant and overwhelming for non-commercial operators. Under the ETS structure, non-commercial operators are singled out for discriminatory treatment because businesses that utilize general aviation are not eligible for carbon allowances. As a result, non-commercial GA flights will not receive any allowances and must pay on every flight, while commercial operators will receive 85 percent of their allowance free of charge.

To illustrate the disproportionate and punitive treatment of business aviation operators, consider that under the ETS, the EU has said that a commercial operator that emits less 25,000 TONS per year of CO_2 or operates fewer than 243 flights in 3 consecutive 4 month periods is classified a "small emitter" with "de minimus" emissions, and is exempted from the ETS—while a single general aviation flight from the U.S. is required to comply with the excessive administrative requirements and pay this extraterritorial tax. According to the European Commission's September, 2011 presentation to ICAO, foreign-based airlines from 23 countries "have commercial operations which fall under the de minimus provisions in the EU ETS and are thus exempted from EU ETS."

Contrast this to a US-based non-commercial GA operator with only one flight per year that is required to register, monitor, verify, report and pay for allowances.

And, it is not just commercial airplane operators that are eligible for the "small emitter" exemption. Ground-based emitters in Europe have a 25,000 ton emissions threshold. So if a hypothetical European manufacturer of widgets operates from a

facility that annually spews 24,000 tons of emissions through its smoke stack—it is exempt from the EU-ETS requirements. It has been deemed a small emitter—apparently too insignificant to be bothered with the onerous EU ETS requirements.

But, again, any U.S.-based company that uses a general aviation airplane to fly a single non-commercial flight to Europe will be subject to the EU ETS.

Let me be clear. The European factory with its smokestack is putting hundreds of times more emissions into the environment than the U.S. company flying a single non-commercial flight to Europe, but it is the U.S. company that is subject to the EU ETS requirements rather than the European factory.

How does this make sense? It does not. It is unfair. It is discriminatory. It singles out a great American industry for discriminatory treatment.

In addition, the ETS taxes flights outside of EU airspace, which is a clear violation of the U.S. sovereignty and international law. Taxing any activity beyond the EU borders is a dangerous precedent and a violation of the sovereignty of nations across the world.

Finally, in our opinion, the ETS will not advance environmental objectives. The EU has no authority to require member states to reinvest revenues from the ETS into aviation research and development or other emission-abatement initiatives.

In other words, the EU–ETS would have anyone who flies from the U.S. into European airspace directly subsidizing foreign governments at the expense of aviation.

This is an urgent situation with dire consequences for U.S. aircraft operators. While we appreciate the efforts of the U.S. Government to date, it is time to intensify and expand our government's response, protect all U.S. aviation operators and their employees, and return to the appropriate internationally driven process for addressing aviation emissions—ICAO. We again urge the EU to work collectively with the 191 ICAO members to develop worldwide emissions strategies.

NBAA asks the U.S. Government to use every tool available to get the EU and its member states to the table at ICAO to develop and implement the global sectoral approach discussed in 2010.

Given that to date, the EU continues to ignore long-standing international procedures and insists on including international aviation in the ETS, NBAA also supports S. 1956, The European Union Emissions Trading Scheme Prohibition Act Of 2011. As noted in the legislation, it is important to ensure that operators are not penalized financially or through airspace restrictions when this prohibition takes effect. In addition, we urge that implementation of the legislation clarify that the prohibition extends to the registering, monitoring, reporting and verification requirements, as well as paying the ETS taxes. NBAA thanks the bill's sponsor (Senator Thune) and cosponsors (Senators Boozman, Enzi, Isakson, Johanns, McCaskill, Rubio and Wicker), and we look forward to working with all members of the Senate to expedite consideration of S. 1956.

Mr. Chairman, Ranking Member Hutchison and members of the Committee, the general aviation community is grateful for the tremendous leadership this committee has provided as we collectively work to address environmental challenges. We look forward to continuing to work with you to ensure that aviation climate issues are addressed in a constructive and appropriate global forum.

Thank you.

The CHAIRMAN. Thank you very much, Mr. Bolen.

Now Ms. Annie Petsonk, EDF, Environmental Defense Fund, plus charts.

STATEMENT OF ANNIE PETSONK, INTERNATIONAL COUNSEL, ENVIRONMENTAL DEFENSE FUND (EDF)

Ms. PETSONK. Thank you very much. Good afternoon, Mr. Chairman and distinguished members of the Committee. Thanks for your invitation to speak today. I'd like to make three points regarding the EU ETS for aviation.

First, it's modest, effective, and reasonable.

Second, it can create jobs here in the United States without significant cost to the industry. Analyses indicate that the industry may even be able to profit from it.

And third, it intrudes into U.S. sovereignty no more than similar U.S. laws intrude into the sovereignty of other nations.

Aviation today emits a fairly small slice of global carbon pollution, about as much as the total emissions of Canada. But aviation is one of the fastest growing sources of that pollution. U.S. airlines say that they have cut emissions 15 percent, but, as this chart shows, their emissions dropped with the financial crisis and they're starting to grow again, and FAA forecasts that that growth will continue.

As the next chart shows, global aviation emissions are also forecasted to grow. On this chart, the top red line is the projected growth in global aviation emissions. The purple line below is emissions within Europe from aviation and flights to and from European nations.

The industry has proposed voluntary emissions reductions that are indicated by the top pale green line, a very small reduction from business as usual. The EU ETS cuts emissions 3 percent the first year and then 5 percent for the remaining years, as shown by the bottom blue line on this chart. That's a modest cut, but it's still the equivalent of taking 30 million cars off the road each year.

The next chart talks about gains in efficiency in the industry. The airlines will tell you that because fuel costs money, they have every incentive to save fuel and boost efficiency. But the fact is that the efficiency of new jet aircraft has been essentially flat for the past 20 years, the decade of the 1990s and post-2000 shown there. And as the number of flights increases, total emissions will continue to grow if they're not capped.

My second point is that capping aviation pollution can create good jobs here in the United States, making the technologies and hardware to help planes fly more efficiently do better. Airbus's decision to source efficient airframes from West Virginia's Ravenswood Aluminum plant is just one example of the potential for job growth if there is a target and that target is to cut emissions.

Contrary to some of what you've heard today, compliance with the EU law is projected to be very cheap. Next chart, please.

The FAA supported MIT to do an analysis of how much this would cost the U.S. aviation industry, and it found that the costs to U.S. carriers are projected to be very small, six dollars on a round trip air fare. Here's a chart of the cost of my flight to Denmark that I took in April. You can see the biggest blue bar is $1,350. That's the airline's. That's what United charged me as the base fare.

The next, light purple area is what United charged me as the airline fuel surcharge, almost $500, $496. Then you have the U.S. arrival and departure tax at $33.40; other U.S. taxes; and United raised my fare $6 round trip to cover the cost of the EU ETS. They did that in January of this year after the MIT study became public. That tiny line down there is the estimated cost of the EU ETS, and our calculation is that, even with the $6 increase, United is making money on those tickets because the cost of compliance is substantially less.

Six dollars is the cost of a beer on a United flight, just to be clear. I don't know the cost in relation to how much a family is charged to sit together, but I'll find out soon because my family and my son want to travel together this summer.

I want to be clear. Under this law, no airline is required to send a nickel to the treasury of a foreign government. Senator Cantwell, I know this was a concern of yours in particular. No airline is required to send a nickel to a European government treasury under this law if it doesn't want to. Airlines can cut their own emissions, they can purchase allowances from any of 12,000 other participants in the EU trading market, and none of that sends any money to foreign treasuries.

My third point is that the EU law is no more an intrusion into U.S. sovereignty than America's own aviation laws intrude into the sovereignty of other nations. Our country does tax everyone who boards a plane in the United States heading overseas and we tax people in other countries who are getting onto planes in their countries. We collect a tax on foreign soil and we bring it here. We're not alone in doing this. We posted on our website a list of these laws. Some of them specifically vary the tax depending on how long the flight, what the flight distance is.

To those who say that a better solution would be in ICAO, we agree. We want to share our ideas with government, with industry, and with all the stakeholders about how to get an effective limit in aviation pollution in ICAO, and we think it can be done. But ICAO has wrangled with this issue for 15 years. It's only because of the EU ETS that ICAO has made more progress this year than ever before.

Until ICAO reaches an agreement, the EU's program is reasonable, affordable, and it makes sense.

I want to close with a cautionary note. After the airlines lost their court case against the EU, challenging the EU's law, they came here and asked the Senate to ban their participation in the EU system. That could have some unintended consequences. If you pass a bill authorizing the Secretary to prohibit the airlines from participating and he does so, that could trigger compliance liabilities for them in the jurisdictions where they're required to obey the EU law.

Their insurance policies likely will not cover that liability. We have reviewed their policies. Senator Thune's bill directs the Secretary to hold the airlines harmless, but doesn't give a path forward for how to do that. How would he? Would he ask U.S. taxpayers to foot the bill? I hope not. I'd be interested to hear, through you, from our friends in the airlines whether they would still want the ban if the Secretary cannot hold them harmless.

Mr. Chairman, Senator Cantwell, thank you. I would be happy to answer questions.

[The prepared statement of Ms. Petsonk follows:]

PREPARED STATEMENT OF ANNIE PETSONK, INTERNATIONAL COUNSEL, ENVIRONMENTAL DEFENSE FUND (EDF)

Good morning, Mr. Chairman and distinguished members of the Senate Committee on Commerce, Science, and Transportation.

Thank you, Chairman Rockefeller, for your invitation to provide the views of Environmental Defense Fund on the European Union Emissions Trading System (EU ETS), its expansion to cover the emissions of flights landing at and taking off from EU airports, and S. 1956, a bill that would give the Secretary of Transportation authority to prohibit U.S. air carriers from participating in the EU ETS, and

that would direct the Secretary of Transportation to ensure that U.S. carriers so prohibited are held harmless from any consequences of their non-participation.

My name is Carol Annette (Annie) Petsonk, and I am international counsel at the Environmental Defense Fund, EDF. EDF is a leading national nonprofit organization representing more than 800,000 members. Since 1967, we have linked science, economics and law to create innovative, equitable and cost-effective solutions to society's most urgent environmental problems. We are guided by scientific evaluation of environmental problems, and by the recognition that common-sense economic tools can tap human ingenuity powerfully in combining environmental protection and economic well-being.

I am honored to have had the opportunity to provide counsel on these kinds of approaches in my career at EDF, and prior to that, at the U.S. Department of Justice and the Office of the U.S. Trade Representative in the administrations of Presidents Bill Clinton and George H.W. Bush, as well as legal representation of a range of private companies and substantial experience in the developing world.

I come to aviation issues having grown up with a father who was a pilot and an engineer, who during World War II helped develop the first reversing propeller for the blimp. Our dad gave my brothers and me a love of flight and a great appreciation for the innovative engineers who make flight possible and who improve it continually. One of the Boy Scouts my father mentored became an avionics industry leader, inventing among other things the static discharger which you see on the trailing edge of most aeroplane wings. One of those dischargers sat proudly in our living room for many years.

Later, after I moved to Washington, D.C., on one of my frequent visits to family in Morgantown, West Virginia, I had the opportunity to go with my father to an antique air show at Hart Field. Taking a test flight in an open cockpit biplane of the type my father flew (a Stearman) gave me renewed admiration for him and the other pilots of the time, who performed incredible aerobatic maneuvers in planes that you could literally fall out of, who risked and gave their lives in the sky every day. It also gave me greater appreciation of the advances in aviation in what is, in the human scheme of things, an incredibly short time.

Today I am honored to be invited to present the views of the Environmental Defense Fund on the European Union's Emissions Trading System for aviation,[1] its potential costs and benefits, its competitiveness effects, and S. 1956, proposed legislation addressing the ETS.

Background. First, a word of background on the EU ETS and the aviation emissions it has been extended to address.

- The EU ETS is the world's largest program to limit global warming pollution.
- Its emissions caps cover some 12,000 large stationary sources.
- Its carbon market makes up over 80 percent of the more than $140 billion annually that carbon markets have mobilized in emissions-cutting technologies and processes.[2]
- While the system has had some notable growing pains, overall it is succeeding in bringing emissions down, driving technology change, and focusing innovation on low-carbon development, even during recessionary times in Europe,[3] with minimal impact on competitiveness.[4]

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[1] Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008 (Official Journal of the European Union L 8/3, 13 January 2009) amending Directive 2003/87/EC so as to include aviation activities in the EU ETS ("the EU law").

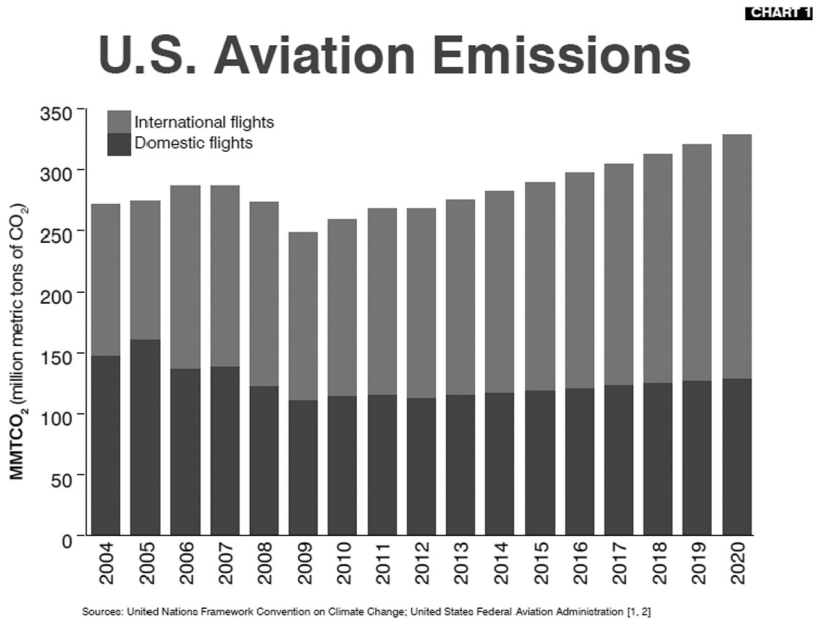
[2] State and Trends of the Carbon Market (World Bank 2011) (hereinafter "State and Trends") at 9.

[3] State and Trends at 41; see also Frank Watson, "EC CO_2 data shows that EU carbon trading is working: analysts," EU Energy, April 11, 2011, available at *http://www.platts.com/NewsFeature/2011/emissionsdata/index.* (accessed 04/24/12); and see Denny Ellerman, Frank Convery, and Christian de Perthuis. *Pricing Carbon* (Cambridge Press 2010); see also European Commission, "Climate change: Progress report shows EU on track to meet or over-achieve Kyoto emissions target." Press Release, Brussels, November 12, 2009, *http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/1703&format=HTML&aged=0&language=EN&guiLanguage=en.* (accessed June 3, 2012); and see Emissions trading: annual compliance round-up shows declining emissions in 2011, *http://europa.eu/rapid/pressReleasesAction.do?reference=IP/12/477* (accessed June 3, 2012).

[4] "Europe's emissions trading forum has 'tiny' impact as companies prepare for auctions", ClimateWire Dec. 9, 2010, available at *http://www.eenews.net/public/climatewire/2010/12/09/1* (access April 2012). For prospective analyses, see McKinsey and Company and Ecofys, "EU ETS Review: Report on International Competitiveness," European Commission, December 2006, available at *http://origin.mckinsey.com/clientservice/sustainability/pdf/Report_on_International_Competitiveness.pdf.* (access April 2012), and Julia Renaud, "Industrial Competitiveness under the European Union ETS," IEA Information Paper, International Energy Agency, Decem-

The global warming impacts of aviation emissions have been a subject of concern since at least 1994.[5] While aviation is not the largest source of greenhouse gases, the sector's global warming pollution has grown rapidly and is slated to increase dramatically in the years ahead. The U.S. Congressional Research Service calls aviation "one of the fastest growing sources of emissions."[6] It's already the second-largest emissions grouping covered by the EU ETS (after electric power generation). Aviation emissions from international flights almost doubled from 1990 to 2006.[7] As Chart 1 on *edf.org/aviation/testimony* indicates, emissions from flights into and out of the United States are predicted to grow by about 75 percent by 2020, compared with 2005 levels.[8] Without limits, emissions from aviation globally are expected to quadruple.[9]

CHART 1



ber 2004, available at *http://194.245.121.74/fileadmin/gruppen/bdz/Themen/Umwelt/IEA-Studie_11-2004.pdf.* (access April 2012).

[5] Oppenheimer, M. & Vedantham, A. (1994). *Aircraft Emissions and the Global Atmosphere.* EDF Special Report. New York: Environmental Defense Fund; see also Vedantham, A., & Oppenheimer, M. (1998). Long-term scenarios for aviation: Demand and Emissions of CO_2 and NO_X. *Energy Policy.* Vol. 26. No. 8.

[6] Congressional Research Service, Aviation and the European Union's Emission Trading Scheme, March 7, 2012, at 5.

[7] Group on International Aviation and Climate Change (GIACC) Report, ICAO, 2009, *http://www.icao.int/environmental-protection/GIACC/GiaccReport_Final_en.pdf,* at 7.

[8] EDF calculation, based on *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990—2010* (USEPA April 2012), *http://epa.gov/climatechange/emissions/usinventoryreport.html* (historical emissions data); *FAA Aerospace Forecast: Fiscal Years 2012–2032* (FAA 2012), *http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/aerospace_forecasts/2012-2032* (forecasts); and *Aviation and Emissions: A Primer* (FAA 2005), *http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/media/aeprimer.pdf* (fuel efficiency improvements).

[9] See, *e.g.,* Aviation and the Global Atmosphere, J.E. Penner, D.H. Lister, D.J. Griggs, D.J. Dokken, M. McFarland (Eds.), Intergovernmental Panel on Climate Change (Prepared in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer), Cambridge University Press, 1999 (hereinafter "IPCC Special Report on Aviation"), Summary for Policymakers available at *http://www.ipcc.ch/pdf/special-reports/spm/av-en.pdf* (accessed June 3, 2012); and see Commission of the European Communities. Summary of the Impact Assessment: Inclusion of Aviation in the EU Greenhouse gas Emissions Trading Scheme (EU ETS). 2006.

Moreover, aviation's global warming impact may be even greater given the other gases emitted by planes flying at high altitudes, and given the contrail clouds formed by aviation pollution.[10]

In addition to greenhouse gases, airplanes emit a wide range of pollutants, including carbon monoxide, sulfur and nitrogen oxides, VOCs, and even toxic air pollutants.[11] Pollution from aircraft causes hundreds of premature deaths each year.[12] Those impacts are particularly severe in Southern California.[13] Takeoffs and landings are associated with increased concentrations of ultrafine particulates, pollutants not regulated by EPA, in areas close to airports.[14] In addition, carbon monoxide emissions for aviation have been found to have significant impacts on asthma, respiratory, and cardiac health in populations living near airports.[15] As aviation continues to grow, and the population exposed to airplane pollution ages and grows, the health effects from aircraft pollution are expected to increase by as much as 6 times by 2025.[16] To ensure that aviation does not become a growing health problem, we must find ways of reducing emissions. Airplanes cause pollution when they burn fossil fuels—policies that drive improvements in fuel efficiencies bring the added benefit of reducing exposure to health-harming and toxic pollutants from aircraft.

The Parties to the United Nations Framework Convention on Climate Change (UNFCCC), including the United States, began considering as early as 1995 ways to address the global warming pollution from aviation. At their first meeting of the Conference of the Parties, the UNFCCC's Subsidiary Body on Scientific and Technological Advice (SBSTA) initiated a discussion on greenhouse gas emissions from the aviation and maritime sectors.[17] In 1996, SBSTA, in which all UNFCCC Parties, including the U.S. and the EU, participate, considered eight different methodologies for accounting for the emissions of flights traveling between different countries.[18] The eighth option was to account for the emissions based on a "sovereignty" approach, with responsibility for emissions occurring in the airspace of any particular sovereign resting with that sovereign. In discussing this option, the Parties agreed that it would lead to perverse results: the emissions of a flight would "belong" to a nation simply because the vessel had transited that nation's airspace, even though the flight had never landed in the country. Pollution from flights passing through airspace over the high seas would be "orphaned." Because of the "orphan emissions" and perverse results problems, SBSTA formally dropped from consideration the eighth option—i.e., the airspace-based methodology. In 1998, the Climate Treaty's supreme body, namely the Conference of the Parties to the UNFCCC (including the United States), endorsed SBSTA's decision,[19] rejecting the airspace-based methodology.

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[10] See Meeting the UK Aviation target—options for reducing emissions to 2050 (UK Committee on Climate Change, December 2009), *http://www.theccc.org.uk/reports/aviation-report*.

[11] FAA, Aviation and Emissions: A Primer, 2005.

[12] Aircraft Impacts on Local and Regional Air Quality in the United States, PARTNER Project 15 final report, Ratliff et al., October 2009, Report No, PARTNER-COE–2009–002 at 44.

[13] *Id.*

[14] Hsu et al., 328 50 Atmosphere Environment (2012).

[15] Schlenker, Wolfram & Walker, W. Reed, "Airports, Air Pollution, and Contemporaneous Health," NBER (Dec. 2011) at 29, 30.

[16] Levy *et al.,* "Current and Future Particulate-Matter-Related Mortality Risks in the United States from Aviation Emissions During Landing and Takeoff", 32 Risk Analysis 237 (2012).

[17] See Environmental Defense Fund, The Long Road Toward Reducing Greenhouse Gas Emissions from Aviation (hereinafter "The Long Road"), *http://www.edf.org/sites/default/files/EU_aviation_ETS_timeline.pdf* (accessed June 3, 2012). See also A New Flight Plan: Getting Global Aviation Climate Measures Off the Ground (Transport & Environment, Environmental Defense Fund, The International Council on Clean Transportation and the Aviation Environment Federation, February 2012) (hereinafter "New Flight Plan"), *http://www.transportenvironment.org/sites/default/files/media/Aviation%20Conference%20Background%20Report.pdf* (accessed June 3, 2012), at pages 13–14.

[18] See FCCC/SBSTA/1996/9/Add.1, paras. 27–30.

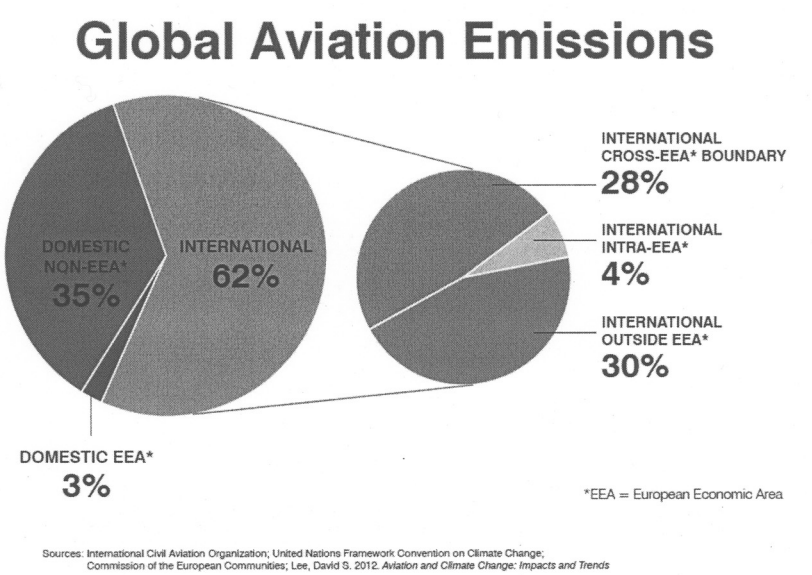
[19] See Report of the Subsidiary Body for Scientific and Technological Advice on the work of its Fourth Session, Geneva, 16–18 December 1996, Item IV B.2 Conclusions, Endorsed by the UNFCCC Conference of the Parties at its Third Session, see UNFCCC COP Decision 2/CP.3, reprinted in FCCC/CP/1997/7/Add.1 (25 March 1998) at page 31. The ICAO has also effectively rejected the airspace-based methodology. In 2004, the ICAO Executive Committee asked ICAO to provide guidance for ICAO Contracting States on incorporating emissions from international aviation into the States' emissions trading programs. In so doing, the ICAO Executive Committee specified that the guidance be "consistent with the UNFCCC process." See *www.icao.int/icao/en/assembl/a35/wp/wp352_en.pdf* at page 15–30. So, as a practical matter, ICAO has also rejected the "sovereign airspace" approach, since the UNFCCC Parties have rejected it. Resuscitating the "sovereign airspace" methodology now, as some in industry have suggested, would contravene decisions of both the UNFCCC and ICAO and lead to the same perverse results and orphan emissions that led the UNFCCC to reject it a decade and a half ago.

In 1997 the Climate Treaty Parties adopted language stating that industrialized nations "shall" pursue limitation and reduction of these emissions in ICAO.[20] In the ensuing years, ICAO has been unable to reach agreement on an effective mechanism for addressing these emissions.[21]

After a decade of discussion without action in ICAO, elected officials in Europe in 2008 decided to start by enacting modest caps on the emissions of flights coming in and out of their airports, bringing aviation emissions under the EU ETS. This year, 2012, is the first year that aviation's emissions caps have come into effect under the EU law.

It is important, in understanding the EU law, to know which emissions are covered by the system and which are not. As Chart 2 on *edf.org/aviation/testimony* indicates, approximately 62 percent of all aviation emissions globally are from international flights, *i.e.,* flights between two sovereign nations.[22] Approximately half of those involve landings or takeoffs from EU airports.[23]

CHART 2



Sources: International Civil Aviation Organization; United Nations Framework Convention on Climate Change; Commission of the European Communities; Lee, David S. 2012. *Aviation and Climate Change: Impacts and Trends*

Importantly, the EU law gives airlines great flexibility to choose when, where and how to meet their caps. It allows them to reduce emissions within their operations, and to tender special aviation emissions allowances, over 80 percent of which they receive for free from European governments. It allows them to purchase more allowances at auction from those governments, but it also allows them full flexibility to

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[20] See Kyoto Protocol on Climate Change, Article 2.2.

[21] See The Long Road, supra, for a summary of ICAO activities.

[22] International share of global emissions: *ICAO. 2010. Environmental Report 2010.* Available at *http://www.icao.int/environmental-protection/Documents/Publications/ENV_Report_2010.pdf.*

[23] Domestic share of Intra-EEA emissions: analysis based on domestic emissions from UNFCCC National Inventory Submissions (available at *http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/6598.php*) and projected total EEA emissions using growth projections used in EC's SEC(2006) 1684 *Impact Assessment of the inclusion of aviation activities in the scheme for greenhouse gas emission allowance trading within the Community* (*http://ec.europa.eu/clima/policies/transport/aviation/docs/sec_2006_1684_en.pdf*).

Intra-EEA emissions and international cross-EEA boundary emissions: analysis based on EC's SEC(2006) 1684 *Impact Assessment of the inclusion of aviation activities in the scheme for greenhouse gas emission allowance trading within the Community*

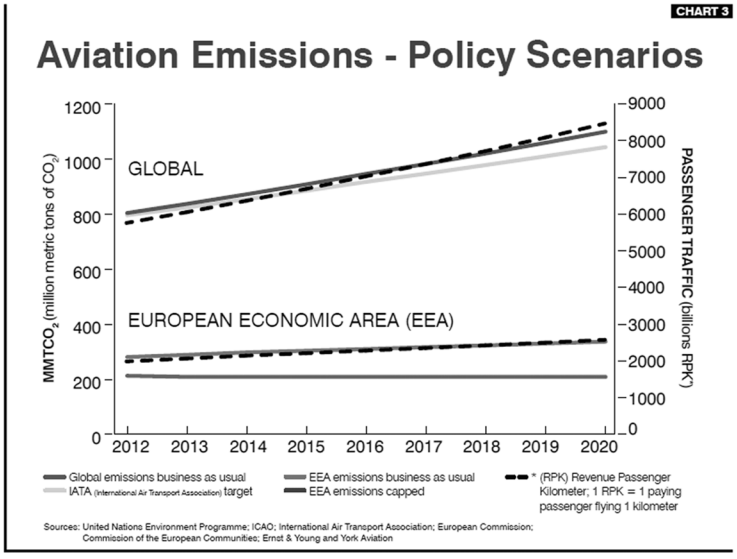
EU ETS scope as share of global emissions: Lee, David S. 2012. *Aviation and Climate Change: Impacts and Trends.* (Presentation at conference "A New Flightplan—Getting Global Aviation Climate Measures" at Norway House, Brussels, Belgium, February 7.) Available at *http://www.transportenvironment.org/sites/default/files/media/David_Lee_presentation.pdf.*

purchase any emissions allowances valid in the larger EU ETS. This includes allowances from power plants, cement companies, the chemicals, steel, and other manufacturing sectors—basically, any of the roughly 12,000 installations covered by the system. And it allows them to tender valid emissions credits earned in projects in the developing world, focusing on the least developing and poorest countries.

The EU law notes that all EU Member States are Contracting Parties to the Chicago Convention on Civil Aviation and members of ICAO, and that the EU Member States continue to support work in ICAO to develop market-based instruments to address the climate change impacts of aviation. The EU law requires, and EU officials have reiterated, that if ICAO adopts measures that are more environmentally effective than the EU ETS, the EU will review its law.[24]

It is true that a number of European member states have, as a matter of principle, been unwilling to forgo the power of the purse and earmark any governmental revenues raised from this system exclusively for addressing climate change. Their reluctance mirrors the general unwillingness of the U.S. Congress to earmarks. What's important to understand about this aspect of the system is that *no airline participating in the ETS need send a dime into European government coffers if it doesn't want to.* And if it does want to ensure that any dime so spent will be dedicated to addressing climate change, it can preferentially purchase allowances from the German Government, which has so earmarked any revenues it receives from the auction of aviation emissions allowances. According to existing German legislation, all revenues from auctioning of allowances, including aviation allowances, go directly into the Energy and Climate Fund and are dedicated by law to climate purposes around the globe.[25]

While the ETS emissions caps for aviation are modest—a 3 percent reduction from a 2004–2006 baseline in 2012, the first year, and a 5 percent reduction for the years 2013–2020—the benefits of the program are significant: comparable to taking 30 million cars off the road each year through 2020.[26] The law challenges airlines to move beyond the efficiency gains that occur simply because aviation fuel costs money, and the law achieves reductions greater than what the industry has voluntarily proposed through the International Air Transport Association (IATA) (see Chart 3 on *edf.org/aviation/testimony*).



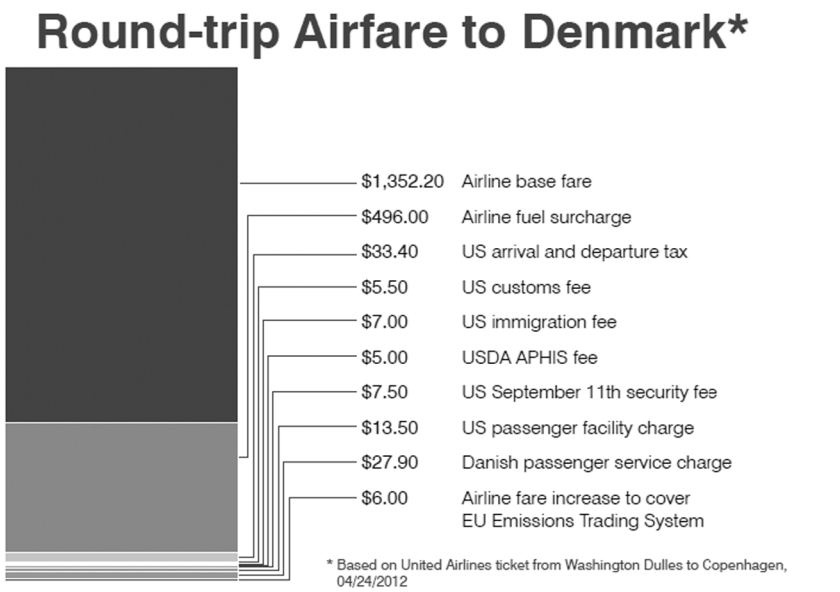
[24] Jos Delbeke's speech during the conference "A New Flightplan—Getting global aviation climate measures off the ground," European Commission, Feburary 7, 2012, *http://ec.europa.eu/clima/news/articles/news_2012020701_en.htm*.

[25] *http://www.bundesfinanzministerium.de/nn_3380/DE/BMF_Startseite/Aktuelles/Aktuelle_Gesetze/Gesetze_Verordnungen/005_a,templateId=raw,property=publicationFile.pdf; http://www.bmu-klimaschutzinitiative.de/en/news*.

[26] Commission of the European Communities. Summary of the Impact Assessment: Inclusion of Aviation in the EU Greenhouse Gas Emissions Trading Scheme (EU ETS). 2006.

Because the EU law is so flexible, and because it stimulates good old-fashioned competition to get results as cost-effectively as possible, the costs are minimal.[27] In fact, according to an FAA-supported study by the Massachusetts Institute of Technology,[28] the cost to U.S. carriers is forecast to be no more than $3 per transatlantic segment. As Chart 4 on *edf.org/aviation/testimony* illustrates, such a cost is a tiny fraction of the overall price of the ticket. It is less than a fifth of the tax that the U.S. Government levies on each passenger arriving or departing from the U.S. on an international flight. It's less than half the cost of a beer on a domestic U.S. flight. And it's a small fraction of the amount airlines are charging for baggage these days.

CHART 4



Moreover, it's our assessment, and the assessment of other experts, from Bloomberg to Deutsche Bank, that at $3/segment, U.S. carriers can make money on the system.[29] Overall, emissions in the EU are substantially below capped levels, due in part to the success of the ETS, and due in part to the recession. Consequently, prices in the EU carbon market are extremely low. U.S. carriers hiked their transatlantic segment fares by $3 within hours after the MIT study went up on the web. If savvy carriers use those fare increases to purchase allowances in the carbon market today, they can potentially turn environmental compliance into a profit center. Plus, the free allowances awarded to participating airlines constitute a significant new asset. So, far from predictions of doom and gloom from the carriers' participation in the ETS, the fact is that the ETS can encourage them to fly more efficiently and make money doing so.

Further, the most responsible and forward-looking business jet companies are seeking not only to comply with the EU ETS but to do *better,* because it's their philosophy and responsive to customer demand. A primary exemplar of this is Ohio-based and Berkshire Hathaway-owned NetJets, whose European operations have pledged to become 100 percent carbon neutral by October 2012.[30]

Nonetheless, U.S. airlines argue that the EU law intrudes into our sovereignty. That's not the case. To argue that a nation's authority to address the emissions of a flight landing or taking off from its airports extends only to its sovereign airspace, ignores the fact that the flight only occurs because travelers wish to fly to or from that country. If the flight never took off to go to that country, then none of the emis-

[27] Cite to Sam Grausz/CAP/Climate Advisers study.
[28] Robert Molina *et al.*, The Impact of the European Union Emissions Trading Scheme on U.S. Aviation, 19 Journal of Air Transportation Management 36–41, 2012.
[29] See *www.edf.org/aviation* and sources cited therein.
[30] NetJets Environment Update Report UK Final Version, 4.

sions would occur. But the entire emissions of the flight occur precisely because the flight is going to that country.

The Aviation Directive does not dictate behavior outside of EU territory. It simply holds airlines accountable for their emissions, and it uses total distance flown as a metric to determine each aircraft's emissions. The FAA itself measures emissions this way for purposes of calculating the international aviation emissions of the United States. ICAO does too for the purposes of its own carbon offset program.[31] And while the U.S. arrival and departure tax, which applies to the entire continuum of flight (in fact, arriving passengers pay the tax at the point of their departure in the foreign jurisdiction), uses a flat fee, many nations' international arrival and departure levies are explicitly calculated on the basis of distance.[32] Moreover, limiting a sovereign's authority to regulate flight emissions only to the country in whose sovereign airspace they occur, would lead to a regulatory patchwork with some gaping holes over the high seas.[33]

The EU ETS is non-discriminatory. It provides a level flying field for all airlines flying the same routes. In fact, U.S. carriers are slated to receive a slightly higher percentage of their allowances for free than European carriers overall. So to the extent there is any competitiveness issue in the law, it redounds in favor of the U.S. carriers.

Moreover, the ETS exempts from its coverage flights arriving in Europe from nations that have adopted equivalent measures. Far from imposing its regulations on other countries, the EU system invites them to promulgate equivalent regulations. It appears from news reports that a number of countries, including China, are considering doing just that.

To those who claim the ETS intrudes in U.S. sovereignty, it's worth noting that the ETS is far less intrusive than many U.S. laws and regulations that intrude into other nations' sovereignty. The U.S. has many such laws in a range of fields, from financial regulation to criminal law, from national security law to human rights. In the aviation field alone, the history of U.S. unilateral extraterritorial regulation is substantial. For example, following the tragedy of the September 11, 2001 attacks, the U.S. unilaterally imposed a suite of extraterritorial security regulations on all flights coming into the United States. These included requiring reinforced cockpit doors,[34] limiting liquids and gels,[35] adding U.S.-run checkpoints in foreign airports, and performing onsite security assessments of foreign airports. Many of these measures were first implemented unilaterally, and only subsequently were they ratified through bilateral air services agreements and ICAO.

More recently, the FAA has promulgated a rule requiring airlines operating in the U.S. to retrofit fuel tanks on their planes, regardless of the carriers' nationality.[36] These rules apply to all aircraft landing at or taking off from U.S. airports, regardless of the citizenship of the carrier.[37] While the industry has argued for exemptions from these rules, arguing that the rules could create distortions between and among airlines depending on the type of aircraft flown,[38] the industry has not raised any issue of discrimination on the basis of citizenship of the carrier—even though the FAA's rules apply to all flights landing in and departing from U.S. airports. The fuel tank rules apply throughout the continuum of flight. They require foreign as well as U.S. airlines to retrofit their planes if they wish to maintain their certificates of airworthiness.

The airlines may argue that a degree of intrusion into national sovereignty is acceptable where security is concerned. It should be kept in mind, however, that global warming is a security issue deserving of no less attention than aviation security as that is conventionally conceived. As Secretary of Defense Leon Panetta stated just 4 weeks ago, "In the 21st century, the reality is that there are environmental threats that constitute threats to our national security," and this reality forms the

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[31] Conversation with FAA; *http://www.icao.int/environmental-protection/CarbonOffset/Pages/default.aspx*.

[32] Nations as diverse as India and the United Kingdom maintain differential levies on international flights based on distance flown.

[33] This would also contradict the long-ago rejection by ICAO of airspace-based methodology, *supra* note 19.

[34] William Karas and Carol Gosian, Recent U.S. Regulation of Foreign Airline Practices: Impermissibly Unilateral or Not?, Air and Space Lawyer, 2002.

[35] 3–1–1 Gains International Acceptance, TSA, June 5, 2007, available at *http://www.tsa.gov/press/happenings/311_intl_acceptance.shtm.* The U.S. implemented a liquids and gels rule in 2006, and while the EU shortly followed suit, ICAO did not approve liquids and gels guidelines until 2007.

[36] 14 CFR Section 121.1117.

[37] *Id.*.

[38] *http://www.airlines.org/Pages/Gilligan-FRM-Letter.aspx*.

strategic framework for how the military thinks about and is acting on long-term environmental and energy issues.[39] It should for the civil aviation industry as well.

The EU ETS has been upheld by Europe's highest court as fully consistent with international law, and no one has found differently.[40] In the absence of a more effective global solution, managing this environmental security problem in a reasonable, affordable way, now, before it gets much bigger, makes sense.

Bringing aviation into the EU ETS can also be a pro-growth move. Aviation is a major employment generator.[41] Participating in the EU ETS, or in a program under ICAO auspices, can generate jobs here at home, as experience in other nations has demonstrated.[42] The industry has shown that it can make strong technical strides and transfer those to other sectors. In 2009, the FAA estimated that the aviation industry supports 10.2 million jobs and contributed $1.3 trillion in total economic activity.[43] The single largest share of U.S. exports in 2009 was civilian aircraft, engines, equipment and parts, comprising $75 billion.[44] Five states have aircraft-related manufacturing industries topping $10 billion, and in California the figure tops $25 billion. And the United States dominates global aviation manufacturing: Boeing's planes represent 75 percent of the global fleet;[45] Pratt and Whitney's engines are on 30 percent of the global fleet.[46] Rockwell Collins has introduced its Ascend flight information solutions product to help airlines comply with EU ETS reporting requirements;[47] Universal Aviation has a similar reporting product that guides U.S. operators through the registration and reporting process and helps reduce fuel consumption through sophisticated monitoring software.[48] Reducing emissions from aviation means increased demand for new aircraft bodies and engines, for more efficient ground-based power systems at airports, for new software that allows airlines to track their fuel usage and find ways to reduce idling, and technologies that are currently only on the drawing board. This demand in turn creates new skilled jobs and increases economic output.

But the ETS, or a similar system under ICAO auspices, is needed because voluntary programs simply aren't getting the job done. Improvements in aircraft fuel efficiency have stalled over the last twenty years. The International *Council on Clean Transportation (I*CCT) has found that "Since 2000 [aviation] fuel efficiency has remained flat on a seat-km basis and improved only 0.29 percent annually on a ton-km basis," a conclusion corroborated by research by the Dutch Aerospace Laboratory (NLR), which has found that the last piston powered aircraft (Lockheed Super Constellation and Douglas DC–7) of the late 1950s were as fuel efficient as today's modern aircraft.[49] In fact, as Chart 5 on *edf.org/aviation/testimony* illustrates, "fuel price alone has failed to continuously promote new aircraft efficiency since 1960."[50] To maintain our lead in an era of growing global concern over climate change, America's aviation sector must focus on low-carbon development. Many technologies are available. Voluntary efforts help, but are not sufficient. A target focuses the industry like nothing else.

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[39] "Panetta links environment, energy and national security in groundbreaking speech," Annie Snider, E&E reporter, Thursday, May 3, 2012.

[40] See, *e.g.,* In significant victory, Europe's highest court upholds EU law that curbs aviation pollution, EDF Blog, Dec. 21, 2011, at *http://blogs.edf.org/climatetalks/2011/12/21/european-court-of-justice-decides-eu-aviation-directive-legal/*.

[41] See The Economic Impact of Civil Aviation on the U.S. Economy, U.S. Department of Transportation Federal Aviation Administration (December 2011).

[42] See, *e.g.,* German Federal Environmental Ministry, "Renewably employed: Short and long-term impacts of the expansion of renewable energy on the German labour market," July 2011, at 5 and 42, available at *http://www.germany.info/contentblob/3179136/Daten/1346894/BMU__RenewablyEmployed__DD.pdf,* accessed April 2012.

[43] *http://www.faa.gov/air__traffic/publications/media/FAA__Economic__Impact__Rpt__2011.pdf* at 1.

[44] *http://www.faa.gov/air__traffic/publications/media/FAA__Economic__Impact__Rpt__2011.pdf* at 11.

[45] *http://www.boeing.com/companyoffices/aboutus/brief.html*.

[46] *http://www.pw.utc.com/about__us/assets/pw-overview.pdf*.

[47] *http://www.rockwellcollins.com/sitecore/content/Data/News/2011__Cal__Yr/CS/FY11CSNR36-EU__RTS.aspx*.

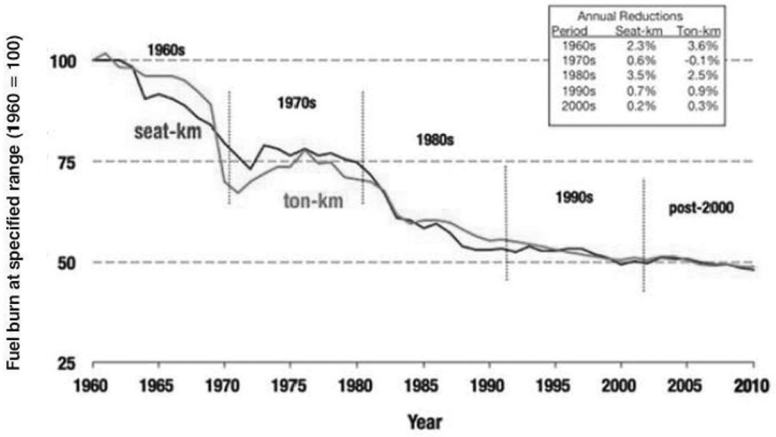
[48] *http://www.universalweather.com/aviation-emissions/eu-ets/*.

[49] New Flight Plan, *supra,* at 9.

[50] New Flight Plan, *supra,* at 9.

CHART 5

Average fuel burn for new jet aircraft, 1960-2010



Source: The International Council on Clean Transportation (updated through 2010)

Crafting that target under ICAO auspices makes sense, and it is do-able. In fact, if there's anything on which the Obama administration, European administrations, the industry and environmentalists agree, it's that this issue would be best tackled by a global program under ICAO auspices, and that ICAO is finally starting to look at the issue seriously. It is surely no coincidence that serious discussions at ICAO would finally occur in tandem with the advent of the EU-ETS.

We believe that ICAO can reach agreement by the end of next year (2013) on a non-discriminatory framework of market-based measures that achieves more emissions reductions than the EU ETS, and we would be happy to share with the Committee our thoughts on how ICAO can do so. But rather than increasing ICAO's chances for reaching such an agreement, S. 1956 would turn U.S. airlines into scofflaws and upend progress at ICAO. The Senate should instead require regular reports to it on ICAO's progress. If by the end of 2013 ICAO has not reached agreement, the Senate should consider steps that don't involve S. 1956's *unintended adverse consequences for aircraft operators and for U.S. taxpayers*.

It's important for this Committee to consider carefully those unintended consequences. The EU law, like the U.S. Clean Air Act acid rain trading program signed into law in 1990 by President George H.W. Bush, pairs caps on emissions with broad flexibility on how to comply with those caps, and backstops the caps with tough penalties for any emitter that fails to tender emissions allowances to cover its emissions. Were the Secretary to exercise his authority under S. 1956 to prohibit U.S. operators from participating, then aircraft operators, under EU law, would be liable for billions of dollars in emissions penalties. While, as discussed above, the cost of compliance for aircraft operators with the EU ETS is minimal, and for the most efficient operators, compliance could turn into a profit center, non-compliance with the EU ETS has the potential to be extremely costly.

Under the EU law, carriers that do not tender, by April 30th of each year, emissions allowances sufficient to cover their actual emissions in the prior year, will automatically be subject to a penalty of $125 per ton. And they will still be liable for their emissions.

That such penalties apply is very clear under the EU law. For example in February 2012, ExxonMobil was fined 3 million euros for failing to report carbon dioxide emissions from a Scottish chemical plant. ExxonMobil paid the fine.[51] But if

[51] *http://www.businessgreen.com/bg/news/2153536/exxonmobil-hit-record-eur33m-penalty-failing-report-co2.*

U.S. carriers don't pay the fines because they are prohibited from participating in the ETS, then under the national laws of nations implementing the ETS, their aircraft can be impounded and sold to pay the penalties.[52] Moreover, the airlines could be liable for breach of any aircraft leases that contain (as is typical) clauses requiring the lessors to comply with the law of the jurisdictions in which they operate—and many commercial carriers lease at least some portion of their fleet.[53]

Altogether, these penalties make non-participation in the EU ETS far more costly than compliance. We conservatively estimated the costs of non-participation for the five largest U.S. passenger airlines that fly to Europe—United, Continental (since merged with United), American, Delta, and U.S. Airways. Together, they emitted almost 16 million tonnes of carbon dioxide on flights between the U.S. and Europe in 2010.[54] [55] Using the U.S. Federal Aviation Administration (FAA) official projections for aviation growth,[56] at today's exchange rate,[57] the financial liability of these carriers would be $2 billion in 2012, growing to $2.8 billion in 2020, and totaling $22 billion for the 2012–2020 period.[58] Moreover, by imposing an enforceable duty—the statutory excess emissions penalty of $125/tonne of emissions, enforced by the impound-and-sell authority—on U.S. carriers, S. 1956 would impose an unfunded private sector mandate far in excess of the $142 million threshold for such mandates under Section 7 of the Unfunded Mandates Reform Act (UMRA). [59] And if the legislation would impose a private sector mandate in excess of the UMRA threshold, then there should, at a minimum, be a qualitative and a quantitative assessment of costs and benefits anticipated from the Federal mandate (including the effects on health and safety and the protection of the natural environment).

Moreover, not only does S. 1956 provide authority to the Secretary of Transportation to prohibit an operator of a civil aircraft of the United States from participating in the EU ETS if the Secretary determines it to be in the public interest to do so, but also provides that "The Secretary of Transportation, the Administrator of the Federal Aviation Administration, and other appropriate officials of the U.S. Government *shall,* as appropriate, use their authority to conduct international negotiations and take other actions to *ensure that* operators of civil aircraft of the United States are held harmless" if the Secretary exercises his authority to ban their participation. So, S. 1956 presents a stark choice to the Secretary: if he imposes the ban, he either subjects the airlines to an unfunded mandate whose only resolution is either convincing the European Union and its member states to amend their laws, or, if the Europeans are unwilling to do so, he must pass the multibillion dollar liability to the U.S. taxpayer, bailing the airlines out of a problem that is of their own making.

In other words, S. 1956 sets the Secretary up to make U.S. airlines into scofflaws, visit a multi-billion dollar liability on them, and then somehow send the bill to U.S. taxpayers. Those are policies that our economy can ill afford.

Moreover, should the U.S., by enacting S. 1956, encourage or require U.S. corporations to violate the laws of other nations, the good will of other nations may be less forthcoming in the future. Beyond aviation, this has implications for national security (the PATRIOT Act), financial regulations (antitrust law, Dodd-Frank, Sarbanes-

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[52] See United Kingdom Statutory Instrument *2010 No. 1996, CLIMATE CHANGE:* The Aviation Greenhouse Gas Emissions Trading Scheme Regulations (2010), *http://www.legislation.gov.uk/uksi/2010/1996/pdfs/uksi_20101996_en.pdf,* at PART 9, Detention and sale of aircraft.

[53] See, *e.g.,* Watson, Farley & Williams Aviation Briefing 2011, available at *http://www.wfw.com/Publications/Publication938/$File/WFW-Aviation-EUETSEuropewide–2011.pdf.*

[54] United Kingdom Department of Energy and Climate Change. Downloaded on January 11, 2012 from *http://www.decc.gov.uk/en/content/cms/emissions/eu_ets/aviation/aviation.aspx.*

[55] German Emissions Trading Authority. 2012. *Allocation of Emission Allowances to Aircraft Operators for Trading Periods 2012 and 2013–2020.* Available at *http://www.dehst.de/SharedDocs/Downloads/EN/Publications/Aviation_Allocation_report.pdf?_blob=publicationFile.*

[56] United States Federal Aviation Administration. 2012. *FAA Aerospace Forecast: Fiscal Years 2012–2032.* Available at *http://www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts.*

[57] 1.24 as of May 31, 2012, using Oanda's Currency Converter at *http://www.oanda.com/currency/converter/.*

[58] In nominal terms at a constant exchange rate.

[59] The UMRA provides: "(7) FEDERAL PRIVATE SECTOR MANDATE.—The term 'Federal private sector mandate' means any provision in legislation, statute, or regulation that——

"(A) would impose an enforceable duty upon the private sector except—"(i) a condition of Federal assistance;" or "(ii) a duty arising from participation in a voluntary Federal program;" or

"(B) would reduce or eliminate the amount of authorization of appropriations for Federal financial assistance that will be provided to the private sector for the purposes of ensuring compliance with such duty."

Oxley, the FCPA, trademark law, tax evasion), criminal and human rights law (ATCA, Victims of Trafficking and Violence Protection Act, Controlled Substances Act), and other U.S. laws where the cooperation of other governments, and the participation of their firms, is crucial. Balking over the EU Aviation Directive is not worth the loss of comity in all of these other areas.

Mr. Chairman, while we continue to work in ICAO on an effective global framework for limiting global warming pollution from aviation, an objective we believe is achievable during 2013, the EU ETS makes a modest and reasonable start. Participating in it can drive technology innovation and job creation here at home, while cutting pollution and potentially opening new profit centers for airlines, or at least achieving these goals at minimal cost. The competitiveness impacts, if any, favor U.S. carriers over their European competitors. And the substantial unintended adverse consequences—for airlines and for American taxpayers—of enactment of S. 1956 call for extreme caution in considering that bill. Ultimately, the best option would be for the Secretary to negotiate a strong and effective framework in ICAO.

We hope this discussion will be of assistance to you and all the Committee members as you together undertake your consideration of how best to address the issue of global warming pollution from aviation, in the context of an interconnected and interdependent world. We thank you and all the Committee members for your careful consideration. We would be happy to answer any questions.

The CHAIRMAN. Thank you very much.

Ms. YOUNG.

STATEMENT OF NANCY N. YOUNG, VICE PRESIDENT, ENVIRONMENTAL AFFAIRS, AIRLINES FOR AMERICA (A4A)

Ms. YOUNG. Thank you for the opportunity to testify regarding the unilateral and extraterritorial European emissions trading scheme, a scheme that poses a threat to our nation's airlines, exports, and the economy, and also to advancing the right kind of measures to further address aviation greenhouse gas emissions.

My name is Ms. Nancy Young. I'm Vice President for Airlines for America, and I'm representing major passenger and cargo carriers. A4A is joined in its opposition to the EU scheme by an extensive bipartisan constituency in the United States and around the world. This deep and abiding opposition is warranted.

Since 2009 the scheme has required U.S. airlines to monitor and report their emissions for all flights to and from the EU over the entirety of the flight. But beginning on January 1, the burden increased exponentially. Since then, our airlines have been obligated to acquire special emissions allowances covering the whole of each flight.

Consider the example of an actual A4A member flight from San Francisco to London. Once the aircraft engine is engaged, the EU emissions rules apply. As a percentage of total emissions, 29 percent take place in U.S. airspace, 37 percent in Canadian airspace, 25 percent over the high seas. Less than 9 percent of the emissions take place in the EU airspace.

The imposition of this unilateral cap, tax, and trade scheme on U.S. citizens and U.S. companies is a clear violation of our nation's sovereignty and treaties governing international aviation and commerce.

The EU tries to argue that if the U.S. just adopts equivalent measures, the EU will exempt our airlines on one leg of the flight. That our government should take orders from the EU on how to fashion U.S. law is an astonishing proposition. Moreover, it's a recipe for chaos.

While significant, this dispute is not really about the amount of the exorbitant tax U.S. airlines and consumers have to pay into European coffers. It is about the implications of the EU jurisdictional grab. Simply put, if the EU can tax the emissions over the entirety of a flight merely because it touches down in Europe, what is to keep the EU from imposing greenhouse gas emissions import taxes on U.S. autos, pharmaceuticals, chemicals, and other goods? And on what basis will the U.S. stand up against other countries that seek to do the same?

Unfortunately, the EU has thumbed its nose at diplomacy, just as it did when it adopted an illegal ban on aircraft fitted with hush kit technology in the early 2000s. I know you remember that one. As the U.S. did then, so must it now take concrete legal action to overturn the application of the ETS to U.S. airlines.

Make no mistake. The ETS is not about the environment. It's about a new source of revenue for cash-strapped Europe. Indeed, none of the monies collected are required to be used for environmental purposes. By contrast, the initiatives U.S. airlines are undertaking are resulting in real environmental improvements.

By investing billions of dollars in fuel-saving aircraft and engines, innovative technologies and avionics, the U.S. airline industry improved its fuel efficiency by 120 percent between 1978 and 2011, resulting in emissions savings equivalent to taking 22 million cars off the road each of those years. That is why our industry represents just 2 percent of the U.S. greenhouse gas emissions, while driving over 5 percent of the nation's GDP.

And we're not stopping there. A4A and its members are part of a worldwide aviation coalition with an aggressive proposal for further carbon emissions reductions at the appropriate international body, ICAO. ICAO has put many elements of this global framework in place. In addition, it is developing a CO_2 standard for aircraft and undertaking work on potential market-based measures, work that is slated to be completed in 2013.

Ironically, the ETS has been a roadblock to finalizing full agreement at ICAO. Urgent concrete action by the United States is needed to overturn the application of the ETS to U.S. airlines and to bring the EU back to the table in support of this global framework.

As it has done before, the U.S. in its role as a world leader must wield the tools it has to remove the wrong measure in favor of the right one. This should include the filing of a legal challenge to the ETS under Article 84 of the Chicago convention.

We thank Senators Thune and McCaskill for their leadership in sponsoring the European Union Emissions Trading Scheme Prohibition Act, and we urge the Senate to approve this legislation. This will convey the seriousness of the Senate's concerns about the unilateral EU actions, their effects on U.S. airlines, consumers, exports, and our economy. Moreover, it will spur the administration to go beyond diplomatic talk to concrete action and will serve as a critical catalyst for finalizing a global agreement at ICAO.

Thank you for the opportunity to testify.

[The prepared statement of Ms. Young follows:]

PREPARED STATEMENT OF NANCY N. YOUNG, VICE PRESIDENT, ENVIRONMENTAL AFFAIRS, AIRLINES FOR AMERICA (A4A)

Introduction

Airlines for America (A4A) appreciates this opportunity to share its concerns regarding the unilateral and extraterritorial application of the European Union Emissions Trading Scheme (EU ETS) to our airlines.

We are joined in our opposition to this scheme by an extensive, diverse and bipartisan constituency, including the Obama administration, manufacturers, labor unions, travel-service providers, a broad array of aviation trade associations and countries around the world. We are appreciative that the U.S. Congress has also expressed opposition to the unilateral EU scheme in the recently approved FAA reauthorization legislation, H.R. 2954 as approved in the U.S. House of Representatives, and bipartisan legislation pending here in the Senate.

This deep and abiding opposition to the EU tax scheme is warranted. The unilateral imposition of the cap-tax-and-trade scheme on U.S. citizens and U.S. companies is a clear violation of U.S. sovereignty and the treaties governing international aviation and commerce.

Of course, it may not come as a big surprise that A4A and its member airlines are raising concerns about such a broad-based tax and regulatory scheme. While significant, however, this dispute is not really about the amount of the exorbitant tax—$3.1 billion—that U.S. airlines, aircraft operators and consumers will have to pay into European coffers through 2020. It is about the implications of the EU jurisdictional grab over worldwide aviation. Simply put, if the EU can tax the emissions over the entirety of a flight merely because it touches down in Europe, despite U.S. sovereignty and international agreements, what is to keep the EU from imposing greenhouse gas (GHG) import taxes on U.S. automobiles, pharmaceuticals, chemicals and other goods the EU imports from the United States? And on what basis will the United States stand up against other countries that seek to cover global aviation emissions or emissions from the production of U.S. imports with multiple, unilateral, overlapping, worldwide GHG taxation schemes?

Through direct and coalition diplomatic efforts, the Obama administration has given the EU every chance to withdraw or stay its unilateral scheme. But the EU has snubbed these diplomatic efforts, as it did when they adopted an illegal ban on aircraft fitted with "hushkit" technology in the early 2000s. As it did with the unilateral hushkit ban, the United States must now take concrete legal action to overturn the application of the EU ETS as to U.S. airlines and operators.

Doing so is critical to preserving fair and open international aviation and trade. It also would be beneficial to the environment, as it would remove a significant roadblock to implementing an international agreement on aviation and climate change at the International Civil Aviation Organization (ICAO), the United Nations body charged by treaty with setting standards and recommended practices for international aviation. Make no mistake: the EU ETS is not about the environment. It is about a new source of revenue for Europe. None of the monies collected by the Europeans are required to be used for environmental purposes.

By contrast, the initiatives that U.S. airlines are undertaking to enhance our already strong record of fuel-efficiency advances and GHG emissions savings are resulting in real environmental improvements. Moreover, we have an ambitious proposal on the table for an international framework of aviation-specific emissions measures and targets at ICAO, on which full agreement could be reached at the next ICAO Assembly in September 2013.

Urgent, concrete action by the United States is needed to overturn the application of the EU ETS to U.S. airlines and aircraft operators, and to bring the EU back to the table in support of a global framework under ICAO. The U.S. Senate can and should help in this regard, by approving S. 1956, the "European Union Emissions Trading Scheme Prohibition Act."

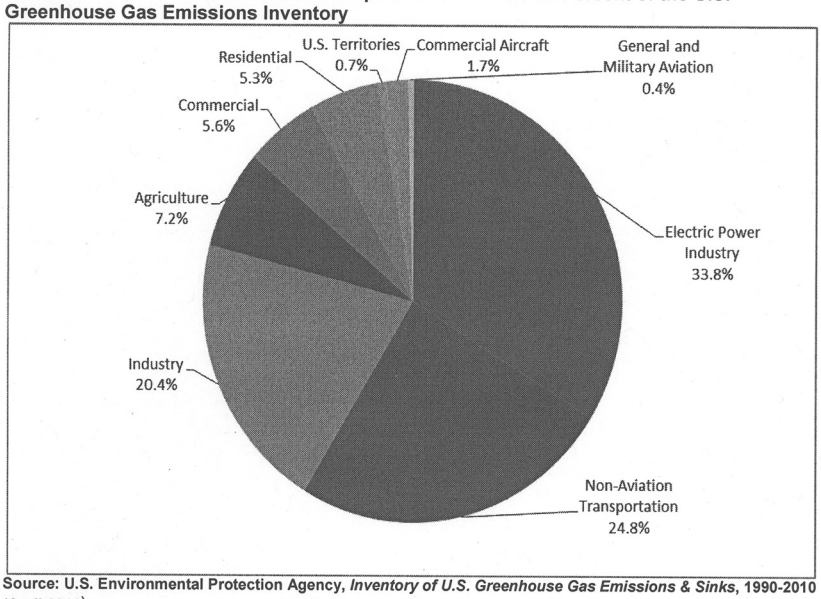
America's Airlines: Green and Getting Greener, A Catalyst for U.S. Economic Growth

For generations, flying has contributed to a better quality of life. Commercial aviation has been essential to the growth of our economy, yielded breakthrough technologies, brought people together and transported critical cargo—all while achieving an exceptional environmental track record. No industry is better positioned to stimulate the Nation's economy while constantly enhancing its environmental performance.

Today's airplanes are more technologically advanced—they are quieter, cleaner and use less fuel than ever—and airlines are flying them in ways that make maximum use of the technology to reduce fuel burn and environmental impacts. That's

why our industry represents just 2 percent of all GHG emissions in the United States (see Figure 1) while driving 5 percent of the Nation's GDP. Commercial aviation is a tremendous enabler of the U.S. and global economies. In the United States, aviation drives over $1 trillion in annual economic activity. Airlines are at the heart of this, responsible for nearly 10 million U.S. jobs. And every 100 airline jobs help support some 360 jobs outside of the airline industry.

FIGURE 1. U.S. Commercial Aviation Represents Less Than 2 Percent of the U.S. Greenhouse Gas Emissions Inventory



Source: U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions & Sinks*, 1990-2010 (April 2012).

For the past several decades, commercial airlines have dramatically improved fuel and GHG efficiency by investing billions in fuel-saving aircraft and engines, innovative technologies like winglets (which improve aerodynamics) and cutting-edge route-optimization software. As a result, between 1978 and 2011, the U.S. airline industry improved its fuel efficiency by 120 percent, resulting in 3.3 billion metric tons of carbon dioxide (CO_2) savings—equivalent to taking 22 million cars off the road on average in each of those years. Further, data from the Bureau of Transportation Statistics confirms that U.S. airlines burned 11 percent less fuel in 2011 than they did in 2000, resulting in an 11 percent reduction in CO_2 emissions, even though they carried almost 16 percent more passengers and cargo on a revenue-ton-mile basis.

And we are not stopping there. The initiatives that our airlines are undertaking to further address GHG emissions are designed to responsibly and effectively limit our fuel consumption, GHG contribution and potential climate change impacts, while allowing commercial aviation to continue to serve as a key contributor to the U.S. economy. For example, A4A and its airlines are dedicated to developing commercially viable, environmentally friendly alternative jet fuel, which could be a game-changer in terms of aviation's output of GHG emissions while enhancing U.S. energy independence and security. To these ends, A4A is a founder and co-lead of the Commercial Aviation Alternative Fuels Initiative® (CAAFI), a consortium of airlines, government, manufacturers, fuel suppliers, universities, airports and others working to hasten the development and deployment of such fuels. Moreover, we are central stakeholders in partnering efforts to modernize the outdated air traffic management (ATM) system on a business-case basis and to reinvigorate research and development in aviation environmental technology, both of which can bring additional and extensive emissions reductions.

America's Airlines Have Put Forward an Affirmative, Global Plan for Even More Greenhouse Gas Emissions Savings

Because A4A opposes the unilateral application of the EU ETS to U.S. airlines and aircraft operators, some have tried to assert that A4A and its member airlines

oppose regulation altogether. This could not be farther from the truth. What we seek is what the Future of Aviation Advisory Committee (FAAC) recommended in December 2010, a "harmonized sectoral approach for aviation CO_2 emissions reductions."[1] As recognized by the FAAC, "disparate and conflicting requirements imposed at the state, Federal, and/or international levels can undercut necessary investments and progress."[2] To address this, the FAAC found that "[t]here is a strong need for a rationalized, harmonized approach to aviation GHG emissions, as opposed to the myriad of often counterproductive proposals—particularly those involving emissions taxes, charges, and trading."[3]

A4A and its members are part of a worldwide aviation coalition with a significant proposal on the table for further addressing aviation CO_2 through a harmonized approach, under ICAO. Our focus is on getting further fuel efficiency and emissions savings through new aircraft technology, sustainable alternative aviation fuels and air traffic management and infrastructure improvements.

Our "global sectoral approach" proposal for aviation GHG emissions includes an aggressive set of measures and emissions targets. Under this approach, the framework for both international and domestic aviation emissions would be established internationally. All airline emissions would be subject to emissions targets requiring industry and governments to do their part. As proposed by the industry, these would be an annual average fuel-efficiency improvement of 1.5 percent through 2020 and carbon-neutral growth from 2020, subject to critical government infrastructure and technology investments such as air traffic control modernization, with an aspirational goal of a 50 percent reduction in CO_2 by 2050 relative to 2005 levels.

Significantly, at its 2010 Assembly, ICAO adopted much of the industry's framework. While more work is needed to flesh out this framework, as U.S. Government representatives to ICAO have recognized, the opposition of many countries to the unilateral EU ETS has been a roadblock. Nonetheless, the airlines remain committed to seeing the framework implemented and are moving forward with fuel-efficiency and emissions-reducing measures in the meantime.

The EU seeks to justify its unilateral approach to regulating the world's airlines on the grounds that ICAO has not taken action on aviation and climate change. This is ironic, given that the EU ETS itself has been a roadblock to the most recent work at ICAO, but it is also inaccurate, as ICAO has taken many steps to address the climate change impacts of international aviation, including, but not limited to, the following:

- When climate change concerns first began to emerge, ICAO called on the Intergovernmental Panel on Climate Change (IPCC) to undertake a sector-specific study of the climate change impacts of aviation. The resulting study, "Aviation and the Global Atmosphere," remains the only sector-specific study ever prepared by the IPCC and continues to be recognized as a seminal work.
- In 2003, ICAO published ICAO Circular 303, "Operational Opportunities to Minimize Fuel Burn and Reduce Emissions." This comprehensive guidance document provides state-of-the-art information on a wide range of operational measures that airlines, air-navigation service providers and airports can take to reduce fuel burn and resulting GHG and local air quality emissions of concern. ICAO has held several workshops around the world to raise awareness about the content of the document and to promote the implementation of its environmentally friendly procedures.
- ICAO has developed and published a template voluntary agreement on voluntary measures that may be taken by aviation stakeholders to limit or reduce GHG emissions. In the Assembly Resolution adopted in 2004, ICAO urged States and aviation stakeholders to adopt voluntary GHG reduction measures. The aviation industry has done that through our "global sectoral approach" program.
- The 2004 ICAO Assembly also directed that the ICAO Council conduct further work on open emissions trading while agreeing that States should "refrain from unilateral environmental measures that would adversely affect the orderly development of international civil aviation."[4]

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[1] *See* U.S. DOT, *Future of Aviation Advisory Committee (FAAC) Recommendations,* at 5 (Dec. 15, 2010).

[2] U.S. DOT, *Future of Aviation Advisory Committee, Final Report,* at 19 (April 11, 2011), available at *http://www.dot.gov/faac/docs/faac-final-report-for-web.pdf*.

[3] *Id.*

[4] The EU often asserts that the 2004 ICAO Assembly endorsed the approach the EU has taken, to *unilaterally* include the world's airlines in its emissions trading system. This assertion is inaccurate. What ICAO endorsed was "further development of an open emissions trading sys-

- In response to the 2004 ICAO Assembly request, the ICAO Council has prepared and adopted guidance on the participation of international aviation in open emissions trading systems. Finalized in 2007, this guidance provides the basis for *agreeing States* to address GHG emissions from their airlines' international flights through emissions trading.[5]
- In October 2009, ICAO held a special "High Level Meeting on Climate Change." At that meeting, the ICAO Member States adopted a "Programme of Action" and Declaration on aviation and climate change. In addition to adopting a worldwide, aviationwide fuel-efficiency target through 2020, the States agreed to work more on "goals of greater ambition," a framework for market-based measures, and initiatives to foster the development of more energy-efficient aircraft, sustainable alternative fuels and operational measures, ATM improvements and airport improvements to reduce emissions.
- In 2010, the ICAO Committee on Aviation Environmental Protection completed work on how countries with domestic emissions trading schemes might mutually agree to link them and include international aviation in that linkage. The resulting "Report on Scoping Study of Issues Related to Linking Open Emissions Trading Systems Involving International Aviation" was approved by the ICAO Council in June 2010.
- The 2010 ICAO Assembly Resolution took another significant step toward a full framework on aviation GHG emissions. It confirmed that the appropriate approach for addressing aviation GHG emissions through 2020 is through fuel-efficiency goals and established a sectorwide goal of carbon neutral growth from 2020. Through the resolution, States agreed to track their aviation emissions and to submit "Action Plans" by the end of this June that describe the steps they are taking to help achieve the global emissions goals.[6] Further, after adopting a set of principles for market-based measures, the States directed ICAO to further assess the potential for market-based measures that might be agreed on a global basis and a framework (or more detailed "playbook") for such measures. This work is going on now, as is work on a first-of-its-kind CO_2 standard for aircraft (work that is being co-led by the U.S. Environmental Protection Agency with support from the Federal Aviation Administration), which also was agreed at the ICAO Assembly.

Significant pieces of a global framework are in place, and A4A continues to support the stepwise approach the international community is taking toward a fully harmonized global aviation framework on GHG emissions. With the aviation industry supporting a global sectoral approach at ICAO and the many countries who oppose the EU ETS recommitting themselves to further address aviation GHG emissions through ICAO, implementation of this framework could be agreed, as hoped, at the ICAO Assembly in September 2013. Contrary to what the EU asserts, this timing would not be "late." Rather, it would be ahead of the United Nations Framework Convention on Climate Change (UNFCCC) efforts to replace the Kyoto Protocol (whose terms expire at the end of this year), now aimed at completion of a climate change agreement by or in 2015, with the view of having emissions targets from 2020 and beyond.

The Unilateral and Extraterritorial Application of the EU ETS to U.S. Airlines Violates U.S. Sovereignty and Is a Recipe for Chaos in Aviation and Global Trade

International aviation is governed by treaty, customary international law and air-services agreements between countries. In addition to imposing requirements di-

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tem for international aviation," under certain conditions. *See* ICAO Assembly Resolution A35–5, *Consolidated statement of continuing ICAO policies and practices related to environmental protection,* 2004. Specifically, while agreeing that States should refrain from unilateral measures that would harm aviation, the ICAO Assembly requested that the ICAO Council conduct further work on a voluntary emissions trading approach and provide *guidance* on how States with existing emissions trading schemes *might* incorporate emissions from international aviation into those schemes "consistent with the UNFCCC process," and to the extent "appropriate," while addressing "the structural and legal basis for aviation's participation in an open emissions trading system." *Id.* As noted herein, ICAO has done the requested work on how *mutually agreeing* countries may include international aviation in emissions trading.

[5] The ICAO work shows how two or more countries may employ emissions trading through mutual agreement. Thus, to the extent that European States wish to employ emissions trading among their own airlines, the ICAO provisions allow for and provide guidance on this. However, the EU has overstepped these provisions by unilaterally imposing the EU ETS on non-agreeing countries.

[6] In fact, the United States is poised to file its Action Plan later this month.

rectly on international flights, these international and bilateral agreements set forth rules and limits on the types of regulations that individual countries can impose on the airlines of other countries. This makes sense. If one country or a set of countries could unilaterally impose any requirements they wanted on international flights, it would be very difficult—if not impossible—for flights from country to country to occur. Thus, the treaty, customary international law and air-services agreement rules are very important to ensuring freedom to travel and enabling international commerce.

The Extraterritorial Reach of the EU ETS and U.S. Sovereignty

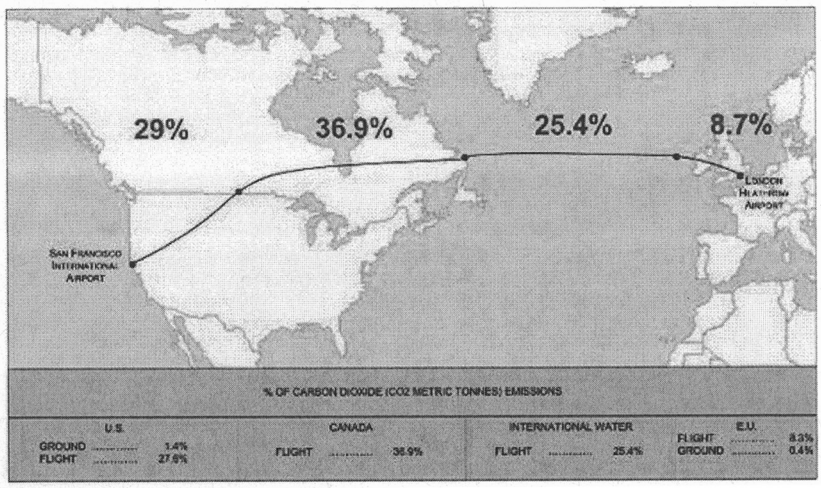
Although the EU ETS violates international law in many respects, perhaps the most egregious is its regulatory overreach into other nations, including into the United States. By its terms, the EU ETS applies to airlines that fly to, from and within the EU, placing a cap on the total quantity of emissions for such flights. Since 2009, the EU ETS legislation has required U.S. airlines with flights to European States and territories to monitor and report to the EU their emissions for the entirety of each individual flight to, from and within the EU.[7] Beginning on January 1, 2012, that legislation imposed on our airlines an obligation to acquire allowances to cover the emissions over the whole of these flights.[8] That includes emissions while at the gate or taxiing on the ground at U.S. airports, in U.S. airspace, over Canada or other non-EU countries, over the high seas, as well as within the airspace of EU Member States.

The example of an actual A4A member airline flight from San Francisco to London Heathrow illustrates this well (see Figure 2). From the time the aircraft engine is engaged, even before the aircraft begins to taxi from the gate in San Francisco, the EU emissions rules apply. As a percentage of total emissions, 29 percent take place in U.S. airspace, including those on the ground at the airport. A further 37 percent take place in Canadian airspace, and a further 25 percent over the high seas. Less than 9 percent of emissions from this flight take place in EU airspace. Yet the EU ETS emissions-allowances requirement applies to the emissions for the entire flight from start to finish. And should the U.S. airline not purchase and surrender to the EU the amount of allowances required by the scheme, that airline will be subject to an "excess emissions penalty" of 100 euros per metric ton of carbon dioxide equivalent.

[7] Notably, U.S. airlines long have been subject to the world's most comprehensive aviation-related data reporting obligations, reporting to the U.S. Department of Transportation Office of Airline Information (OAI). That "Form 41" data provides detailed fuel-burn data that is translated into GHG emissions data. Thus, the United States has long had the most comprehensive aviation GHG data of any country in the world. Although A4A urged the EU to recognize the Form 41 data when adopting rules to implement the EU ETS with respect to aviation, the EU chose instead to create a whole new emissions reporting regime, subjecting U.S. carriers with EU flights to overlapping and differing reporting requirements.

[8] Although airlines do not have to "pay up" until 2013, the liability is very real, triggering securities disclosures and significant expenditures for U.S. airlines to be prepared to pay the bill in 2013.

FIGURE 2. CO_2 Emissions for Flight #954, San Francisco to London on June 16, 2011



By asserting EU jurisdiction over U.S. airlines and emissions on the ground in the United States and in U.S. airspace, the EU and its States are in violation of Article 1 of the Convention on International Civil Aviation, referred to as the "Chicago Convention" and customary international law, which state that every country has jurisdiction over its own airspace. Further, by asserting EU jurisdiction over U.S. airlines and their emissions over the high seas, the EU and its States are violating the Chicago Convention and customary international law, which provide that only the country of registry and ICAO may regulate aircraft over the high seas.

Reducing these violations to mere legal citations does not do them justice. What is at issue here is nothing less than U.S. sovereignty.

The EU and EU States' Unilateral Action Threatens International Aviation and International Commerce

The Chicago Convention is intended to establish "certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically." To carry out this important mandate, ICAO was created and authorized to adopt and amend "international standards and recommended practices and procedures" dealing with various aspects of safety, operation and efficiency of air navigation and environment. ICAO authority extends to setting international standards, policy and recommended practices for international aviation and climate change.

The EU's unilateral act is in breach of ICAO authority and the agreement of parties to the Chicago Convention "to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures and organization" regarding international aviation. Further, the EU unilateral scheme violates Article 2.2 of the Kyoto Protocol, to which the EU and its Member States are parties, which expressly recognizes ICAO as the proper body through which countries may agree to a framework for further addressing GHG emissions from international aviation. This unilateral and piecemeal approach can only lead to chaos in international travel and trade.

As noted, the EU ETS imposes a cap on the total quantity of aviation emissions for flights to, from and within the EU. This cap is set at a level lower than "historical aviation emissions," defined as the average of aviation emissions from 2004 to 2006. For 2012, the cap is set at 97 percent of the 2004–2006 average; for 2013 the cap is set at 95 percent. Although the current EU ETS legislation—which by its own terms is to be reviewed and subject to amendment after 2014—calls for up to 85 percent of aviation emissions allowances under the cap to be distributed "free of charge," 15 percent are only available by auction by EU States. Further, airlines must purchase emissions allowance to cover any emissions above the historic cap.

The language of the EU ETS Directive reflects the reality of the situation; while some allowances may be distributed "free of charge," the remainder may only be

procured upon payment of a charge, making the EU ETS a cap, levy and trading scheme. The levy aspect of the scheme violates provisions in the Chicago Convention and in the US-EU bilateral air services agreement that govern the conditions under which one country may impose taxes and charges on the airlines of another.[9]

The EU ETS imposes a steep levy on U.S. airlines. Moreover, given that carbon prices are volatile, the EU ETS exposes U.S. airlines to increasing and varying costs that are difficult to predict and incorporate into business planning. In light of the sustained economic downturn in Europe and uncertainty regarding negotiations to replace the Kyoto Protocol, which expires in 2012, carbon-allowance prices in the EU currently are about a third of what they were just 3 years ago. However, even projecting forward from the current cost of carbon, the U.S. airlines will be required to pay into EU coffers more than $3.1 billion between 2012 and year-end 2020.[10] That outlay could support over 39,200 U.S. airline jobs. Now consider that the costs could be twice as high if the cost of carbon allowances in Europe returns to where it was within the past 3 years. That cost outlay would represent over 78,500 U.S. airline jobs.

And it could get even worse, as the cost of carbon is not the only variable here. These cost estimates are based on the amount of free allowances and the emissions caps established in the current EU ETS Directive. However, by its own terms, the Directive calls for a review in 2014 that could reopen the quantity of free allowances and emissions caps applicable to aviation.

Notably, none of the monies collected by the European States under the scheme are required to be used for aviation environmental purposes in particular or even environmental purposes at all. And in fact, some European countries, such as the United Kingdom, have expressly denounced any obligation to earmark the collected funds for an aviation or environmental purpose.[11] All the while taking U.S. airline, passenger and shipper dollars, the EU ETS will siphon away to European coffers the very funds that our airlines need to continue investing in the technological, operational and infrastructure improvements required to meet our emissions targets. This is truly anti-environment.

There is no question that A4A has significant concern about any tax or charge that may add to our airlines' and customers' financial burden. Indeed, the industry already pays more than its fair share of taxes—air travel and transport are taxed at a greater rate than alcohol and tobacco, products that are taxed at levels to discourage their use. However, taxes and charges imposed on a global basis despite treaties and trade agreements, as is the case with the EU ETS, should be of grave concern to us all.

According to U.S. trade statistics, in 2011, the United States exported goods to the EU valued at more than $268 billion.[12] If the EU and its States may impose a GHG emissions levy on emissions over the entirety of a flight merely because it touches down in Europe, what is to keep the EU from imposing GHG import taxes on the 9 billion dollars' worth of U.S. automobiles imported by Germany, the 4 billion dollars' worth of U.S. pharmaceuticals imported by the United Kingdom, the 7.2 billion dollars' worth of U.S. civilian aircraft imported by France, or the 5 billion dollars' worth of U.S.-manufactured chemicals imported by Belgium last year? And if the EU can impose a tax reaching aircraft emissions around the world despite the limits in relevant treaties, on what grounds will we be able to keep other countries from imposing multiple, overlapping, worldwide taxation schemes on aircraft emissions? And what if the EU decides that the principles it has used to justify a unilat-

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[9] Specifically, the EU ETS breaches Article 15 of the Chicago Convention, which prohibits the levying of "fees, dues or other charges" on international aircraft "solely of the right of transit over or entry into or exit from" the EU. While Article 15 allows for charges to be applied under certain circumstances, such charges must be "cost-based and related to the provision of facilities and services for civil aviation." However, payments by airlines for emissions allowances under the EU ETS are not cost-based and do not have to be used specifically to address the impact of aviation emissions. Further, by basing the levy on an airline's fuel consumption, the EU ETS violates Article 24 of the Chicago Convention and Article 11(2) of the U.S.-EU bilateral air-services agreement, which prohibit countries from taxing fuel onboard an aircraft or uplifted for an international flight absent the express consent of the airline's country of registry.

[10] While different analysts may come up with different numbers, in November 2011, Bloomberg Government put the cost between $2.1 billion and $4.2 billion through 2020, depending on the cost of carbon allowances. *See* Bloomberg, *Europe's Overreach on Plane Emissions Won't Clean the Sky,* (Dec. 21, 2011) (available at *http://www.bloomberg.com/news/2011-12-22/europe-s-overreach-on-airplane-carbon-emissions-won-t-clean-the-sky-view.html*). This is squarely within the range that A4A analysis suggests.

[11] See GreenAir Online, *UK Says it Will Not Earmark Aviation Revenues from EU ETS Auctioning for Environmental Measures,* (Aug. 14, 2008), available at *http://host1.bondware.com/~GreenAirOnline/news.php?viewStory=233*.

[12] See *http://www.census.gov/foreign-trade/balance/c0003.html*.

eral assertion of jurisdiction over GHG emissions also apply to labor laws, health care policies or other regulatory matters attendant to a flight that might touch down in Europe or a particular product imported into the EU from the United States? To avoid such results, the United States must act to overturn the unilateral EU scheme.

The EU ETS "Equivalent Measures" Provision Is Not a Way Forward

In answer to criticism regarding EU unilateralism raised by A4A, the U.S. Government and other countries and airlines around the world, the EU has suggested that the provision in its EU ETS Directive allowing for exemptions under certain circumstances allows for a way forward. The EU argues that if other countries adopt "equivalent measures" to the EU ETS it will withdraw application of its scheme on one leg of an international flight, allowing the other country's measures to apply on that leg.

This provision, Article 25 in the EU ETS Directive, reveals the full extent of the EU breach of sovereignty and improper extraterritorial action. It says that the EU will continue to regulate the U.S. airlines on the ground in the United States, in U.S. airspace, over Canada, over the high seas and so on until the United States adopts some sort of measure that the EU, in its sole discretion, determines to be "equivalent" to the EU ETS. And even then, the EU will relinquish regulation over only the incoming flight of the U.S. airline.

This is a recipe for further chaos. Although reserving for itself the authority to determine whether another country's measures are sufficiently "equivalent" to merit an exemption for its airlines, the EU has no criteria or transparent process for such a determination. This creates a tremendous prospect for competitive distortions and discrimination. Indeed, we have heard from sources around the world and it has been reported in the press that the EU may be offering variable "deals" to certain countries, perhaps more on political bases than on objective criteria. The threat to U.S. aviation to be on the short end of this is palpable. Simply put, the unilateral and flawed EU ETS is the wrong starting point for discussions of what may be appropriate for U.S. or international aviation GHG policy.

U.S. Government Action to Turn Back This Extraterritorial Scheme Is Essential

Facing a statute of limitations, in December 2009 A4A brought a private legal action in European courts against the EU ETS. In December 2011, the European Court of Justice (ECJ) upheld the application of the EU ETS to the world's airlines against this challenge, finding that A4A, as a private party, did not have standing to raise certain questions of international law and sovereignty, that the EU is not bound by the Chicago Convention even though each of its Member States is, and that the EU ETS could not possibly be considered a "tax or charge," as is a "market-based measure," despite the fact that economists recognize taxes and charges as types of market-based measures.[13]

With due respect, A4A believes that the ECJ decision was wrong,[14] as do the many countries that continue to speak out and take action to oppose the application of the EU ETS to international aviation. That countries are now fully engaged in the fight is a good thing—there is no question that countries have standing to prosecute the violations of international law and sovereignty occasioned by the EU ETS. Accordingly, we applaud the declarations adopted by a set of States in New Delhi and Moscow and in the ICAO Council condemning the unilateral EU scheme. And we appreciate the steps that China, India and other countries have taken to push back against it.

But most significantly, we appreciate the diplomatic steps the U.S. Government has taken to state its opposition to the EU ETS, from joining in multilateral declarations, to direct talks, to the December 2011 letter from Secretaries Clinton and LaHood, to the Sense of the Congress language approved in the FAA reauthorization bill, and to President Obama raising his concerns directly with EU President Barroso. There can be no question that the administration has given diplomacy every chance. But the EU and its Member States have snubbed these diplomatic ef-

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[13] Notably, ICAO also recognizes taxes and charges as market-based measures. See ICAO website at *http://www.icao.int/environmental-protection/Pages/market-based-measures.aspx* ("Market-based measures include: emissions trading, emission related levies—charges and taxes, and emissions offsetting.")

[14] Many legal scholars join A4A in this view. *See, e.g.,* B. Havel & J. Mulligan, *The Triumph of Politics: Reflections on the Judgment of the Court of Justice of the European Union Validating the Inclusion of Non-EU Airlines in the Emissions Trading Scheme,* Air & Space Law v. 37, no. 1, pp. 3–33 (2012).

forts, as they did when they adopted an illegal ban on aircraft fitted with "hushkit" noise technology in the early 2000s.

As the United States did with the unilateral ban on noise-hushkitted aircraft, the United States now must take concrete legal action to overturn the application of the EU ETS to U.S. airlines and aircraft operators. This should include the filing of a challenge under Article 84 of the Chicago Convention, just as the United States did as a mechanism to help resolve the hushkit dispute. Such a measure would not only call the EU and the EU States on their actions, but would get the EU and its Member States back to the table at ICAO to flesh out and implement the "global sectoral approach" framework provisionally agreed at the 37th ICAO Assembly in 2010. Significantly, when the United States brought the Article 84 challenge to the illegal EU ban of noise-hushkitted aircraft, ICAO also was working on a new noise standard for aircraft and on a new framework for addressing community noise exposure in the vicinity of airports under a "balanced approach." The United States was able to work with the EU States and the remainder of the (then) 190 Member States to ICAO to agree to a new noise standard and the balanced approach framework and to come to a negotiated resolution of the hushkit dispute under which the Europeans withdrew their wrongful ban on noise-hushkitted aircraft and embraced the new ICAO noise provisions. With ICAO currently working on a CO_2 standard for aircraft and on means of implementing the provisionally agreed global approach to aviation and climate change, the parallels to today's dispute regarding the EU ETS are palpable.

Some have asked why the United States should engage in a legal challenge, given that the Chinese, Indians, Russians and others are already threatening retaliatory trade measures against the EU, and the United States itself has signaled the potential for such measures. It is precisely because a trade war is at hand that U.S. leadership is needed to help navigate a way through. The EU fired the first shot, with its unilateral measure that threatens international aviation and establishes an even broader threat to international trade. That others are retaliating is, unfortunately, necessary as diplomacy has not worked. As it has done before, the United States, in its role as a world leader, must wield the tools it has to remove the wrong measure in favor of the right one.

The U.S. Senate has an important role to play. We thank Senators Thune and McCaskill for their leadership in sponsoring S. 1956, the "European Union Emissions Trading Scheme Prohibition Act," and we urge the Senate to approve this legislation. Doing so would lend further support to the Obama administration in its efforts to overturn the EU ETS in favor of a global framework at ICAO. It would further convey to the EU and its Member States the seriousness of their breaches of U.S. sovereignty and international law and U.S. Government concerns about the effect of the EU ETS on U.S. airlines, aircraft operators, the U.S. economy and U.S. exports. Not only would it help the United States wield the tools necessary to work through this precedent-setting trade dispute, it would spur on work at ICAO to foster a truly international approach to aviation GHG emissions.

Thank you for the opportunity to testify on this important issue.

The CHAIRMAN. Thank you.

Some time ago, you may remember that 29 coal miners were killed in an accident in West Virginia. Those families of those who died are waiting for me in my office, so I'm going to have to yield in a moment, and Senator Cantwell has been good enough to—and I think Senator Thune will be here also, but Senator Cantwell has thankfully agreed to chair the close of this committee.

I apologize that we don't have the time for more questions for you. But I have to say—it may just be my view—the coal industry, which is obviously under pressure, has—what it does is that it attacks the President and attacks EPA, and the more it attacks them the better they feel, but, more importantly, the less they get done about improving cleaning up coal.

There is just an overwhelming amount of television which attacks the President and attacks EPA, and that's sort of the self-satisfaction. That means it's OK to hate the government. But more importantly, it means it's OK not to do anything about cleaning up your product.

I get a sense of that a little bit from some of this testimony, that you all took great pleasure in attacking the European Union and their efforts, but didn't talk particularly, except perhaps for the captain, about cleaning up more than just the technological approach. I mean, don't credit yourselves for the advanced technology we're going to have in aviation, because that's something that the Congress did and you will have to do as a result. That's not your initiative; that's our initiative.

Second, I just have to say this. I've worked my way to reasonably good terms with the non-commercial sector of the airlines, but I think it used to be true and I think it's basically true that about two-thirds of the airplanes in the air at any given time over the United States, over North America, are non-commercial, and that's a lot of airplanes and therefore a lot of emissions.

I note, Mr. Bolen—and you will be my only question and then I will beat a hasty retreat and try and comfort people who aren't getting any legislation because all good legislation seems to be stopped in this Congress. And, Senator Cantwell, I don't necessarily like that. But it appears to be a fact, according to the Environmental Protection Agency, their latest greenhouse gas inventory this year, that CO_2 emissions of general aviation aircraft in the U.S. have increased nearly 67 percent from 1990 to 2010.

That's about 6.5 million metric tons. Now, some aircraft are extremely large. I just came back from a place in Texas where two or three people come in on absolutely enormous jets for recreation. I had the pleasures of United Express to fly on.

But I want to know very distinctly what the general aviation community is doing to take the 67 percent increase and reduce it substantially. And that's some very basic questions, because that means very large corporate jets carrying very few people. And you can use the excuse, well, they have to do that because they have to fly nonstop to Beijing or something of that sort. But that's the kind of argument which is going to get weaker as more pressure is applied on your responsibility to reduce your emissions.

Mr. BOLEN. Mr. Chairman, I think that the entire aviation community and specifically the general aviation community has been very aggressive at looking for ways to make their airplanes and the system more efficient. It was the general aviation community that introduced winglet technologies, which makes airplanes 6 to 8 percent more efficient at cruise. It was the general aviation industry that introduced composite technologies, which make airplanes lighter and therefore more fuel efficient, which are the hallmark of the new Boeing 787.

The general aviation community has supported RVSM, which allows efficient spacing of airplanes at higher altitudes, which are more efficient to fly. We have also been very supportive of adopting GPS technologies, which allow for more direct routing and more efficient operations.

We recognize and applaud and support everything that this Congress has done, and specifically you and your leadership has done, to make NextGen a reality. I've just come from 2 days of meetings downtown involving the FAA and the industry on the specific steps we're taking to make that a reality, and we're very excited about that. Two weeks ago, we were in Seattle looking at a program

called the Greener Skies Initiative at SEATAC and how operations there are becoming more efficient utilizing NextGen technology, a virtual laboratory for that program.

So I would like to say that we have adopted technologies, we have been pioneers of technologies, and we're working in conjunction with you to adopt NextGen technologies as part of our system. We believe strongly that efficient flying, fuel efficient flying, is good for the economy and it's good for the environment, and we'll continue to support that, Senator.

The CHAIRMAN. I'm not entirely satisfied with that answer because we passed NextGen, you didn't, and the 67 percent really stands out there, Mr. Bolen. It really stands out there. So what I'd like to have, with your permission, with your agreement, if you could write me a lengthy letter about some of the things that you just said and some of the things perhaps that you didn't say and would like to say, because the 67 percent is stunning if two out of every three airplanes in the sky belonged to you, so to speak.

Mr. BOLEN. Senator, I will follow up on that. That number is new to me. It doesn't make intuitive sense to me because our flight operations have been going down, not up. But I do know this. I do know our total greenhouse emissions is less than one-half of 1 percent, and I do know that the airplanes that we have been introducing and the routes that we have been flying have been getting consistently more efficient.

So I will understand the methodology used to calculate that number and I'll look forward to talking with you in very specific details about what we're doing.

The CHAIRMAN. Write me first.

Mr. BOLEN. I'll write first.

The CHAIRMAN. Thank you.

And thank you all, and Senator Snowe is now—I'm sorry. Senator Cantwell. Look, that's not bad. She's a good person, too.

Senator CANTWELL. She's a great legislator.

The CHAIRMAN. Come sit up here, Senator Cantwell.

Senator CANTWELL [presiding]. OK. Maybe Senator Thune would like to go while I reorganize.

Senator THUNE. Thank you, Ms. Chairman.

My understanding is, though, that general aviation emissions as a percentage of the total are small relative to commercial airline emissions; is that correct?

Mr. BOLEN. We're less than one-half of 1 percent of the total emissions. We're the smallest part of the civil aviation community.

Senator THUNE. Right, OK. So notwithstanding the number of operations that are conducted by general aviation airlines—and I appreciate the answer that you gave to chairman's question is important, but relative to the problem that's supposedly being addressed here, it's very small relatively speaking?

Mr. BOLEN. Bolen: Less than one-half of 1 percent, absolutely.

Senator THUNE. Right.

Mr. BOLEN. And it would also be more important if in fact the EU was following the stated purpose of the EU ETS scheme, which is essentially to use it to reduce emissions. But everything I've heard today suggests that that's not necessarily the case; that

those revenues could be used for any purpose by any of the member nations.

Mr. DELBEKE. Senator, can I comment on that? I think in our legislation there is a tradition that member states decide on the use of revenues from any form of taxation. But for once they made an exception and for the revenues generated to their benefit from auctioning aviation allowances, they have undertaken an explicit commitment to use all the revenues for efforts to reduce emissions.

So it is the exception. It was done and hence the importance of the statement, because it is not done on any other elements of the ETS. It's not done on any other policy areas, but it was done for revenues generated through the auctioning of allowances for aviation.

Senator THUNE. Well, maybe that could—maybe I'm missing something here then, because, to clarify that point, that may be the suggested use or some sort of understanding, but I don't think there's anything that requires or stipulates that any member nation would use those penalties that would be assessed if somebody doesn't have allowances, the financial fees that would be assessed, that would then have to be used for reducing emissions.

Ms. PETSONK. It's two different questions it sounds like you're asking, Senator. One is when emissions allowances are auctioned in the EU ETS, are there any requirements that revenues from those auctions, if airlines choose to buy auctions, buy allowances at auction, which they're not required to do—they could buy them from other places. But if they choose to buy them from an auction held by a sovereign government, is there anything that requires them, the sovereign government, to spend the money on climate change-related activities or on aviation-related activities.

I would just point to page 9 of my testimony. Footnote 25 cites the German legislation that requires the German government that any revenues raised from auctioning aviation emissions allowances must be spent on the energy and climate fund, which goes to climate purposes around the globe.

Senator THUNE. That sort of contradicts, I think, Ms. Young's testimony.

Ms. PETSONK. Yes, it does.

Ms. YOUNG. If I may add, I think that there's fair distortion here. The legislation, as you know, directly makes it clear that the member states get to choose how they spend the funds, and we expect that to happen. But I'd actually encourage the discussion to get back to the extraterritorial nature of this scheme.

Perhaps the use of funds in a different way makes it slightly less bad, but the fact that they're choosing to tax U.S. citizens in U.S. airspace to fund whatever Europe decides to spend the money on in European pet projects I think is a fundamental flaw with the scheme, and it violates our sovereignty.

Senator THUNE. Right, but so much of the discussion among my colleagues on the panel has been about the need to reduce emissions and focusing on domestic airlines, to Mr. Bolen, and points that were made by Captain Cassidy with regard to things that were happening in this country that actually are designed to reduce emissions.

My point simply was, if in fact it is true that member states can use these revenues for whatever purpose they desire and there's no requirement that it be used, that then it does become the American people, American travelers, paying a tax to European countries, which, to borrow a phrase, would be taxation without representation.

I mean, what we're talking about here is imposing a tax on the American public. Mr. Delbeke, you mentioned the fact that this really isn't a tax, but to the American airlines, the carriers, and to the American traveling public, I think it's going to be perceived as a tax. I mean, it's something that's going to be added.

And, by the way, I would like to know the answer to this question, too. And, Ms. Young, if you can perhaps answer it. But what is the amount that we're talking about that would impact passenger ticket prices in this country, either in aggregate or maybe on a per passenger basis, if you have that sort of analysis that's been done.

Second, are those costs already today being passed on? In other words, are we already starting to see the implication of this, the additional cost for American travelers?

Ms. YOUNG. Our estimates are that this scheme will cost U.S. airlines $3.1 billion between the beginning of 2012 when it went into effect for us and year-end 2020. That means that U.S. airlines will have less money to spend on new equipage, sustainable alternative fuels, which I hope we'll get a chance to get into since that's another measure, I think, that's really critical that we haven't gotten into today, and the like.

To date, our airlines have advised us that they have not increased their fares to cover this. In fact, you saw a 30 percent increase in fuel prices in 2011. I think that's pretty much to explain why fares may have gone up a fair amount in 2012. So the bottom line being, there's going to be a $3.1 billion cost to either the airlines or, if they can pass some of it on, to the consumers, and we get back to the key question: Should U.S. airlines and U.S. consumers be paying a tax to European coffers on an extraterritorial scheme where the EU will use the money however it will?

Mr. BOLEN. Senator, I'd like to follow up on that, because for the private companies that are caught up in this, they are already spending thousands of dollars per year simply to register with the Europeans. The United Kingdom requires copies of certificate of incorporation, names of principal company shareholders, names of individuals charged with administering company registry accounts, certified copies of passports, driver's license, proof of identity, criminal background checks, bank information, 3 months of statements, personal contact information. All of this stuff is being required from any U.S. company that plans to fly one flight to Europe.

So we already have an administrative burden. We already have a cost of compliance, and on every flight we're going to pay thousands of dollars per flight. This is an enormous cost.

Senator THUNE. Have you done the same sort of analysis that—with the indulgence of the chair—that Ms. Young was talking about the commercial airlines having done, that quantifies over like a 10-year period what that cost may be? I know you've got spe-

cific examples of costs that are already being imposed as a result of the administrative burden associated with this.

Mr. BOLEN. We've not yet aggregated them, but we will.

Senator THUNE. OK.

Yes?

Mr. DELBEKE. Thank you very much, Senator. If I can make a point. First of all, for the record, it is not a tax. The cap-and-trade system has been recognized by ICAO as separate from a tax and a charge. So in that sense we cannot continue talking about a tax. It is not a tax, because an airline that needs allowances can buy these allowances on the market. It does not have to pay to the tax authorities. It has the option to go for the auctioning exercise, but the auctioning exercise is a tiny part of the entire exercise.

And by the way, large American airlines get on average 90 percent of their allowances for free. So I think that the cost calculations that have been advanced are wildly exaggerated, and I'm in your hands to contribute more evidence on this issue. According to our calculations, and we see that American airlines are taking precautions for that, we are talking about two, three dollars per transatlantic flight in terms of potential cost increase.

The final point I want to make is to Mr. Bolen on the costs of administration related to the exercise. They are absolutely small and we have special provisions for small operators, below 25,000 tons, and these provisions apply exactly in the same manner to European operators as to American or non-European operators. It is a very important principle not to create any discrimination or distortion based on nationality when it comes to registration or whether it comes to the other provisions of the law.

Thank you very much.

Mr. CASSIDY. Sir, one of the things that we really need in this industry is consistency and stability. We really haven't known any kind of normalcy from 9/11 to present. We went through that crisis, the terrorism crisis, the wars, the global meltdown, gyrating fuel prices, et cetera, et cetera. This is yet another thing that introduces another level of instability into an industry which last year alone domestically didn't even come close to netting one billion dollars worth of profit. That's spread out right across the board.

On any given time, just with the airlines that we represent in the Air Line Pilots Association, we have a few members that are going through bankruptcy, we have some who are trying desperately to avoid it. We have a few who are going through mergers. When you overlay the already very, very significant and profound impact that just energy costs alone have, when you start looking at the inconsistency of this kind of thing and the almost invariably unpredictable impact it's going to have on the industry, that's a most unwelcome development.

I think the other thing that needs to be emphasized also is that pursuing something through ICAO does not preclude another solution from being achieved while the Article 84 process is playing out. That's merely a means of resolving a dispute between some of the members that form the ICAO, the group of about 190 member nations that comprise ICAO. ICAO has been a great agency for creating international standards of recommended practices with licensing, radio nomenclature, accident investigations. Most recently

they've done some great stuff in terms of ensuring the safe transport of hazardous materials, such as lithium batteries, internationally, safety management systems, etcetera, etcetera.

It may not be the most expeditious process by getting things done, but at least it has the gravitas of the entire world behind it. I think that we should be pursuing that instead of this ad hoc thing, which could actually have the opposite effect.

Senator THUNE. My time has expired, Madam Chair. But if I could just make a closing observation. I hear everything that you're saying. The thing I can't get around, to our friends from the EU, is why we didn't use that mechanism in the first place if you're going to go about doing this. This does appear to an American citizen, an American traveler, as, one, a violation of international law, a violation of American sovereignty, and an illegal tax.

What I heard you saying today is that you're not going to suspend it, and I heard Secretary LaHood say we're discussing and debating it, what to do next. And at the same time, American airline carriers, commercial carriers and general aviation travelers are being hit with this. So what to me that suggests is the way to force some action on this is a legislative solution. I think that's going to be the only way, Madam Chair, that we're going to be able to force what should have happened in the first place to happen, and that is to go to ICAO and get this resolved, because otherwise it looks to me like there's just going to be a lot of discussing and debating on our end and no attempt to fix this on yours.

Right now, the more I think the American people find out about this, the more upset they are going to be. So I hope we can move some legislation.

I thank you all for your testimony.

Senator CANTWELL. Thank you, Senator Thune. I appreciate—we went a little over there just to give you time to get this in. So I think I'm going to make this the last. I hope you don't have more questions.

Senator THUNE. No, that's fine.

Senator CANTWELL. OK, good.

So I'm going to ask my questions and then we're going to adjourn the hearing. Everybody's got schedules here. We have a vote coming up.

But, Mr. Delbeke, you touched on it briefly, this notion that there are different assessments out there, wildly different assessments, about what the impact of this is. Do all the parties agree on the underlying facts or is there some assumptions? Or how do we reconcile these numbers?

Mr. DELBEKE. Well, these numbers are based on a number of assumptions that I beg to differ about. I mean, the number of questions and the number of estimates that I have been hearing are not incorporating the fact that on average 90 percent of the allowances are handed out for free to the large American airlines.

But may I take the opportunity to come back to one of the discussions we should have in ICAO, and we are fully committed to work in ICAO. In 2004, unfortunately, ICAO ruled that cap-and-trade systems need to be developed by states and that ICAO themselves would not develop one single cap-and-trade system. We were surprised by that and we were upset by that, and that is the reason

why the European legislature decided ultimately to go ahead and to force towards a global arrangement.

Senator CANTWELL. Let me ask you, if I can. What do you think is the sticking point at ICAO, then? I mean, do you think the sticking point is that they wanted individual states to come up with this? That's what you think the sticking point is?

Mr. DELBEKE. Well, in the assembly of 2004 all countries, all states regulated, that cap-and-trade systems are a preferred solution and that this preferred solution needs to build into systems developed by states, and that ICAO as a global administrator would not develop a global regime. From that moment on, the European Union first was surprised by that, and second then developed its own system.

We were in ICAO at that time to explain what we were doing. We had discussions with all players around the globe, including with the United States, including with the airlines, and I think that that groundwork has been done, and we are more than happy to take that work up again and to revive the discussion. So we are committed for a global solution. You know that Europe is committed to a multilateral dealing with things of this nature, and that is not an exception for aviation.

So what was——

Senator CANTWELL. Let me ask Ms. Young, then. So say it's September 2013 and there's a ICAO assembly and they come up with some targets for aviation. Can you agree to that? Let's just say—I'm not even talking about what the scheme is. I'm just saying there are some targets and there are some binding targets. Is there something there that you can support?

Ms. YOUNG. I'd like to clarify the record a little bit. ICAO already has adopted targets. They adopted annual average fuel efficiency improvements of 2 percent through 2020 and they adopted carbon-neutral growth from 2020. In large part, that was in response to the worldwide aviation industry, which is the U.S. airlines, the world's airlines, the manufacturers, Boeing and others from your district, the airports, and the air navigation service providers getting together and putting a proposal on the table for a global framework at ICAO.

Pieces are there, including the carbon-neutral growth from 2020 target. What we need to do is work within ICAO to get full agreement on how to implement the framework that was provisionally agreed in 2010, and that's the work that's going on now, to take technology, operations and infrastructure, the measures that really make real differences, that were all committed to, and bring them together in what ICAO can do.

And to the extent that we're not able to meet the carbon-neutral growth goal from 2020 by those types of measures, with the U.S. doing its part on NextGen, with the U.S. and other governments doing their part on sustainable alternative fuels and supporting the military and the commercial aviation joint effort that we're co-proposing with them, doing that, if we're not able to meet our targets through that, there may be a role for market-based measures.

But those need to be under mutually agreed terms, under a play book that could be agreed at ICAO, and that's the work that's going on right now. In our strong view and our experience at the last

ICAO assembly, and the U.S. Government has previously testified to this, the EU ETS itself is the roadblock to getting that full agreement, because the countries don't trust what's going on.

The EU says it wants to work multilaterally, right. But it's done it unilaterally, and it says it will amend its scheme if there is a suitable agreement at ICAO that meets their version of what should be approved, arguably a worldwide cap-and-trade system along the lines of the EU.

Senator CANTWELL. But I'm asking you, so now would you agree to further reductions besides the carbon neutral by 2020?

Ms. YOUNG. We have a commitment with the worldwide aviation community for carbon-neutral growth from 2020, building on a fuel efficiency platform up to 2020. And it includes the U.S. doing its part on NextGen, and we are very supportive of the FAA reauthorization.

Senator CANTWELL. If somebody said that wasn't enough and we needed to do more, would you be willing to do more? That's what I'm asking.

Ms. YOUNG. I think that the discussions at ICAO are ongoing and we'd like to see what that is. It's very difficult to talk about a hypothetical, more or more. We think, based on our record of fuel efficiency, 120 percent fuel efficiency improvement since 1978, and we are committed to continuing to do more, based on the work we're doing on sustainable alternative fuels and really the low greenhouse gas emissions we have, 2 percent relative to our contribution to the GDP, 5 percent, we think carbon-neutral growth from 2020 is the right target and we're willing to continue to work toward that target.

If there is a negotiated resolution as a package that makes sense that's slightly different, of course U.S. industry and others will take a look at it. We don't want a global trade war, but, frankly, I think it's important to point out the EU started this. They brought the unilateral scheme.

Senator CANTWELL. I can guarantee you my constituents don't care which side of Congress. It's like kids in the room; they just want us to stop and work together.

I think on this, I think the issue is could ICAO go back to some of those targets of just saying, here's what we want to hit? It sounds like we've gotten caught up in whether we're going to go the EU route or not the EU route of cap-and-trade. As I expressed in my opening remarks, I have a great deal of concern about the approach that Europe has taken on a cap-and-trade system.

To me, I'm with you. The real issue is the reduction in emissions and the measurement of the reduction in those emissions, not a scheme that maybe moves a lot of money around on offsets and paying historic polluters, but actually reaches that goal.

So, Mr. Bolen or Mr. Cassidy, Captain Cassidy, what do you think the sticking point is at ICAO and could we just go back to just focusing on getting that goal mandated and set and agreed to?

Mr. BOLEN. I want to be clear. General aviation has also accepted very specific targets at ICAO. We've put those forward, so I think we've got a unanimity within the aviation community on a public commitment to constantly reduce our environmental foot-

print through a lot of things like NextGen, alternative fuels, and so forth.

I just want to take issue with the idea that this is a complicated thing at the EU and no one's really sure what's in it. The one thing that is very clear is that commercial aviation and non-commercial aviation are treated very differently. It's much more onerous for non-commercial aviation. We have not heard a justification of why. Like you, we believe that ultimately it is what is the amount of emissions, and we see no reason to treat non-commercial aviation differently than commercial aviation.

Senator CANTWELL. Captain Cassidy, do you have any idea on a sticking point at ICAO and what we could do to get back to focusing on real emissions reductions?

Mr. CASSIDY. Well, one of the things that we're involved with, ALPA is also a member of IFALPA, which is the International Federation of Air Line Pilots Associations. We have permanent observer status at ICAO, so we have a long and storied history with participating in that process. If it's taught us nothing else, it's taught us that patience is a virtue.

But in the mean time, while the policy is coming along and that aspect of this ETS issue is being resolved, in some manner I think that we also still need to remain focused on that there's real significant achievements being made through the better use of not only technologies, but of policies and procedures.

I happen to be an Alaska Airlines captain. There's probably a good chance that I've flown you on one of my flights over the last 16 years. I don't think that people appreciate enough some of the really significant changes that have been made, from the transition to an all-Boeing 737 Next Generation fleet and the tremendous fuel savings that come with that, as well as the profiles that you've flown in with some of the profiles, where we stay right over the middle of Elliott Bay, as opposed to fly over Capitol Hill on the way into Seattle.

Those are the type of things that help us be good stewards of the environment, but also help us to preserve and enhance our jobs. I think that those things are compatible. I think it's possible to have an increasingly stable aviation sector and yet continue to improve—or minimize, I should say, our footprint with regard to carbon emissions. We've already demonstrated that through the use of technology, and especially through some of the things that we've been involved with as of late. I've been following Ed around to a couple of the meetings, looking for a better use of integrated operations, harmonized arrivals and departures, single-engine taxi, etcetera, etcetera.

There's still an awful lot of low-hanging fruit on those trees that can be done while that other process is basically running itself out.

Senator CANTWELL. Well, Mr. Bolen mentioned the Greener Skies Initiative, which is a great example of a better glide flight path saving fuel, as opposed to current flight standards. The more that can be implemented, the better. I guess what the real issue is, you know, we want to set some goals. We want to set some goals to meet those goals and do so in a way that makes sense.

So I hope that we can go back to ICAO and resolve these issues and come up with a plan that really does emphasize the technology that enables us to make the emission reductions.

Mr. CASSIDY. Right. But in the mean time, there are metrics that are already out there in the NextGen book that's already published by the FAA. They say by 2020 we're going to have 1.3 billion saved gallons of fuel, 14 million metric tons worth of carbon saved, as well as a 38 percent reduction in delays.

Senator CANTWELL. But does that get us to this carbon-neutral 2020?

Mr. CASSIDY. Well, it certainly gets us closer. I know that for a fact. That's probably a little more in Nancy's wheelhouse.

Senator CANTWELL. I think that's what people want to see. They want to see a plan that works, and I think short of that ideas are going to pop up from other places, and that's going to be the challenge. And so getting something that really helps us focus on this—and we're very proud in the Northwest of the great strides that have been made in aviation as it relates to composites and fuel reduction costs and all of those things.

But what people are going to want to know is will this plan with NextGen and everything else get us to that 2020, or do we have to do additional things?

With that, I think I'm going to close the hearing. But thank you all very much for being here. I think it was a robust discussion. Obviously, my colleagues care passionately about this, as does the chairman. So we'll take the cues from him on what he's going to do next.

But this hearing is adjourned.

[Whereupon, at 4:57 p.m., the hearing was adjourned.]

A P P E N D I X

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN F. KERRY TO HON. RAY LAHOOD

Question. In S. 1956, the Secretary and the Executive are authorized to "take any action necessary" to hold American firms harmless if they have to comply with the EU ETS. How would the Department of Transportation hold firms harmless? What would that action look like? Is it possible that such action would place a burden on the American public to compensate airlines when they are found in violation of EU law?

Answer. S. 1956 would call on us to "conduct international negotiations" as well as to "take other actions in the public interest" to ensure that U.S. aircraft operators are held harmless from the EU ETS. Our preferred outcome would be the path we are already pursuing, which is a successful, negotiated global solution in ICAO to address aviation emissions that would replace the EU ETS, at least insofar as ETS would apply to U.S. and other non-EU operators.

That said, we have not taken anything off the table and have a number of tools at our disposal.

The Department of Transportation has full regulatory authority to take proportional countermeasures, including the imposition of countervailing charges and restrictions on EU carrier operations.

We have absolutely no intention of asking the U.S. taxpayer to pay any ETS fines incurred for non-compliance with EU–ETS, directly or indirectly.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO HON. RAY LAHOOD

Question 1. Mr. Secretary, as I mentioned in my opening statement, there is virtually unanimous agreement in the scientific community that human-caused global warming is real and there is not a single scientific body of national or international standing that does not support this conclusion. And while there may be some remaining uncertainty as to the timing and scope of climate change, I don't believe the United States can continue to ignore this threat to our environment and to America's future prosperity. Do you concur with the scientific consensus that human-caused global warming is real?

Answer. Yes. Thousands of the best scientists in the world in their work with the Intergovernmental Panel on Climate Change (IPCC) concluded with 90 percent certainty that the burning of fossil fuels and other human activities are contributing to climate change.

Question 1a. Do you agree that climate change will negatively impact the American economy and our citizens?

Answer. Yes. In the U.S, a range of climate impacts is being observed, including rising temperatures, more heavy downpours, changing water supply, changes in snow and ice, and changing growing seasons. These trends are expected to continue. Because different regions may be affected differently, the economic effect of such changes may vary by region and by the kinds of impacts. Studies have found that transportation infrastructure will face climate impacts such as rising sea levels, changing precipitation patterns, and temperature fluctuations. The U.S. Global Change Research Program (USGCRP) has coordinated research among Federal agencies on observed and projected consequence of global change in this country. Their last National Climate Assessment reported that climate change will adversely affect various regions in the U.S., key economic sectors, ecological resources, and public health.

Question 1b. How would you characterize the aviation industry's contribution to the build-up of greenhouse gases in the world's atmosphere? Is it a significant problem today and how will aviation's contribution change over time?

Answer. Despite the sizeable role that aviation plays in the regional and global economy as well as mobility, aviation's current contribution to anthropogenic global greenhouse gas emissions is relatively low (~3 percent). This relative contribution is expected to increase in the future, given the projected growth in aviation operations and the anticipated decrease in emissions from other sectors. According to an International Panel on Climate Change (IPCC) 1999 report, *Aviation and the Global Atmosphere,* the aviation contribution to radiative forcing could be expected to increase to ~5 percent in 2050. While there have been more recent predictions, the IPCC study remains one of the most robust studies on aviation greenhouse gas emission.

Question 2. Mr. Secretary, during the hearing, we discussed some of the voluntary commitments the aviation industry has made to reduce their greenhouse gas emissions beyond business-as-usual. How confident are you that these commitments will be met?

Answer. The U.S. aviation industry has shown a strong commitment to improving fuel efficiency and reducing aviation's environmental footprint. This has resulted in an absolute decline in aviation fuel burn in the last 10 years. This is not surprising as fuel now represents 35–40 percent of airline operating costs. Going forward they are strong partners with us in NextGen, the Continuous Lower Energy, Emissions and Noise (CLEEN) technology program, the Commercial Aviation Alternative Fuels Program (CAAFI), and our efforts to find a global approach through ICAO. The Future of Aviation Advisory Committee (FAAC) that I established in 2010 identified aviation carbon dioxide emissions as the environmental issue needing priority action, given the significance of the climate change challenge and the linkage with the energy challenge. In December 2010, the FAAC provided recommendations to address and reduce aviation's carbon dioxide emissions through NextGen, alternative aviation fuels, advanced engine and airframe technologies, and a harmonized sectoral approach for global emission reductions.

Question 2a. Do you believe that there are enough tools available to ensure that all major emitting nations and their carriers participate and will meet these commitments?

Answer. Measures are available, although there are certainly challenges in selecting and agreeing on the best combination of tools and implementation efforts. The FAA is actively working through the International Civil Aviation Organization's Committee on Civil Aviation Environmental protection (ICAO/CAEP) and through multilateral public/private partnerships to reduce aircraft emissions. These efforts include goals for increases in aircraft fuel efficiency and carbon neutral aviation growth. The FAA in conjunction with EPA is leading efforts for development of an aircraft CO_2 standard as well as certification requirements. The FAA and other Federal agencies are working through ICAO with international partners on potential frameworks to better understand various aviation-related market-based measures. In addition, the FAA is working with domestic and international partners under initiatives such as AIRE (Atlantic Interoperability Initiative to Reduce Emissions) and ASPIRE (Asia and South Pacific Initiative to Reduce Emissions) which have demonstrated environmental benefits of overall reductions in fuel burn and emissions. Finally, through the Commercial Aviation Alternative Fuel Initiative (CAAFI), FAA is engaging international partners to develop and deploy alternative fuels.

Question 2b. What do you think are the most cost-effective ways to reduce greenhouse gases from the aviation industry?

Answer. Deployment of technologically advanced aircraft, renewable alternative jet fuels, and more efficient operational procedures offers promising avenues to reduce greenhouse gases from the aviation industry. With fuel costs representing 35–40 percent of operating costs, the aviation community is working on all of these fronts to reduce fuel consumption, aircraft emissions and their contribution to climate change. Traditionally, improvements in airframe and engine technologies have led to decreases in fuel consumption and emissions. The Continuous Lower Energy, Emissions and Noise (CLEEN) technology program, an FAA/industry partnership, is designed to accelerate maturation of aircraft technologies and qualification of commercial alternative fuels for quicker uptake by the industry. The CLEEN program has already shown remarkable progress with several aircraft technologies that are expected to be in the operating fleet over the next 3–4 years. The CLEEN program has also contributed to the demonstration and approval of renewable alternative fuels for use in commercial aviation. Over the entire lifecycle, relative to conventional fuels, renewable jet alternative fuels offer a net reduction in emissions of carbon dioxide.

Question 2c. Are there particular efforts or case-studies, such as the Green Skies program at SeaTac Airport, you believe Congress should look at when considering how best to address this issue?

Answer. The Greener Skies initiative is an excellent example of how the FAA and the aviation industry can work together to implement NextGen procedures to improve operational and environmental performance, achieving reductions in fuel burn and emissions. The implementation of NextGen across the national airspace system will produce more gains in aircraft energy consumption and emissions. The Continuous Lower Energy, Emissions and Noise (CLEEN) technology program is an important part of NextGen. Most of the historical leaps in aviation's environmental improvements have come from advances in technology. In addition, the Commercial Aviation Alternative Fuels Initiative (CAAFI) provides an outstanding example of success in advancing commercial renewable alternative jet fuels with government and industry collaborative efforts. NextGen, CLEEN, and CAAFI build on U.S. strengths of pioneering aviation innovations and illustrate the advantages of public/private sector partnerships. I sincerely thank the Congress for continuing to provide strong support for these programs.

Question 3. Mr. Secretary, carbon emissions are ubiquitous within the U.S. economy and almost every economy around the globe. Isolated efforts to reduce greenhouse gas emissions will not alter or mitigate the devastating impacts of a warming planet. I believe this reality provides additional urgency for the United States, as the world's sole superpower, to act and lead the world to a clean energy future with innovative policies. Curbing carbon emissions to the level necessary to avert a climate crisis will require innovation within almost every sector of the economy. It seems to me that the global scope of carbon pollution poses a somewhat different challenge than more localized pollutants.

Rather than regulating downstream at the point of emission such as an airplane's exhaust, would limiting carbon emissions upstream where fossil fuels are extracted possibly be a more efficient and technology-neutral way to squeeze carbon out across the economy?

Answer. DOT recognizes that there could be advantages as well as disadvantages to an upstream point of regulation to limit carbon emissions in the aviation context. We have not done the analysis required to assess which would be more cost-effective in the case of aviation emissions.

Question 3a. Would an upstream carbon limit reduce the need for more monitoring, enforcement, and regulatory complexity?

Answer. Whether an upstream approach would reduce the need for monitoring, enforcement, and regulatory complexity would ultimately depend on the design of the particular approach.

Question 4. Secretary LaHood, on the second panel Ms. Petsonk will argue that in Congressman Mica's "European Union Emissions Trading Scheme Prohibition Act" that passed the U.S. House of Representatives, the phrase *"take other actions necessary to ensure that operators of civil aircraft of the United States are held harmless from any emissions trading scheme unilaterally established by the European Union"* could mean that the U.S Government will have to compensate U.S. commercial and non-commercial operators for any fines incurred as a result of non-compliance with the EU–ETS.

When the Congressional Budget Office scored the Congressman Mica's bill it said "enacting H.R. 2594 would have no significant impact on the Federal budget". If Ms. Petsonk's assertion is true, though, there would budget impact.

Mr. Secretary, what is the range of actions the Department can take to "hold harmless" U.S. commercial and non-commercial operators from EU–ETS?

Answer. H.R. 2594 and Senator Thune's bill, S. 1956, would each call for us to "conduct international negotiations" as well as to "take other actions" to ensure that U.S. aircraft operators are held harmless from the EU ETS. Our preferred outcome would be the path we are already pursuing, which is a comprehensive, negotiated global solution in ICAO to address aviation emissions that would replace the EU ETS, at least insofar as ETS would apply to U.S. and other non-EU operators. That said, we have not taken anything off the table and have a number of tools at our disposal. The Department of Transportation has full regulatory authority to take proportional countermeasures, including the imposition of countervailing charges and restrictions on EU carrier operations.

Question 4a. Could these actions include the U.S. government paying EU authorities directly or compensating the operators for any fines incurred for non-compliance with EU–ETS? Under these circumstances, would the Department require new budget authority?

Answer. We have absolutely no intention of asking the U.S. taxpayer to pay any ETS fines incurred for non-compliance with EU–ETS, directly or indirectly.

Question 4b. Under any circumstance do you see the Federal government compensating U.S. commercial and non-commercial operators for fines incurred for non-compliance with EU–ETS?

Answer. As stated in the answer to the previous question, we have absolutely no intention of asking the U.S. taxpayer to pay any ETS fines incurred for non-compliance with EU–ETS, directly or indirectly.

Question 5. Secretary LaHood, do you believe the extra-territorial provision the European Union included when it expanded its Emissions Trading System to the global aviation sector to be consistent with the spirit if not the letter of the U.S.-EU Open Skies Agreement and its successor?

Answer. We do not believe that the EU's ETS is consistent with our agreement with the EU.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. AMY KLOBUCHAR TO HON. RAY LAHOOD

Question 1. Secretary LaHood—Under Senator Thune's bill, you would be given the discretion to determine if the U.S. aviation sector should comply or not comply with the EU ETS law. How would you go about evaluating any current or future impacts on U.S. carriers?

Answer. The Department has required U.S. carriers to report certain ETS-related data. These data, along with other information, will be used in evaluating the impact of EU ETS.

Question 2. If you were to be given this authority, how would your decision either way impact the work that ICAO is doing to come up with a global agreement?

Answer. We are continuing to work hard with our partners in ICAO to achieve a comprehensive global solution. We hope that the EU will delay or suspend application of ETS to non-EU operators and make a commitment to work constructively to help the ICAO process to succeed. If, however, the EU does not show such flexibility, we will review all the options available to us.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN THUNE TO HON. RAY LAHOOD

Question 1. When do you see the critical deadline for resolution of EU ETS to ensure the unfair taxes don't hurt U.S. air travelers and operators?

Answer. Under the ETS Directive, covered aircraft operators must surrender permits by April 30, 2013, to cover their 2012 CO_2 emissions. We hope the matter will be resolved well before that date. If it is not resolved by next April 30, and some operators do not surrender permits in accordance with the Directive, the EU member states that are responsible for enforcement of the ETS Directive will face some very difficult decisions about the extent and timing of any enforcement efforts.

Question 2. Are you aware of comparable unilateral global tax schemes in other modes of transportation or do you know of any that are being considered?

Answer. The European Commission (EC) has indicated that it will submit to the European Parliament and EU Member States a proposal to unilaterally regulate maritime emissions by the end of 2012 because the International Maritime Organization (IMO) did not reach a global agreement by December 2011. The EC is considering several possible options, including a fuel levy system implemented through an international organization (possibly the IMO), and an Emission Trading System (ETS). The EC is finalizing its unilateral proposal, which it intends to submit to the European Parliament and EU member states in the fall of 2012. The U.S. is continuing to work within the IMO to help find a solution for reducing emissions from the maritime sector.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN D. ROCKEFELLER IV TO JOS DELBEKE

Question. Mr. Delbeke, many aviation stakeholders argue that any ETS revenue collected from air carriers should be dedicated to activities that reduce airline emissions, such as air traffic control modernization. Our FAA recently estimated that by 2018, its modernization efforts (NextGen) will reduce aviation fuel use by about 1.4 billion gallons over that period, and reduce carbon dioxide emissions by 14 million

tons. Wouldn't it make sense to reinvest any money obtained from aviation interests on aviation initiatives to reduce aircraft emissions in the near-term? Won't a lack of dedicated resources delay the effort to modernize and lessen the impact of aviation on the environment?

Answer. The European Union is implementing a comprehensive approach to address aviation emissions wider than just the EU ETS. This includes a range of policy measures to improve air traffic navigation, investments in aviation research to improve fuel efficiency, and the development of sustainable biofuels for aviation. For example, the programme to modernising the European air traffic management system has the potential to reduce total aviation emissions during the 2008 to 2020 period by around 50 million tonnes of CO_2.[1] The investment in these programmes is substantial.

The EU ETS legislation specifies that revenues raised by EU Member States in the auctioning of aviation allowances should be used to tackle climate change in the EU and third countries. A number of uses are mentioned including funding research and development for mitigation and adaptation, including in particular in the fields of aeronautics and air transport. The law also obliges Member States to report to the European Commission how the revenues are spent and it is the intention of the European Commission to make this information public.

The EU legislator has decided not to distribute all the revenues from auctioning aviation allowances to aviation. From an economic perspective it is not apparent that it makes sense to reinvest all the revenues raised from aviation allowances to aviation environmental initiatives. In general many additional measures in aviation to reduce emissions beyond those measures already planned have high abatement costs. In such cases greater economic and environmental benefits would be generated if EU Member States invest the money raised in lower cost mitigation and adaptation activities.

Revenues from the auction of aviation allowances are modest as just 15 percent of the aviation allowances will be auctioned. In 2012 this will be 32.2m allowances and in the period from 2013 to 2020 31.6m aviation allowances per year[2]. The large majority of the aviation allowances, more than 80 percent, are distributed for free up to 2020. To the extent that airlines pass through the value of free allowances in ticket prices they dispose of additional resources to address aviation emissions.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO JOS DELBEKE

Question 1. Is there any possible mechanism by which the European Parliament can delay or hold in abeyance the implementation of the EU ETS for U.S. commercial and non-commercial carriers?

Answer. The European Parliament can not on its own accord delay or hold in abeyance the implementation of the EU ETS legislation in EU Member States. Such a change would require primary legislation and the European Parliament has no powers to initiate legislation.

In the EU, primary legislation can only be initiated by the European Commission. To be enacted a change to the EU ETS legislation would require a proposal from the European Commission that has been approved by the co-legislators (Council of the European Union and the European Parliament).

Question 2. My understanding is that EU governments may offer exemptions to non-EU governments for their carriers through so-called equivalent measures. Can you describe or define what some of these equivalent measures is or could be? For example, the adoption of the Next Generation Air Transportation System (NextGen) will provide fuel savings and greenhouse gas reductions for U.S. carriers flying domestic and international routes. Would the EU consider the full funding of NextGen over time to be an equivalent measure?

Answer. The EU ETS legislation contains provisions to recognise the measures by other States to reduce the growth of aviation emissions. This would allow for the exemption of all incoming flights operating from those countries to the EU on a non-discriminatory basis. This flexibility contained in the EU law can be exercised on the basis of action by other countries. The exemption of incoming flights cannot be decided by individual Member States but it would be implemented EU-wide.

The EU has not defined what these measures could or should be, as we consider it important that states implement measures that are most suited to their individual circumstances. The EU would be very interested in discussing with the

[1] Cumulative reduction from 2008 to 2020.
[2] Rounded figures.

United States administration the measures that are being introduced in the United States to reduce aviation emissions, with a view to exempting incoming flights from the United States from the scope of our system.

This flexibility related to incoming flights can be put into effect through implementing legislation powers. This is a relatively quick process that can come into effect with less time than a change of the Directive.

Question 3. I have heard the EU argue that the EU ETS will stimulate the growth of the aviation biofuel market. How does it intend to do so?

Answer. The EU ETS provides a direct financial incentive for the use of sustainable biofuels in aviation. Under the EU ETS an aircraft operator does not need to surrender any emissions allowances for sustainable biofuels. On a flight that uses a sustainable biofuel blend, emissions allowances are only required for the part of the fuel derived from fossil sources. The size of the EU ETS incentive for biofuels is therefore proportionate to the price for emissions allowances, the higher the carbon price, the greater the incentive for biofuels.

Question 4. Are there lessons you have learned applying EU ETS to the global aviation sector that can be useful when the EU looks to expand EU–ETS to the global maritime sector?

Answer. The EU has no plans at this stage to extend the EU ETS to the maritime sector.

Question 5. Should U.S. non-commercial operators that fly into the EU a few times a year be considered de minimis and exempted for EU ETS?

What was the basis the European Union used to establish its de minimis standard for greenhouse gas emissions from the aviation sector?

Are there additional ways a commercial operator can be exempted from EU ETS?

Are there any non-commercial operators that are exempted from EU ETS? Should there be?

Answer. Under the EU ETS limited de minimis exemptions are provided to commercial airlines that operate few flights to and from the EU or have low emissions [3]. The exemption was included in the legislation as many of the commercial aircraft operators below the threshold were from developing countries with immature aviation markets.

Non-commercial operators were not provided the same exemption as they operate in a very different market. Such flights are usually for business travel, often operated on behalf of large corporations. For such flights, the cost of carbon is a very small component of the total operating costs of the aircraft.

Non-commercial aircraft operators would only be exempt from the system if the types of flights that they operate are outside the scope of the EU ETS legislation. For example, exempt flights include: flights by small aircraft with a maximum take-off weight below 5.7 tonnes; humanitarian flights; military flights; and, emergency medical flights.

In order to minimise administrative costs for the EU ETS, the European Commission has made extensive efforts to simplify administrative requirements. For example the European Commission has supported the development of the EU ETS Support Facility by Eurocontrol (the European air navigation organisation). This facility provides EU ETS relevant information and data in order to assist the aircraft operators in meeting their regulatory obligations under the EU ETS. In addition, all aircraft operators with annual emissions below 25,000 tonnes of CO_2 a year are allowed to monitor and report their emissions using modelled data from approved sources, avoiding the need for a measurement system to be implemented. This approach substantially reduces compliance costs.

The European Commission is continuing to examine opportunities for further simplification of the administrative requirements for aircraft operators with low emissions and will seek to introduce further improvements to the system going forward.

Question 6. I have read different estimates of the economic impacts of EU–ETS on U.S. commercial and non-commercial air carriers. They range from costing U.S. airlines billions of dollars through the year 2020 to EU claims that its emissions trading system will create profit for the airlines. What's to account for the huge difference in estimates?

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[3] Commercial air transport operators operating either:—fewer than 243 flights per period for three consecutive four-month periods; or—flights with total annual emissions lower than 10,000 tonnes per year.

Do all the parties agree on the same set of underlying facts and assumptions? What are the EU's key assumptions underlying its estimate of the economic impact of EU–ETS on commercial and non-commercial carriers?

Is it possible to reconcile these estimates?

Answer. In my testimony I referenced a number of independent studies that have examined the impacts of the EU ETS on airlines. Indeed one study by MIT highlighted that U.S. airlines could improve their economic situation due to the system.[4]

The differences in cost estimates could relate to different assumptions regarding factors such as: the forecast price of emissions allowances; and the levels of cost pass through to customers of the emissions allowances that are allocated for free.

I have not seen any details of how the U.S. airlines have calculated the costs of compliance with the EU ETS, so am unable to comment on how they arrived at their headline figures.

Question 7. Ms. Young argues that the primary sticking point at ICAO currently limiting progress on developing a global approach for reducing greenhouse gases from the aviation sector is EU ETS. How do you respond? What do you think the main sticking points are?

Answer. The EU ETS legislation cannot in any way be characterised as the main sticking point that is currently limiting progress on a global approach being agreed in ICAO. The EU has been a consistent supporter of work in ICAO to address aviation emissions and has actively contributed to all climate change related work that has taken place in ICAO. If anything, the EU policy has accelerated work in ICAO on this issue as it has highlighted that action is needed.

In the past, a key sticking point has been a reluctance of many other countries to engage in an ICAO process. There has not been a common view amongst States that action is needed to reduce aviation emissions. This view seems to be gradually changing with a greater willingness of a wider group of States to engage constructively in the ICAO process. I hope that this enhanced readiness of key States to actively support the work of ICAO will continue and in the end produce tangible results.

Perhaps the major sticking point at ICAO is the respective contributions that different States should make to address international aviation emissions. In particular the contributions to be made by developed and developing countries. A number of States have been keen to propose that the concept of "common but differentiated responsibilities and respective capabilities", as found in the international climate negotiations taking place United Nations Framework Convention on Climate Change (UNFCCC), should be part of an ICAO agreement. Adoption of such a principle could place most responsibility on developed economies such as the EU and the United States to reduce emissions, with less emphasis on emissions reduction in emerging economies. The United States administration in particular, has not accepted that such a "CBDR–RC" principle has a place in ICAO policies. To move forward in ICAO, this issue will need to be resolved.

Response to Written Questions Submitted by Hon. John Thune to Jos Delbeke

Question 1. Can you provide an update on what other types of emission sources the European Union is considering adding to Emissions Trading Scheme?

Answer. The European Union has no plans at the moment to include any additional emissions sources in the EU ETS.

The European Commission recently held a public consultation on a number of policy options for addressing maritime emissions. This is the only business sector that is not currently subject to EU climate change policy. At this stage no decision has been made within the Commission on the preferred policy option.

Question 2. What are the potential penalties for an air operator that does not comply with the Emissions Trading Scheme?

Answer. The penalties for non-compliance are laid down in Member States' law. The primary EU ETS legislation requires Member States to ensure that the penalties are effective, proportionate and dissuasive.

Therefore, aircraft operators who have not submitted a verified emission report for 2010 or 2011 are subject to penalties as laid down in the national legislation of the Member State that administers them. This means that the exact penalty will vary between Member States, though could for example comprise a fine of up to €50

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[4] *http://www.sciencedirect.com/science/article/pii/S0969699711001268.*

000.[1] In most Member States, with the full introduction of the system from 2012, the fines envisaged for non-submission of verified 2012 emission reports increase.

The EU ETS legislation however foresees a harmonized penalty for the failure to surrender sufficient emission allowances by participants in the system. The first surrender date is 30 April 2013. The excess emissions penalty is €100 for each tonne of CO_2 emitted for which the aircraft operator or installation has not surrendered emission allowances. The payment of this penalty does not release the concerned aircraft operator from the obligation to surrender sufficient allowances to cover its emissions.

In addition, the Member States will publish the names of the operators who are in breach of the requirement to surrender sufficient allowances.

Question 3. If the European Union decides to roll back the aviation portion of Emissions Trading Scheme, how long will it take to do so?

Answer. As mentioned in our submission to the Senate hearing, there is no prospect of suspending the EU legislation. Such a suspension could only take place if the European Commission makes a proposal for primary legislation to the co-legislators, which are the Council of the European Union and the European Parliament. Such a process typically takes at least 2 years to complete.

The submission by the European Commission to the Senate hearing also describes the two flexibilities contained in the legislation. Flexibilities related to incoming flights can be put into effect through implementing legislation powers. This is a relatively quick process that can come into effect within a matter of months.

In particular, if there is agreement in ICAO on global measures to reduce aviation emissions, the EU is ready—as it has frequently made clear—to review the ETS legislation and consider the implications of the agreement for existing EU law.

Question 4. What is the current price of a carbon allowance? Would you expect allowance prices to go up in the future since aviation is being added to the market?

Answer. On 18 July 2012 the closing price for allowances for immediate delivery (spot) amounted to €7.15. Various contracts for spot and future delivery are traded and prices vary on a daily basis. There are many sources available for price information.

Given that the legislation to include aviation in the EU ETS has been adopted a few years ago we expect that the market has already priced in the extended coverage for quite some time. The Commission has no view and does not provide forecasts on future price developments.

NATIONAL BUSINESS AVIATION ASSOCIATION
Washington, DC, July 20, 2012

Hon. JOHN D. ROCKEFELLER IV,
Chairman,
Committee on Commerce, Science, and Transportation,
United States Senate,
Washington, DC.

Dear Chairman Rockefeller,

Thank you for the opportunity to appear before the Commerce, Science, and Transportation Committee to provide our views on the European Union's Emissions Trading Scheme (EU ETS) and its impact on general aviation aircraft operators based in the United States. We commend you for convening the hearing and focusing attention on this urgent issue.

On behalf of our 9,000 members in all 50 states, I want to reiterate that when it comes to aviation operations, we strongly believe that environmental stewardship is an imperative. The industry continually works to develop reasonable, effective and balanced policies that support the twin goals of promoting the mobility and growth of aviation while safely minimizing its environmental footprint.

During the hearing, you highlighted the EPA's 2011 Greenhouse Gas Inventory and requested that we provide comments about their findings. In addition, you asked that I provide additional information about the general aviation community's efforts to reduce aircraft emissions. Mr. Chairman, we have been working closely with your staff to better understand the EPA's methodology. I would like to take this opportunity to commend your staff for their efforts and assistance in connecting us with the EPA subject matter experts. Those discussions with the EPA are ongoing, and we will provide updated information as the conversations continue.

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[1] This is the maximum fine for non-reporting of 2010 or 2011 emissions by aircraft operators administered by Germany.

In the meantime, I would like to outline the industry's past achievements and our ongoing commitment in further reducing the industry's already small environmental footprint. While business aviation has steadily reduced its emissions and represents only 0.04 percent of global man-made carbon emissions, the industry has developed aggressive and measurable goals to achieve further reductions.

Mr. Chairman, there is no doubt that reducing fuel burn reduces the industry's costs and is an important business investment, but general aviation has long been focused on the need to be good stewards of the environment and continuously work to reduce our environmental impact.

In 2008, then Cessna CEO Jack Pelton said, "We have long been committed to improving the efficiency and reducing the environmental impact of our products. We intend to intensify that effort, through our strategy of continuous improvement." This priority is shared across the industry.

In fact, fuel consumption of turbine engines has improved an average of 1 percent per year since the dawn of the jet age. Winglets and laminar flow technology have improved wing design and performance leading to improved aerodynamics and thus reduced emissions for airplanes. Composites (several general aviation aircraft are all-composite already—ahead of the Boeing 787) reduce weight and thus improve efficiency. Modern and constantly improving avionics allow aircraft to fly more direct, efficient routes, thus also reducing fuel consumption and aircraft emissions.

General aviation has also partnered with the FAA to advance new technology and operational improvements that will further reduce emissions and increase efficiency. Two primary examples are the Capstone Program in Alaska, which was the foundation for the ADS–B technology, and ADS–B pilot program in the Gulf of Mexico. These are vivid examples of what's possible when "next gen" is implemented. In both cases, safety was enhanced and fuel burn was reduced. As these programs grow, these efforts will yield significant reductions in aviation emissions.

Business aviation has made substantial progress in lowering emissions, but we are resolved to do more. Together, the business aviation manufacturing and operating communities have developed an aggressive program for further improvement.

To this end, the business aviation community has publicly committed to the following specific targets:

- Carbon-neutral growth by 2020;
- An improvement in fuel efficiency of an average of 2 percent per year from today until 2020, and;
- A reduction in total CO_2 emissions of 50 percent by 2050 relative to 2005.

We are also pleased to note recent progress in the international arena. The Committee on Aviation Environmental Protection (CAEP) of the International Civil Aviation Organization (ICAO) has announced an agreement on metrics for measurement of CO_2 emissions by different aircraft using varying technologies.

The unanimous agreement on a CO_2 metric, which was announced at a CAEP meeting on July 11, represents an important step in the process of developing appropriate emissions standards for international aviation.

Mr. Chairman, thank you again for the opportunity to participate in the hearing. We look forward to continuing our work with you and the Committee. And, as previously noted, I will send you more information on the EPA inventory and general aviation as our discussions with EPA evolve. In the meantime, we stand ready to answer any additional questions that you might have.

Sincerely,

ED BOLEN,
President and CEO.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN D. ROCKEFELLER IV TO EDWARD M. BOLEN

Question. How much does a typical general aviation flight from the U.S. to Europe cost to operate? How much would these costs increase under the ETS system, including both the actual ETS charge and the compliance costs?

Answer. The cost of a typical general aviation flight to Europe: $17,872.50

EU ETS operation cost increase to U.S. businesses: $20,468.50

Supporting data for a typical U.S. business aviation aircraft (non-commercial):

Bangor, Maine–Shannon, Ireland

(flights originating in other locations often stop in Bangor to fuel)

Trip distance: 2,708

Aircraft: Learjet

Aircraft Hourly Cost per hour: $2,543

Trip Speed: 413K

Time En route: 6.6 hours [Distance/speed = time]

*Cost per trip: (one way est. based on *) [Hourly cost * Enroute Time = Est. Trip Cost] $17,872.80*

EU ETS compliance cost:

Annual Emission & Benchmarking Plans: $2,464.80

Emission Report Verifier: $3,000.00

Registry Account Maintenance Fee: $480.00

Subsistence Fee: $3,323.70

Administrative cost: $2,200.00

Allowances: $9,000.00

The average business aircraft operator will need to purchase the smallest block of allowances available for sale. We understand that the smallest block available is 1000 at $9.00 per allowance this block will cost $9000. This despite the fact that only 14 allowances are required for the flight.

EU ETS operation cost increase to U.S. businesses: $20,468.50

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO EDWARD M. BOLEN

Question 1. Mr. Bolen, during the hearing you listed a number of the additional fixed administrative costs non-commercial operators will incur to comply with EU ETS that have nothing to do with purchasing the actual emission allowances. Can you describe each of them in a little greater detail?

Answer. The ETS creates a series of onerous reporting, monitoring and verification requirements that are costly to administer. This also raises serious privacy and business confidentiality concerns, because the scheme requires U.S. companies to provide a huge amount of sensitive data, including bank account information, flight data, personal information and other disclosures—all of which would be made available to the public. These intrusive, administratively burdensome and expensive requirements are all before the actual cost of the ETS is even assessed on operators.

Examples of EU ETS compliance requirements:

Annual Emission & Benchmarking Plans (this may require hiring an outside consultant or adding personnel internally to develop operator monitoring, reporting and verification process.

Emission Report Verifier (the EU requires that all operators pay a outside, independent verifier)

Annual Registry Account Maintenance Fee: Establish a carbon registry account

Annual Subsistence Fee: account maintenance with administering state

Brokers to purchase and/or trade allowances (will require primary and secondary market interaction due to the fact that non-commercial aviation is the ONLY emitter below 25,000 metric tons for ground-based emitters or 243 commercial flights in 4 month period required to participate in the ETS)

Question 2. While commercial operators can spread out these new fixed costs across many flights and many passengers, I am concerned that some non-commercial operators will have to spread these costs out over a few flights, which will make them prohibitively expensive, and possibly cause them not to occur in the first place. Do you believe that if EU ETS is applied to U.S. non-commercial operators there will be a corresponding reduction in the number of non-commercial flights from the U.S. to the EU?

Answer. Anything that creates new administrative burdens and higher costs does impact the general aviation and its number of operations. While I cannot specifically provide a number of lost flights, we agree with the assessment of the International Association of Machinists and Aerospace Workers. As stated in a June 5th letter to Committee members, International President Tom Buffenbarger wrote:

> . . . Nowhere has the economic impact been more severe than in the business aviation industry where job losses have been in the tens of thousands. In this context we want to express our opposition to the European Union's emissions

trading scheme (EU ETS), which threatens to negatively impact the U.S. aerospace industry, one of the few industries in which we maintain a positive balance of trade with the rest of the world, as well as the commercial aviation industry.

While it is commendable to seek reductions in greenhouse gas emissions, the EU ETS is in reality nothing more than a revenue raiser for the E.U.; a tax that will also place an unnecessary regulatory burden on both commercial and general aviation. It is important to note that globally commercial aviation contributes only 2 percent of greenhouse gas emissions and general aviation a minuscule 0.04 percent. Instead of a job killing tax, a more sensible approach would be to support investments in fuel efficient engine and aircraft designs, biofuels, and NextGen aircraft traffic control systems. Together, these innovations will actually create meaningful reductions in greenhouse gas emissions.

The anemic jobs numbers in the most recent employment report from the U.S. Bureau of Labor Statistics highlight not only the fragility of our economic situation, but also that of the global economy. It would be a regrettable mistake for the U.S. to embrace the EU ETS, a scheme without merit, but with the ability to do real economic harm. I strongly urge you to support efforts to exempt U.S. carriers and the general aviation industry from the E.U.'s disastrous tax."

Question 3. What is the minimum size block of greenhouse gas allowances a commercial or non-commercial operator can purchase at auction?

Answer. The smallest quantity of European Union Aviation Allowances (EUAA) sold is an increment of 1000 tons. A primary and secondary market has been established; however, only available and appropriate to groups that purchase bulk quantities by auction or in smaller amounts greater than 1000 tons allowances per transaction.

Question 3a. Is this minimum size of allowance much greater than the average non-commercial operator will require for flights between the U.S. and EU?

Answer. Yes, a typical aircraft used by non-commercial operator for a flight from U.S. to EU flight would emit approximately 15 metric tons. So, this will require specialized trades where operators will undoubtedly be charged additional fees or premiums to break up larger lots.

Question 3b. Will there be a need for intermediaries to sub-divide these allowances for the typical U.S. non-commercial operator traveling to the EU?

Answer. Yes, non-commercial operators need to seek smaller increments than other entities participating in the ETS.

Question 4. Under EU ETS, the airlines of some countries flying into the EU are exempt because, for whatever reason, that country has been exempted. In your testimony, you mentioned that even if the U.S. non-commercial operator makes one flight a year between the U.S. and EU is covered under EU ETS. Does the EU ETS include any de minimus level, below which a U.S. non-commercial operator would not be subject?

Answer. No, there is no de minimus exception for non-commercial operators. Non-commercial operators are required to participate in the ETS from flight #1.

Commercial operators who emit or operate under the threshold of less than 243 flights in 4 months are exempt from the ETS while non-commercial operators with significantly lower operations/emissions are required to participate for every single flight. This clearly demonstrates that non-commercial general aviation operators are treated differently and required to monitor, report, verify and purchase emission allowances (EUAs) that commercial operators with much higher emissions are not required to do. In addition, the other major discrepancy that we discussed is that commercial operators above those exemption thresholds will be awarded free allowances for 85 percent of their emissions—15 percent will have to be purchased. Again, non-commercial operators are singled out for punitive treatment and do not get these free allowances.

Question 5. For your members, currently what is the main sticking point at ICAO preventing an agreement on reducing greenhouse gases from the global aviation sector?

Answer. We are confident that ICAO will achieve an agreement and recent activity indicates that the international community is moving forward.

Our members are represented through International Business Aviation Council (IBAC) as an observer organization to ICAO. IBAC fully supports and participates directly in numerous ICAO activities, for example within the current CAEP/9 activities, progress has been made; *i.e.,* unanimous agreement on a metric system for a global aviation CO_2 Certification Standard for Aircraft. This milestone was reach re-

cently in St. Petersburg, Russia, July 11, 2012. ICAO considers the CO_2 Certification Standard for Aviation as one in a "basket of measures."

ICAO Basket of Measures and Assembly Resolution

ICAO has developed a "Basket of Measures"—a broad scope of actions that can be taken by aviation stakeholders including State regulators to address emissions from aviation. These include: aircraft technology, alternative fuels, Air Traffic Management and infrastructure efficiency, operational efficiencies, economic and regulatory measures.

Recent ICAO actions on sustainable alternative fuels for aviation and on Market-Based Measures (MBM), the Ad Hoc Working Group of the Council, with the support of MBM experts, is working on guiding principles for MBMs and on global MBM options (narrowed to three possibilities after the 195th session of the Council in June 2012: a global mandatory offset scheme; a global mandatory offset scheme with revenue generation; and an emission trading scheme).

Question 6. Ms. Petsonk argued that in Congressman Mica's "European Union Emissions Trading Scheme Prohibition Act", which passed the U.S. House of Representatives, the phrase "take other actions necessary to ensure that operators of civil aircraft of the United States are held harmless from any emissions trading scheme unilaterally established by the European Union" could mean that the U.S Government will have to compensate U.S. commercial and non-commercial operators for any fines incurred as a result of non-compliance with the EU ETS. When the Congressional Budget Office scored the Congressman Mica's bill it said "enacting H.R. 2594 would have no significant impact on the Federal budget". If Ms. Petsonk's assertion were true, though, there would budget impact. Mr. Bolen, what is the range of actions the Administration can take to "hold harmless" U.S. non-commercial operators from EU ETS?

Could these actions to hold harmless U.S. commercial and non-commercial operators include the U.S. Government paying EU authorities directly or compensating U.S. commercial operators for any fines incurred for non-compliance with EU ETS?

Does NBAA or any of its members intend to seek compensation from the Federal Government for fines incurred for non-compliance with EU ETS?

Answer. Our assumption is that "hold harmless" means that the U.S. Government will take actions (diplomatic or other) to ensure that if a prohibition is enacted that U.S. (commercial and non-commercial) planes will not be impounded, pilots will not be incarcerated and fines will not be levied against U.S. operators.

Question 7. Does NBAA support the use of so-called market-based mechanisms as one means for reducing the greenhouse gas emissions from the global aviation sector?

Answer. The successful achievement of carbon neutral growth by 2020 will be challenging. During this interim period, business aviation operators are open to offsetting their emissions through market-based economic measures. For example, we have long believed and publicly articulated the value of general aviation fuel surcharge as an incentive to purchase cleaner, quieter and more fuel efficient aircraft—and reduce emissions.

Conceptually, market-based emissions should be limited in their focus and duration. They should not create onerous administrative burdens or excessive costs. These measures should also treat all segments of aviation in equivalent measures (unlike the ETS, which clearly singles out certain segments for punitive and discriminatory treatment). And, most important, they must be developed in the context of a global sectoral approach to aviation emissions.

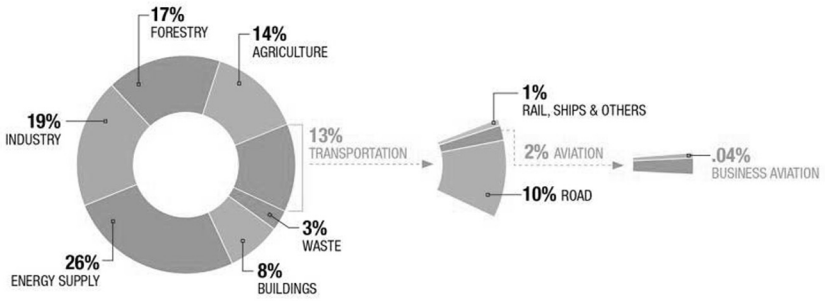
Question 8. Mr. Bolen, as I mentioned in my opening statement, there is virtually unanimous agreement in the scientific community that human-caused global warming is real and there is not a single scientific body of national or international standing that does not support this conclusion. And while there may be some remaining uncertainty as to the timing and scope of climate change, I don't believe the United States can continue to ignore this threat to our environment and to America's future prosperity.

Do you concur with the scientific consensus that human-caused global warming is real?

Do you agree that climate change will negatively impact the American economy and our citizens?

How would you characterize the aviation industry's contribution to the build-up of greenhouse gases in the world's atmosphere? Is it a significant problem today and how will aviation's contribution change over time?

Answer. While NBAA has no specific expertise on the science of climate change, I would like to reiterate that general aviation has a strong history and ongoing commitment to reducing our already small environmental footprint.



Business aviation has established an excellent record of constantly reducing emissions—delivering 40 percent improvement in fuel efficiency over the past 40 years. In fact, some of the industry's most dramatic advances were initiated by general aviation. For example, composite materials and winglets were originally certified for GA aircraft.

Question 9. Mr. Bolen, during the June 6, 2012 hearing, we discussed some of the voluntary commitments the aviation industry has made to reduce their greenhouse gas emissions beyond business-as-usual. Can you specify what those commitments from non-commercial operators are?

Answer. Business aviation has made substantial progress in lowering emissions, but we are resolved to do more. Together, the business aviation manufacturing and operating communities have developed an aggressive program for further improvement.

To this end, the business aviation community has publicly committed to the following specific targets:

- Carbon-neutral growth by 2020;
- An improvement in fuel efficiency of an average of 2 percent per year from today until 2020, and;
- A reduction in total CO_2 emissions of 50 percent by 2050 relative to 2005.

Question 9a. How confident are you that these commitments will be met?

Answer. Achieving the above targets will require not only sustained effort on the part of the entire business aviation community, but will also require partnership between industry and government to develop solutions that balance economic growth and environmental goals. We anticipate reaching these objectives through advances in the following areas:

- Technology: Improvements in aircraft frames through aerodynamic design changes and weight reductions with composite materials. Engine advances will also reduce emissions.
- Operational Streamlining: Through collaboration with air traffic management, fully implement efficient procedures and modernize ATC.
- Alternative Fuels: The aviation industry is driving the research, development and deployment of commercially viable, sustainable alternative aviation fuels. Based on current research and the encouraging results already demonstrated in flight, business aviation anticipates a CO_2 reduction of 40 percent in absolute terms from biofuels by 2050. This is an area that holds huge promise for significant GHG reductions, but will require a sustained commitment to fund research and development.
- Market-based measures. Please see question #7.

NBAA would like to again recognize the efforts of this Committee to complete the important multi-year FAA reauthorization legislation that will undoubtedly expedite the transformation to the Next Generation Air Traffic Control technology—or NextGen. In fact, when implemented, NextGen has been projected to reduce emissions by an additional 12 percent.

Question 9b. Do you believe that there are enough tools available to ensure that all major emitting nations and their carriers participate and will meet these commitments?

Answer. Yes. ICAO's history suggests that global standards can be effectively implemented. Over the years, ICAO-developed global standards on safety, security and air traffic management have been introduced successfully. We believe that what ICAO has done in these areas, it can also do for global environmental standards. One example is the global effort to implement RVSM (reduced vertical separation minima). RSVM safely increases the enroute air space, allowing aircraft to fly the most efficient altitudes. This successful effort has advanced air traffic management and reduced fuel burn.

Question 9c. What do you think are the most cost-effective ways to reduce greenhouse gases from the aviation industry?

Question 9d. Are there particular efforts or case-studies, such as the Green Skies program at SeaTac Airport, you believe Congress should look at when considering how best to address this issue?

Answer. Over the years, a number of important "case studies" have occurred on the general aviation side that would be worth considering. Two primary examples are the Capstone Program in Alaska, which was the foundation for the ADS–B technology, and ADS–B pilot program in the Gulf of Mexico. These are vivid examples of what's possible when "next gen" is implemented. In both cases, safety was enhanced and fuel burn was reduced. Congress has led the way in expediting the transition to the next generation air traffic control technology. This effort will yield significant reductions in aviation emissions.

In addition to Next Gen programs, we would also urge Congress to continue to invest in alternative fuels research and development. There is no question that the availability of aviation alternative fuels will further reduce the environmental footprint.

We would also suggest that support for programs that encourage companies to invest in aircraft aerodynamics and engine improvements will advance our collective environmental goals.

Question 10. Mr. Bolen, carbon emissions are ubiquitous within the U.S. economy and almost every economy around the globe. Isolated efforts to reduce greenhouse gas emissions will not alter or mitigate the devastating impacts of a warming planet. I believe this reality provides additional urgency for the United States, as the world's sole superpower, to act and lead the world to a clean energy future with innovative policies. Curbing carbon emissions to the level necessary to avert a climate crisis will require innovation within almost every sector of the economy. It seems to me that the global scope of carbon pollution poses a somewhat different challenge than more localized pollutants.

Rather than regulating downstream at the point of emission such as an airplane's exhaust, would limiting carbon emissions upstream where fossil fuels are extracted possibly be a more efficient and technology-neutral way to squeeze carbon out across the economy?

Would an upstream carbon limit reduce the need for more monitoring, enforcement, and regulatory complexity?

Answer. As previous mentioned, the successful achievement of carbon neutral growth by 2020 will be challenging. During this interim period, business aviation operators are open to offsetting their emissions through market-based economic measures. For example, we have long believed and publicly articulated the value of general aviation fuel surcharge as an incentive to purchase cleaner, quieter and more fuel efficient aircraft—and reduce emissions.

Conceptually, market-based emissions should be limited in their focus and duration. They should not create onerous administrative burdens or excessive costs. These measures should also treat all segments of aviation in equivalent measures (unlike the ETS, which clearly singles out certain segments for punitive and discriminatory treatment). And, most important, they must be developed in the context of a global sectoral approach to aviation emissions.

In addition, any market-based mechanism should be transparent, fair and effective with any revenues collected reinvested in aviation research and infrastructure.

We are unable to speculate about upstream carbon limits without the details of a specific proposal. We have, however, attempted to outline some broad concepts regarding market-based measures.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN F. KERRY TO ANNIE PETSONK

Question. S. 1956 would authorize the Secretary of Transportation to prohibit an airline from complying with the EU ETS, thereby removing a flying option for

Americans and potentially raising prices for remaining flights to Europe. As a recent CRS study pointed out, "If either of the bills (the Thune bill or its House companion) were to be enacted, the language could pose challenges for U.S. aircraft operators serving the EU. Were the Secretary of Transportation to prohibit them from participating in the EU ETS, this could be construed as an instruction not to comply with the laws of the EU and its member States and prevent those operators from receiving their shares of allowances. It also could subject those operators to noncompliance penalties, including exclusion from the EU aviation market." We would therefore be authorizing through legislation the ability for U.S. companies to break the law of another country. Can you please comment on what precedent this sets? Are there other examples where the U.S. has prohibited an industry from complying with another country's laws? How would prohibiting a carrier from complying with EU law ever be "in the public interest" for Americans who would like to fly to Europe?

Answer. We think such a law would set a terrible precedent. There are many areas where the U.S. seeks the cooperation of other nations in law enforcement cases where infractions of U.S. law transcend national boundaries. These include enforcement efforts not only in environmental cases, but also in the financial area, in banking secrecy cases, in drug enforcement, and a whole host of fields where American law enforcement authorities seek cooperation from foreign law enforcement authorities to enforce U.S. law abroad.

Only on the rarest occasions has the U.S. Congress enacted legislation prohibiting U.S. companies from complying with foreign laws. In fact, we have been able to identify only two examples. The first is the Comprehensive Anti-Apartheid Act of 1986, Public Law No: 99–440.[1] This law, enacted, over a Presidential veto, banned all new U.S. trade and investment in South Africa as a sanction against that country's apartheid laws. The law was repealed as of June 8, 1994.[2]

The second set of laws, which remain in effect today, are the Antiboycott Laws under the Export Administration Act, specifically the 1977 amendments to the Export Administration Act (EAA) and the Ribicoff Amendment to the 1976 Tax Reform Act (TRA).[3] The Antiboycott laws discourage, and in some circumstances, prohibit U.S. companies from furthering or supporting the boycott of Israel sponsored by the Arab League, and certain other countries, including complying with certain requests for information designed to verify compliance with the boycott. Compliance with such requests may be prohibited by the Export Administration Regulations (EAR).[4] Currently U.S. companies may be prohibited from complying with requests for proof of boycott compliance when doing business in Bahrain, Iraq, Libya, Saudi Arabia, Syria, and Yemen, among others.

We respectfully submit that it would be inappropriate, to say the least, to place apartheid and the anti-Israel boycott in the same category at the European Union's legislation to limit global warming pollution from aircraft landing at and taking off from European airports. Yet that is what enactment of legislation authorizing the Secretary of Transportation to prohibit U.S. airlines from participating in the EU ETS would effectively do.

Response to Written Questions Submitted by Hon. Maria Cantwell to Annie Petsonk

Question 1. Ms. Petsonk, Congressman Mica's "European Union Emissions Trading Scheme Prohibition Act" that passed the House of Representative last year and Senator Thune's Senate version both include the clause "take other actions necessary to ensure that operators of civil aircraft of the United States are held harmless from any emissions trading scheme unilaterally established by the European Union."

If I understand you, your interpretation is that the U.S. would indemnify the airlines from paying any fines to the EU that would occur for non-compliance. To take your argument one step further, "held harmless" really means the U.S. taxpayer

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[1] Text available at *http://thomas.loc.gov/cgi-bin/bdquery/z?d099:HR04868:@@@L&summ2=m&*.

[2] *http://uscode.house.gov/download/pls/22C60.txt*.

[3] Section 8 of the Export Administration Act of 1979, as amended, 50 U.S.C. app. §§ 2401–2420 (2000), International Emergency Economic Powers Act, 50 U.S.C. §§ 1701–1707 (2000); and the "Ribicoff Amendment" to the Tax Reform Act of 1976, adding § 999 to the Internal Revenue Code. See *http://www.bis.doc.gov/complianceandenforcement/comparison-antiboycott-laws.pdf* and see *http://www.bis.doc.gov/complianceandenforcement/antiboycottcompliance.htm*.

[4] *http://www.bis.doc.gov/antiboycottcompliance/oacantiboycottrequestexamples.html*.

would be paying the EU treasuries for any fines the U.S. commercial and non-commercial operators might incur.

When the Congressional Budget Office (CBO) scored Congressman Mica's bill it said "enacting H.R. 2594 would have no significant impact on the Federal budget". Under your interpretation, I imagine there would be nominal if not significant impact to the Federal budget. Did CBO just miss this? Can you explain?

Answer. Senator Cantwell, here's how CBO might have missed this. As you know, when the U.S. Congress amends a pre-existing law, analyzing the full impact of the amendment may require analyzing the pre-existing law as well as the amendment itself. And if the amendment delegates authority to the U.S. states to implement it, a full understanding of the amendment may entail also analyzing the state implementing rules.

Similarly, the EU Aviation Directive (Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008 (Official Journal of the European Union L 8/3, 13 January 2009)), brings aviation into the EU's emissions trading system (ETS). The Aviation Directive does so by amending a pre-existing law, the Emissions Trading Directive (Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Community). The Emissions Trading Directive includes general enforcement provisions that apply to all sectors covered by the ETS, and directs member states of the EU to enforce its provisions, which the member states have done. So, to understand the full operation of the Aviation Directive, it is necessary to have in hand the Directive itself, the underlying Emissions Trading Directive, and the member state implementing regulations, all of which are attached to this Response.

We do not know which provisions of the EU legislation and member state implementing regulations, if any, were presented to CBO along with H.R. 2594. If all the texts were not presented to CBO at the time, it would be understandable that its analysis did not cover this issue.

The enforcement provisions of the Emissions Trading Directive (Article 16) follow the general approach of, and are modeled on, the U.S. Sulfur Dioxide Acid Rain Trading Program, which is Title IV of the U.S. Clean Air Act Amendments of 1990. That is, for both the U.S. and the EU emissions trading program, the respective legislatures enacted automatic penalties. The automatic penalty provisions reflect legislative judgments that in exchange for receiving the benefits of broad flexibility in determining where and how to meet their targets, regulated entities should be held to the rigor of strong, automatic consequences if the regulated entities reap the advantages of flexibility but still fail to comply. That balance has ensured almost complete compliance with both the U.S. Acid Rain Trading Program and the EU ETS, at costs far below those anticipated when the laws were enacted.

The enforcement provisions of the Aviation Directive take the form of amendments to the underlying Emissions Trading Directive's enforcement provisions. Article 1, paragraph 14 of the Aviation Directive amends Article 16, Paragraph 3 of the ETS Directive as follows (changes highlighted in italics):

> "3. Member States shall ensure that any operator *or aircraft operator* who does not surrender sufficient allowances by 30 April of each year to cover its emissions during the preceding year shall be held liable for the payment of an excess emissions penalty. The excess emissions penalty shall be EUR 100 [approximately U.S. $125.00] for each tonne of carbon dioxide equivalent emitted for which the operator *or aircraft operator* has not surrendered allowances. Payment of the excess emissions penalty shall not release the operator *or aircraft operator* from the obligation to surrender an amount of allowances equal to those excess emissions when surrendering allowances in relation to the following calendar year."

The full text of the Emissions Trading Directive contains, in paragraph 16, the following additional language, which does not appear in the Aviation Directive amending the ETS Directive, but which is part of the ETS framework:

> "4. The excess emissions penalty relating to allowances issued from 1 January 2013 onwards shall increase in accordance with the European index of consumer prices."

In terms of member state regulations implementing the ETS for aviation, here is an English-language example from the United Kingdom (which administers the ETS system for U.S. carriers United Airlines and American Airlines):

> *Failure to surrender sufficient allowances*
>
> 38.—(1) The civil penalty in paragraph (2) applies where an aircraft operator—

(a) fails to surrender sufficient allowances or project credits, contrary to regulation 26(1); or

(b) fails to surrender allowances or project credits equal to a deficit, contrary to regulation 26(2).

(2) The civil penalty is the sterling equivalent of 100 Euros for each allowance or project credit that the aircraft operator failed to surrender.

(3) In this regulation, "sterling equivalent" means—

(a) in relation to a penalty relating to aviation emissions in 2012, the sterling equivalent converted by reference to the first rate of conversion to be published in September of the calendar year in which the aircraft operator is liable to the penalty in the C series of the Official Journal of the European Union; or

(b) in relation to a penalty relating to aviation emissions on or after 1st January 2013, the sterling equivalent as defined in sub-paragraph (a) adjusted in accordance with paragraph (4).

(4) If the last Harmonised Index of Consumer Prices for the member States of the European Union ("HICP") published by Eurostat before the end of April in the year in which the aircraft operator failed to surrender the allowances or project credits shows an average percentage price increase as compared with the last HICP published before the end of April 2012, the sterling equivalent is increased by the same percentage.

Regulation 2010 No. 1996, Climate Change: The Aviation Greenhouse Gas Emissions Trading Scheme, Made 3rd August 2010, Laid before Parliament 6th August 2010, Coming into force 31st August 2010, at Part 8, paragraph 38.

Paragraphs 30 and 42 of the Regulation make clear that the regulator has very little discretion to waive or modify the imposition of the penalty, and can do so only if the regulator is satisfied that the aircraft operator has brought itself into compliance. Paragraphs 30 and 42 also provide that that in cases where the penalty is not paid, the regulator may sell the aircraft in order to satisfy the penalty.[5]

Moreover, many U.S. carriers lease, rather than own, their aircraft. Aircraft leasing/financing companies that own these aircraft typically include in the leases clauses specifying that the lessee must operate the aircraft in compliance with applicable law. These leasing/financing companies are beginning to include provisions in their leases providing that the lessees (or permitted sublessors) will operate the aircraft in compliance with the EU ETS, including but not limited to the payment of any charges incurred pursuant to the ETS. They are also including provisions that ensure that any liability for non-compliance with the EU ETS cannot be shifted to the owner/lessor/financer of the aircraft.[6] Consequently, an aircraft operator that fails to comply with the ETS could find itself not only liable for the government-imposed penalties for breach of applicable law, but also in breach of the provisions of its lease. Consequences for breaching an aircraft lease are typically spelled out in the lease. If the consequences include surrender of the aircraft, then the airline could need to incur expenses obtaining alternative aircraft.

A U.S. law that prohibited U.S. aircraft operators from participating in the EU system therefore would expose the operators to a broad range of penalties and consequences. If a U.S. law were to require the Secretary of Transportation to ensure that U.S. aircraft operators are held harmless, how would the Secretary do so? He could try to convince the EU and its twenty-seven member states to change their laws so as to revoke the mandatory imposition of penalties for violation of EU law. But if he is unsuccessful in convincing them, then he would have to find other ways of holding the airlines harmless.

One way of holding the airlines harmless would be to find other entities to pay any penalties owed under EU, to supply alternative aircraft if aircraft are sold, and to supply alternative aircraft if breach of the law in turn breaches aircraft leases and the lessors then take possession of the planes. If those other entities included the U.S. Treasury, then the U.S. law would have an impact on the Federal budget.

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[5] Similar provisions exist in the other EU member states which are the reporting states for the largest U.S. carriers, *i.e.,* France (see articles L.229.5 to L.229–19 and R. 229–1 to R.229–44 of the French Environmental Code), and Germany (Treibhausgas-Emissionshandelsgesetz. Note that the regulator may refrain from imposing a fine if the operator was prevented from fulfilling its duty because of a force majeure event; the question whether enactment of the Thune bill would constitute a force majeure event would be a matter of German law). See generally "Aviation Briefing: EU Emissions Trading Scheme" (Watson, Farley & Williams August 2011), text available at *http://www.wfw.com/Publications/Publication938/$File/WFW-Aviation-EUETSEuropewide-2011.pdf*.

[6] See "Aviation Briefing: EU Emissions Trading Scheme" (Watson, Farley & Williams August 2011), *supra*.

For our testimony, we conservatively estimated the costs of non-participation for the five largest U.S. passenger airlines that fly to Europe—United, Continental (since merged with United), American, Delta, and U.S. Airways. Together, they emitted almost 16 million tonnes of carbon dioxide on flights between the U.S. and Europe in 2010. Using the U.S. Federal Aviation Administration (FAA) official projections for aviation growth, at today's exchange rate, the financial liability of these carriers would be $2 billion in 2012, growing to $2.8 billion in 2020. If, as part of holding the carriers harmless for the compliance liabilities arising out of S. 1956, the Secretary were to shift the burden to U.S. taxpayers, then the total impact on the Federal budget of enactment of S. 1956 could be on the order of $22 billion for the 2012–2020 period.

Question 2. Ms. Petsonk, as I mentioned in my opening statement, there is virtually unanimous agreement in the scientific community that human-caused global warming is real and there is not a single scientific body of national or international standing that does not support this conclusion. And while there may be some remaining uncertainty as to the timing and scope of climate change, I don't believe the United States can continue to ignore this threat to our environment and to America's future prosperity.

- Do you concur with the scientific consensus that human-caused global warming is real?

  Answer. Yes.
- Do you agree that climate change will negatively impact the American economy and our citizens?

  Answer. Yes.
  - How would you characterize the aviation industry's contribution to the build-up of greenhouse gases in the world's atmosphere? Is it a significant problem today and how will aviation's contribution change over time?

Answer. If aviation were a country, at least some analyses indicate that it would rank 21st in the world in terms of Gross Domestic Product (GDP), which is considerably larger than some members of the G20.[7] As the chart below indicates, if aviation were considered a country, it would rank seventh in the world in terms of greenhouse gas emissions from fossil fuel combustion.[8]

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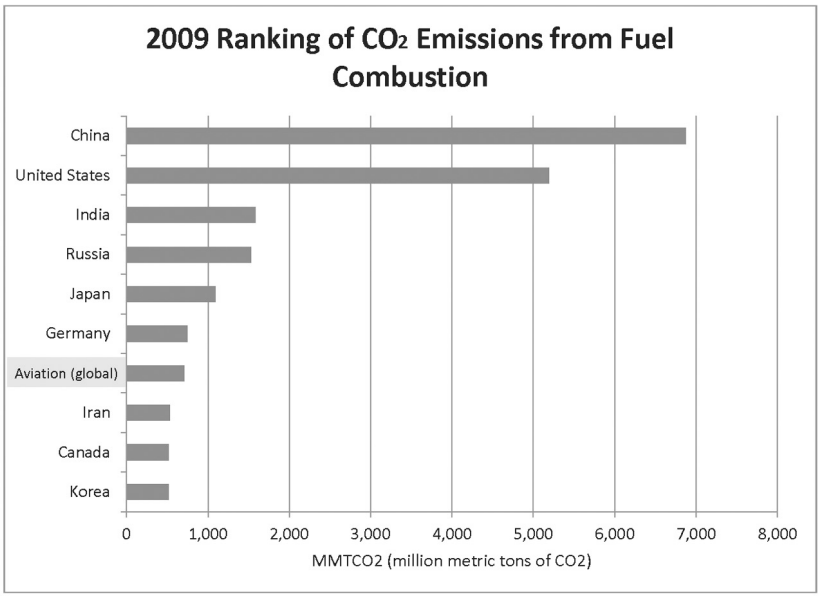
[7] *http://www.oxfordeconomics.com/FREE/PDFS/OEAVIATION09.PDF at 1.*

[8] International Energy Agency. 2011. CO_2 Emissions from Fuel Combustion Highlights—2011 Edition. *http://www.iea.org/co2highlights/co2highlights.pdf* (visited July 19, 2012); EDF estimates based on United Nations Environment Programme. 2011. Bridging the Emissions Gap, available at *http://www.unep.org/pdf/UNEP__bridging__gap.pdf,* and International Civil Aviation Organization. 2009. Global Aviation CO_2 Emissions Projections to 2050. Group on International Aviation and Climate Change (GIACC) Fourth Meeting. *http://www.icao.int/environmental-protection/GIACC/Giacc-4/Giacc4__ip01__en.pdf.*



Industry projections forecast that the number of passengers will rise by 145 percent between 2007 and 2026 from just below 2.5 billion to 6 billion.[9] Aviation's emissions are predicted to grow substantially over time, even taking into account the IATA voluntary goals and the ICAO General Assembly 2010 goals discussed below. Laws have been enacted or are under development to cap and cut emissions from sectors like electricity and road transportation in a broad range of jurisdictions, including the U.S., California, the Northeast U.S. States (RGGI), the EU, Australia, New Zealand, the Republic of Korea (South Korea), Mexico, Brazil, and several Brazilian states, among others, and pilot programs are under development in various provinces in China. As the emissions of other sectors decline under these laws and programs, aviation's relative share will increase.

Question 3. Ms. Petsonk, during the June 6, 2012 hearing, we discussed some of the voluntary commitments the aviation industry has made to reduce their greenhouse gas emissions beyond business-as-usual. Can you specify what those commitments are?

Answer. **A. IATA and its voluntary commitments.** In 2009, the International Air Transport Association (IATA), an international trade body representing 240 airlines which together comprise 84 percent of total global air traffic, voluntarily adopted a set of targets to mitigate greenhouse gas emissions from aviation.[10] These targets are first, to achieve "an average improvement in fuel efficiency of 1.5 percent per year from 2009 to 2020." Second, IATA aims to put "a cap on CO_2 emissions from aviation from 2020 (carbon-neutral growth)." That is, starting in 2021, IATA members will voluntarily offset any emissions they incur beyond the amount that IATA members emitted in 2020. Third, by 2050, IATA aims to attain "a reduction in CO_2 emissions of 50 percent by 2050, relative to 2005 levels." IATA proposed, as part of the means to achieve these voluntary targets, principles for the use of market-based measures for international aviation.

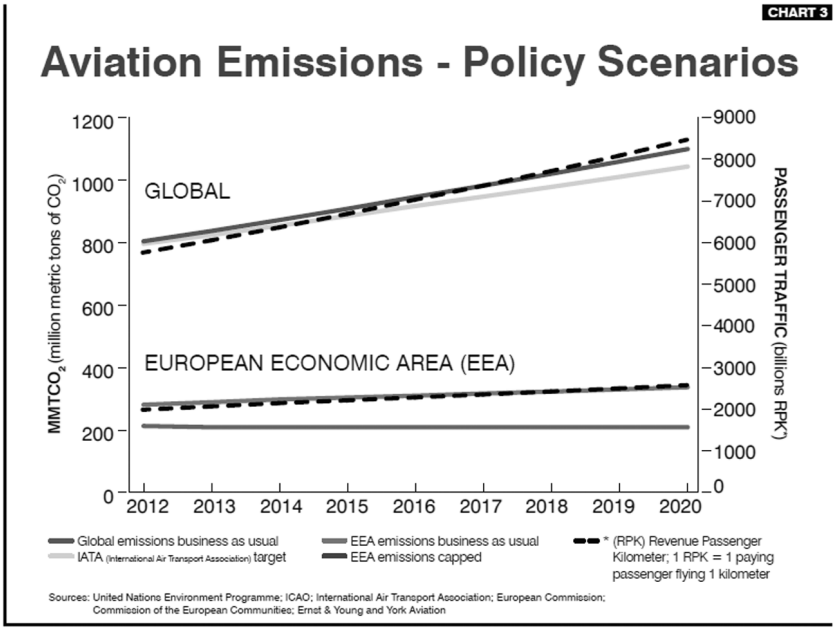
In IATA's words, "these collective goals were endorsed by the aviation industry in the joint industry submission to ICAO in September 2009." We thus understand that IATA's three targets apply to the collective fuel efficiency of and CO_2 emissions by its members' aircraft fleets. Given the lack of specific language, it appears that IATA intends that the fuel efficiency improvement set out in the first target refers to actual efficiency (what is measured in reality, taking into account actual loads and routes), rather than theoretical efficiency (what is technically achievable). Fur-

[9] *http://www.oxfordeconomics.com/FREE/PDFS/OEAVIATION09.PDF at 2.*

[10] International Air Transport Association. 2009. *A Global Approach to Reducing Aviation Emissions. http://www.iata.org/SiteCollectionDocuments/Documents/Global__Approach__Reducing__Emissions__251109web.pdf* (visited July 19, 2012).

thermore, since there was no reference to the type of aircraft or aviation operations, we think it reasonable to interpret the fuel efficiency improvement in the first target as the average improvement across the entire fleet operated by each of IATA's members, including both existing and future aircraft.

IATA's voluntary commitment, in comparison to business-as-usual projections of emissions, is displayed by the pale green line in Chart 3 accompanying our June 6, 2012 testimony, just below the red "business-as-usual" line in the Chart. Chart 3 is reprinted for your convenience below:



B. ICAO and its voluntary commitments. The International Civil Aviation Organization (ICAO), a specialized agency of the United Nations that "sets standards and regulations necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection," and that "serves as a forum for cooperation in all fields of civil aviation among its 191 Member States" has adopted a voluntary resolution pertaining to the reduction of greenhouse gas emissions. Specifically, the ICAO General Assembly, which meets every three years, resolved at its 2010 meeting "that States and relevant organizations will work through ICAO to achieve a global annual average fuel efficiency improvement of 2 per cent until 2020 and an aspirational global fuel efficiency improvement rate of 2 per cent per annum from 2021 to 2050, calculated on the basis of volume of fuel used per revenue tonne kilometre performed." [11]

Furthermore, at that General Assembly meeting, ICAO recognized that "the aspirational goal of 2 per cent annual fuel efficiency improvement is unlikely to deliver the level of reduction necessary to stabilize and then reduce aviation's absolute emissions contribution to climate change, and that goals of more ambition will need to be considered to deliver a sustainable path for aviation." [12]

Question 3a. How confident are you that these commitments will be met?

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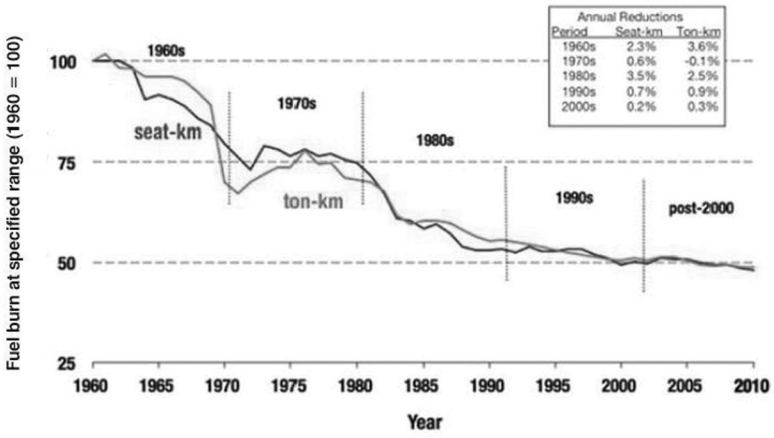
[11] International Civil Aviation Organization. 2010. ASSEMBLY—37TH SESSION REPORT OF THE EXECUTIVE COMMITTEE ON AGENDA ITEM 17 (Section on Climate Change) at Resolution 17–2 ("Consolidated statement of continuing ICAO policies and practices related to environmental protection—Climate change") at operational paragraph 4, A37–WP/402, *http://legacy.icao.int/icao/en/assembl/a37/wp/wp402_en.pdf* (visited July 19, 2012). It should be noted that some 40 ICAO member states entered reservations to various portions of this Resolution.

[12] *Id.* at preambular paragraph 14.

Answer. With regard to IATA's first target (of achieving a 1.5 percent per annum improvement in fuel efficiency between 2009 and 2020): In its 2010 Environmental Report, ICAO projected that aircraft fuel efficiency would improve by an average of close to 1.4 percent every year between 2006 and 2036, under its most optimistic scenario, which "goes beyond industry-based recommendations for potential improvements."[13] [14] To our knowledge, this is ICAO's latest long-term projection for global fuel efficiency. Given that even ICAO's extremely optimistic estimate falls short of IATA's target of 1.5 per cent per annum fuel efficiency improvements per year, it appears that IATA currently is unlikely to meet its own voluntary commitments, absent policy measures to stimulate greater emission reductions. Here's some further background:

CHART 5

Average fuel burn for new jet aircraft, 1960-2010



Source: The International Council on Clean Transportation (updated through 2010)

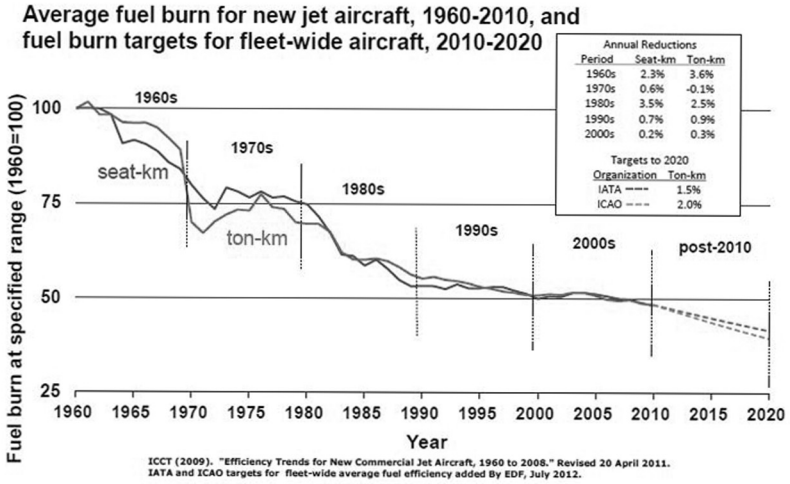
Chart 5, "Average Fuel Burn for New Jet Aircraft, 1960–2010," which accompanied EDF's June 6, 2012 testimony and which is reprinted here, demonstrates graphically the fuel efficiency improvements of new aircraft over the past half-century. As Chart 5 indicates, aircraft fuel efficiency improvements have averaged less than 0.5 percent per annum throughout the past decade, far lower than IATA's hope for 1.5 percent and ICAO's for 2 percent.

To achieve the IATA and ICAO targets for fleet-wide average fuel efficiency improvements by 2020, fleet-wide average fuel efficiency would have to improve by 14 to 18 percent over the ten-year period from 2010, which is substantially more than the 9 to 12 percent the industry has actually achieved for new aircraft in the twenty-year period from 1990 to 2010. To demonstrate this graphically, below please find a revision of Chart 5, "Average Fuel Burn for New Jet Aircraft, 1960–2010 and Fuel Burn Targets for Fleet-Wide Aircraft, 2010–2020." The dashed purple and green lines on this graph show the fleet-wide fuel efficiency improvements that would need to be achieved during the current decade in order to meet the IATA (purple) and ICAO (green) aspirational goals for efficiency improvement. Even this numerical comparison is an understatement of the improvement required; since fuel efficiency

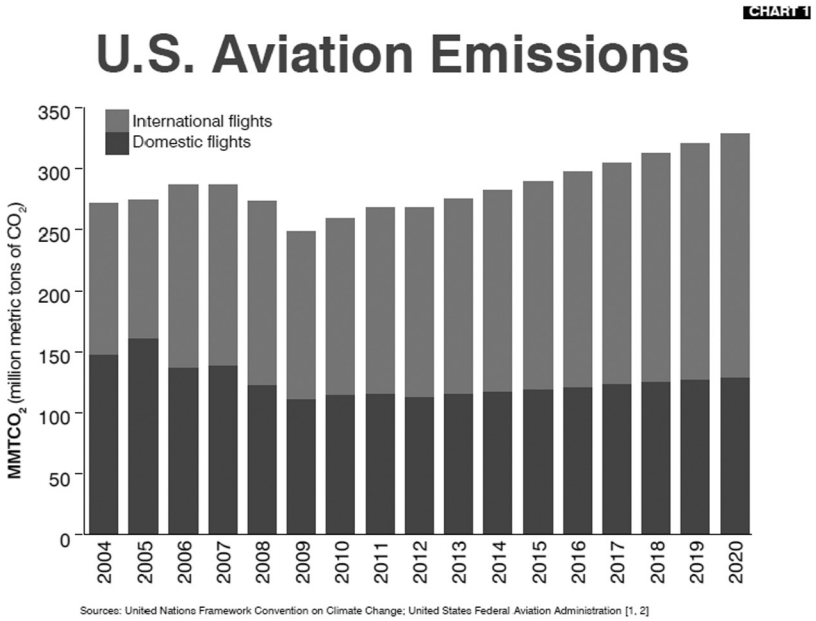
[13] International Civil Aviation Organization. 2010. *Environmental Report 2010.* Available at *http://www.icao.int/environmental-protection/Pages/EnvReport10.aspx.*

[14] ICAO's most optimistic scenario for fuel efficiency improvement includes "the improvements associated with the migration to the latest operational initiatives, *e.g.,* those planned in NextGen and SESAR," "an optimistic fuel burn improvement of 1.5 percent per annum for all aircraft entering the fleet after 2006 out to 2036," and "additional fleet-wide advanced operational improvements by region." The report further notes that this scenario "goes beyond industry-based recommendations for potential improvements."

improvements in new aircrafts translate to a lower average fleet-wide improvement, IATA's target requires an improvement in new aircraft fuel efficiency higher than the stated 1.5 percent average rate.



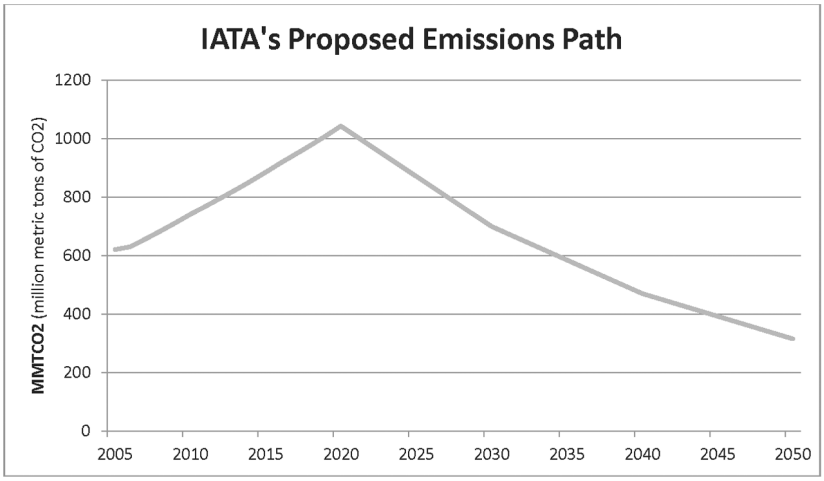
Emissions from aviation are projected to grow in the U.S. (Chart 1 accompanying our June 6 testimony, reprinted below).



On business-as-usual, aviation emissions globally are also predicted to grow (red line on Chart 3, reprinted above). This is true even if IATA were to achieve its fuel efficiency target (pale green line on Chart 3), since growth in traffic (shown in dashed lines on Chart 3) is predicted to outpace fuel efficiency gains. As noted above, ICAO has specifically recognized that its "aspirational goal of 2 per cent an-

nual fuel efficiency improvement is unlikely to deliver the level of reduction necessary to stabilize and then reduce aviation's absolute emissions contribution to climate change, and that goals of more ambition will need to be considered to deliver a sustainable path for aviation."[15] At the same time, however, it is important to note that every bit of fuel efficiency improvement the aviation industry can achieve can help in terms of emissions, as long as the "rebound effect" is less than 100 percent. (The "rebound effect" is the increase in demand for an energy service when it becomes cheaper as a result of increased energy efficiency. In the context of aviation, we can imagine that when fuel efficiency improves, flights may become cheaper, leading to more travelers choosing to fly.)

With regard to IATA's second target of achieving "carbon-neutral growth from 2020, it is important to clarify that IATA does not mean that the entire emissions of aviation will be carbon-neutral starting in 2020. Rather, IATA means that starting in 2021, its members will voluntarily offset that fraction of their emissions which exceeds whatever their emissions actually are in 2020. Understanding whether IATA can achieve this goal requires a deeper consideration of the mitigation measures available to the industry. Achieving this goal essentially means that any growth in air traffic above the level of emissions incurred in 2020, requires an equivalent countering effect from a combination of fuel efficiency improvements and other measures. According to ICAO's projection, global aviation demand (in terms of revenue passenger-kilometers) is expected to grow by some 4 to 5.5 percent every year (higher dotted line on Chart 3).[16] This means that even if IATA achieves its first target, carbon dioxide emissions will continue to grow beyond 2020 (pale green line on Chart 3). With a trajectory that has been increasing and that is expected to continue increasing, it is difficult to see how the green line can suddenly flatten after 2020. In other words, IATA will very likely fail to achieve its second target if no other mitigation measures are employed. To achieve carbon-neutral growth from 2020 onwards, IATA must essentially implement a measure that fixes the amount of industry-wide emissions at 2020 levels and then employs offsetting for amounts above 2020 levels. IATA has not specified how it would source those offsets.



IATA's third target (or halving 2050 carbon emissions over 2005 levels), besides being longer-term, is also more stringent. Being more ambitious than stabilizing emissions, this target requires the global aviation industry to reduce its emissions by, on average, some 3.5 percent every year from 2020 to 2050. Not only does the pale green line on Chart 3 have to flatten, it has to decline steeply. The graph above

[15] International Civil Aviation Organization. 2010. ASSEMBLY—37TH SESSION REPORT OF THE EXECUTIVE COMMITTEE ON AGENDA ITEM 17 (Section on Climate Change)A37–WP/402. Available at *http://legacy.icao.int/icao/en/assembl/a37/wp/wp402__en.pdf*.

[16] International Civil Aviation Organization. 2009. *Global Aviation CO_2* Emissions Projections to 2050. Group on International Aviation and Climate Change Information Paper GIACC/4–IP/1). Available at *http://www.icao.int/environmental-protection/GIACC/Giacc-4/Giacc4__ip01__en.pdf*.

indicates one potential trajectory for meeting this target. A much wider range of measures than solely fuel efficiency improvements would need to be taken to achieve this kind of trajectory.

Question 3b. Do you believe that there are enough tools available to ensure that all major emitting nations and their carriers participate and will meet these commitments?

Answer. We believe there is a broad range of tools that can ensure that all major emitting nations and their carriers participate in a global emissions limitation and reduction program, under ICAO auspices. We agree with ICAO that to make such a program effective in tackling aviation's share of the global warming problem, more ambitious commitments are needed. But bringing these tools forward, and obtaining the agreement and participation of all major emitting nations, will require bolder and more visionary leadership by the United States in ICAO.

Question 3c. What do you think are the most cost-effective ways to reduce greenhouse gases from the aviation industry?

Answer. The aviation industry is a cornucopia of technological innovation. It has a wide range of opportunities to reduce greenhouse gas emissions available to it. A representative list of about twenty potential improvements to aircraft technology is attached, each of which has the potential to reduce fuel burn by about 1 percent.[17] Taken together, their impact on emissions reduction could be significant.

In addition, some in the industry have begun to experiment with potential step-change technologies for addressing greenhouse gas emissions. For example, Pratt & Whitney is in the process of launching its new geared turbofan engine, which it claims has the potential for step change improvements in terms of reducing both emissions and noise, while Airbus claims that the technologies and processes already exist for what it describes as "perfect flights" that have much lower emissions profiles than current flights.[18] We hope the Committee will look closely at the potential for new step-change technologies.

The U.S. Government has begun to identify some ways to reduce greenhouse gases from the aviation industry, but the quantification of these, and the policy framework for making them cost-effective, is unclear. The U.S. Federal Aviation Administration has developed "a suite of environmental analytical tools—including the System for assessing Aviation's Global Emissions (SAGE), a component of the Aviation Environmental Design Tool (AEDT) and the Aviation Portfolio Management Tool (APMT) in order to assess cost-effective options to limit or reduce fuel consumption and greenhouse gas emissions. This component of AEDT generates aviation fuel consumption and emissions inventories for baseline conditions based upon operational data, estimates future emissions based upon fleet forecasts including technology advances, and also estimates future emissions based upon projections for changes in the National Air Space including operational improvements. The tool also has the capability to assess the influence of market-based measures to reduce fuel consumption and thus greenhouse gas emissions. Data from AEDT/SAGE is used to calculate the FAA's Flight Plan aviation fuel efficiency goal." [19]

Last year, partly at the urging of the United States, ICAO asking its Member States to provide Action Plans indicating how they plan to implement their voluntary goals, and providing guidance to Member States on how to develop their Action Plans.[20] The United States prepared an Action Plan and submitted it to ICAO in June 2012. According to the Action Plan, the Obama Administration has set an overarching goal of achieving carbon-neutral growth for U.S. commercial aviation by 2020, using the AEDT-generated data on 2005 emissions as a baseline.[21] FAA states in the Plan that "Given current forecasts for aviation growth this equates to about a 115 million metric tons (MT) reduction in carbon dioxide emissions from commer-

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[17] EarthJustice. 2012. *Not Rocket Science: Efficiency Measures Available Now to Reduce Aviation Fuel Use.* Available at *http://www.usclimatenetwork.org/resource-database/not-rocket-science-efficiency-measures-available-now-to-reduce-aviation-fuel-use*.

[18] See, *e.g., http://www.purepowerengine.com/pdf/Press_release/FINAL_2012-07-10_pw 1200G_test_complete.pdf* and see *http://www.flightglobal.com/news/articles/farnborough-airbus-environment-champion-andrea-debbane-hhoutlines-the-perfect-flight-373774/*.

[19] Our Changing Planet, 2008 report of the U.S. Global Change Research Program, Appendix 1, *http://www.usgcrp.gov/usgcrp/Library/ocp2008/ocp2008-dot.pdf* at page 178.

[20] Guidance Material for the Development of States' Action Plans, ICAO (September 2011), *http://www.icao.int/environmental-protection/Documents/GuidanceMaterial_DevelopmentActionPlans.pdf*.

[21] U.S. Aviation Greenhouse Gas Emissions Reduction Plan Submitted to the International Civil Aviation Organization, June 2012, page 1 (copy attached).

cial aviation by 2020, and by extending those approaches further there could be an additional 60MT reduction by 2026." [22]

However, because the data underlying the AEDT is not publicly available, it is difficult to ascertain from the plan either the baseline level of emissions for 2005, or the FAA's projections of business-as-usual emissions. Consequently, it is not possible to tell if the plan is "ambitious", as FAA claims, or not. In May 2012, in our capacity as a member of the U.S. Interagency Group on International Aviation (IGIA), the Environmental Defense Fund submitted comments to the FAA (copies attached) on a draft of the Plan. In those comments we urged FAA to provide greater transparency. We also noted that a significant share of FAA's claimed reductions were attributed to biofuels. We called attention to the difficulties with biofuels accounting, and urged FAA to provide greater transparency in this area as well. Unfortunately, the June 2012 iteration of the plan fails to provide this transparency. We hope that FAA will revise the plan in the future to provide greater transparency.

In practice, how cost-effective any of these greenhouse gas mitigation measures will be depends to a great extent on three main factors:

(a) the level of ambition that the over-arching policy framework demands of participants and the consequences for failing to meet that ambition level;

(b) the abatement flexibility that the policy framework affords to participants; and

(c) the extent to which the policy framework spurs competition to drive down the costs of the mitigation technologies and processes.

Currently, there is no over-arching policy framework—other than uneven and uncertain pressures from the price of jet fuel [23]—to deliver accountability, flexibility and competition. Applying market-based measures that cap greenhouse gas emissions without specifying the particular abatement technologies that firms must use, and that spur competition among firms to innovate to develop better, cheaper, faster means of abatement, would enhance cost-effectiveness because each participating entity could choose its lowest-cost method of reducing emissions, and because competition among different technologies and processes would grind down the costs of abatement. Recognizing cost-effectiveness as a key element of environmental effectiveness, the ICAO Assembly has endorsed "the development of an open emissions trading system for international aviation." [24]

An economy-wide emissions trading system like the EU's is even more cost-effective than an emissions trading program confined to one industry, because it allows and creates the incentive for firms in sectors that can more easily and cheaply reduce their emissions to do so. The international aviation industry has repeatedly voiced its preference for a single coordinated global emissions trading system for aviation emissions mitigation, because it knows that a segmented approach could inflict unnecessary cost to the sector. For instance, IATA, together with other aviation industry groups worldwide, requested the governments represented in ICAO to develop a global framework to address aviation emissions.[25] In particular, they noted a principle critical to the frame work was "aviation CO_2 emissions should be addressed through a global framework and accounted for in a global emissions inventory, not at a regional or national level. It is essential that emissions from aviation are accounted for only once."

Furthermore, market-based measures complement technological advancement. The efforts by the aviation industry to improve fuel efficiency can and should run parallel to the implementation of a market-based measure. By putting in place a market-based mechanism that pairs the rigor of emissions caps with the flexibility of trading, the industry will have a greater economic incentive to improve fuel efficiency.

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[22] U.S. Aviation Greenhouse Gas Emissions Reduction Plan Submitted to the International Civil Aviation Organization, June 2012, page 1 (copy attached).

[23] See, *e.g.,* Hugo Martín, "Airlines' fuel surcharges far outpacing fuel prices: Since April 2011, fuel surcharges by U.S. airlines have risen 53 percent, while fuel prices have increased 24 percent, according to a study by Carson Wagonlit Travel" (Los Angeles Times, July 23, 2012), text available at *http://www.latimes.com/business/la-fi-travel-briefcase-20120723,0,196652.story*.

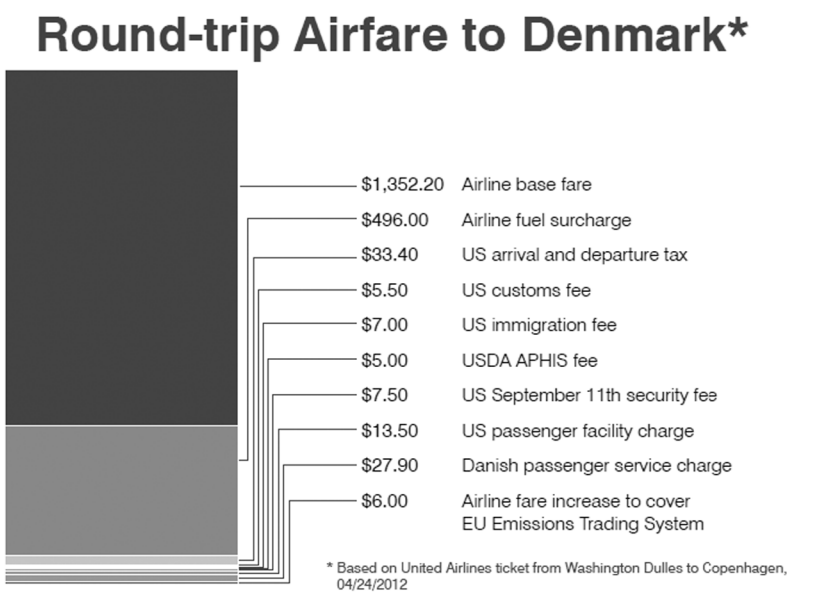
[24] International Civil Aviation Organization. *Market-Based Measures. http://www.icao.int/environmental-protection/Pages/market-based-measures.aspx.* Accessed on July 17, 2012.

[25] International Civil Aviation Organization. DEVELOPMENT OF A GLOBAL FRAMEWORK FOR ADDRESSING CIVIL AVIATION CO_2 EMISSIONS (Presented by the International Air Transport Association (IATA), on behalf of ACI, CANSO, IATA, IBAC and ICCAIA, referred to hereafter as the—aviation industry) A37–WP/217. *http://legacy.icao.int/icao/en/assembl/a37/wp/wp217__en.pdf*.

The aviation industry's interest in market-based measures should not be surprising. The U.S. sulfur dioxide trading program has been enormously successful, and continues to be cited as a model for emission limitation policies around the world. A key success of the program is its cost-effectiveness, saving the electric power industry billions of dollars as a result of the program's flexibility and competition-spurring features, and saving hundreds of billions of dollars in health costs.[26] [27] [28]

Respected economic analyses underscore the cost-effectiveness aspect of a cap and trade program for the aviation industry. The recent analysis by the Massachusetts Institute of Technology (MIT), under a contract supported in part by FAA, found that U.S. airlines could comply with the EU ETS targets—which appear to be more rigorous than those in the FAA Plan—at a cost of $3 per trans-Atlantic segment, and that airlines could potentially profit from such participation.[29] We believe the sliver of airfare ($6) attributable to the EU–ETS in Chart 4 accompanying our testimony, reprinted below, is a small price to pay in order to reduce the large bloc ($496.00) attributed by the airline to "Fuel Surcharge".

CHART 4



In that regard, we note that the bloc of charges which United Airlines labeled "Fuel Surcharge" as shown in Chart 4 of our testimony, reproduced here, has since been re-characterized by United and other airlines. Shortly before the June 6 hearing, the airlines received a letter from the Department of Transportation General Counsel's Office cautioning the carriers that "such charges must be displayed on a per-passenger basis, accurately reflect the actual costs of the service covered, and not otherwise be deceptive. (14 CFR 399.84, 76 Fed. Reg. 23110, 23143). When a cost component is described as a fuel surcharge, for example, that amount must actually reflect a reasonable estimate of the per-passenger fuel costs incurred by the carrier above some baseline calculated based on such factors as the length of the trip, varying costs of fuel, and number of flight segments involved." Shortly after

[26] W. Chameides, U.S. Acid Rain Regulations: Did They Work?, Nicholas School of the Environment, Duke University (May 10, 2012), text available at: *http://www.nicholas.duke.edu/thegreengrok/acidrain-regs*.

[27] Hodges, Hart (1997). *Falling Prices: Cost of Complying with Environmental Regulations Almost Always Less Than Advertised.* (Economic Policy Institute Briefing Paper). Available at *http://www.epi.org/page/-/old/briefingpapers/bp69.pdf*.

[28] Burtraw, Dallas (1996). "Trading Emissions to Clean the Air: Exchanges Few but Savings Many." *Resources for the Future Report,* Winter.

[29] Robert Molina *et al.,* The Impact of the European Union Emissions Trading Scheme on U.S. Aviation, 19 Journal of Air Transportation Management 36–41, 2012.

the hearing, all of the airlines that we checked had re-labeled that block of surcharge as "International Surcharge." We are unsure as to the basis for this "International Surcharge," since it is more than one hundred times the amount identified in the FAA-supported MIT study about the costs of compliance with the EU ETS.[30]

Question 3b. Are there particular efforts or case-studies, such as the Green Skies program at SeaTac Airport, you believe Congress should look at when considering how best to address this issue?

Answer. We believe the SeaTac program is a great model, and we commend SeaTac for considerable constructive work in this area. Following the model of SeaTac, we recommend that Congress suggest that the Administration consider approaches in ICAO that engage the talents and creativity of the entire aviation sector, not just airlines and and equipment manufacturers, but also air traffic control, airports, and the flying public, in the challenge of reducing aviation's impact on the global environment. We also suggest that Congress consult with forward-looking actors in industry, such as the Berkshire Hathaway company NetJets, whose European division have committed to be 100 percent carbon neutral.

Among other studies, we recommend that Congress look at:

1. The Aviation and the Global Atmosphere, J.E.Penner, D.H.Lister, D.J.Griggs, D.J.Dokken, M.McFarland (Eds.), Intergovernmental Panel on Climate Change (Prepared in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer), Cambridge University Press, 1999 (hereinafter "IPCC Special Report on Aviation"), Summary for Policymakers available at *http://www.ipcc.ch/pdf/special-reports/spm/av-en.pdf* (accessed June 3, 2012).
2. Commission of the European Communities. Summary of the Impact Assessment: Inclusion of Aviation in the EU Greenhouse gas Emissions Trading Scheme (EU ETS). 2006.
3. Chicago Department of Aviation Environmental Sustainability Report (2011). The CDA, which oversees both O'Hare and Midway airports, has prepared a sustainability report which is a leader in the field. *http://ohare.com/Environment/sustainabilityreport.aspx*.
4. Sustainable Airport Manual (AirportsGoingGreen.org 2010) and supplements, available at *http://www.airportsgoinggreen.org/SAM*. Airports Going Green brings together airports seeking to make step change advancements in managing greenhouse gas emissions and other environmental concerns at airports.
5. Guidance Manual: Airport Greenhouse Gas Emissions Management (Airports Council International (2008) and supplements. This manual and its supplements provide guidance for airport operators wishing to manage greenhouse gas (GHG) emissions. The manual provides: clear definitions of terms; why an airport operator would manage GHG emissions; how to conduct a GHG emissions inventory; what GHG emissions species to include; how to categorize sources; references to documents assisting with the calculations of the quantities of emissions; the goals of an emissions management programme; GHG emissions reduction projects; becoming Carbon Neutral; reviewing programmes and reporting progress; and gaining accreditation for achievements made. available at *http://www.aci.aero/cda/aci_common/display/main/aci_content07_banners.jsp?zn=aci&cp=1-6-44%5E33815_725_2____*
6. NetJets 2010 Environmental Update Report, *http://www.netjetseurope.com/Global/Reports/Environment%20Update%20Report_UK%20Final%20version.pdf*.
7. Robert Molina *et al.,* The Impact of the European Union Emissions Trading Scheme on U.S. Aviation, 19 Journal of Air Transportation Management 36–41, 2012.
8. A New Flightplan: Getting Climate Measures for Aviation off the Ground (Transport & Environment, Environmental Defense Fund, The International Council on Clean Transportation and the Aviation Environment Federation, February 2012) (copy attached).

Question 4. Ms. Petsonk, carbon emissions are ubiquitous within the U.S. economy and almost every economy around the globe. Isolated efforts to reduce green-

[30] Letter from Samuel Podberesky, Assistant General Counsel for Aviation Enforcement and Proceedings, United States Of America, Department Of Transportation, Office Of The Secretary, Washington, D.C., Dated: February 21, 2012: "Additional Guidance On Airfare/Air Tour Price Advertisements," text available at *airconsumer.dot.gov/rules/Notice.Taxes.fees.sam.dl.13.website.docx*.

house gas emissions will not alter or mitigate the devastating impacts of a warming planet. I believe this reality provides additional urgency for the United States, as the world's sole superpower, to act and lead the world to a clean energy future with innovative policies. Curbing carbon emissions to the level necessary to avert a climate crisis will require innovation within almost every sector of the economy. It seems to me that the global scope of carbon pollution poses a somewhat different challenge than more localized pollutants.

- Rather than regulating downstream at the point of emission such as an airplane's exhaust, would limiting carbon emissions upstream where fossil fuels are extracted possibly be a more efficient and technology-neutral way to squeeze carbon out across the economy?

Question 3d. Would an upstream carbon limit reduce the need for more monitoring, enforcement, and regulatory complexity?

Answer. For a range of technical and political reasons, we do not believe that an upstream limit would be feasible in the near-term in the context of ICAO. We would be happy to discuss with you in detail our reasons for that view.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO NANCY N. YOUNG

Question 1. Ms. Young, what is the range of actions the Administration can take to "hold harmless" U.S. commercial operators from EU ETS?

- Could these actions to hold harmless U.S. commercial operators include the U.S. government paying the EU authorities directly, or compensating U.S. commercial operators, for any fines incurred for non-compliance with EU ETS?
- Do Airlines for America or any of its member airlines intend to seek compensation from the Federal government for fines incurred for non-compliance with EU–ETS?

Answer. It is our sense that the intent of both the House legislation, H.R. 2954, and the Senate legislation, S. 1956, is to ensure that U.S. airlines and aircraft operators are not covered by the unilateral and extraterritorial application of the EU ETS to international aviation. The "hold harmless" language you cite is within Section 4 of both pieces of legislation. That Section is titled "Negotiations." Thus, it is our understanding that the primary intent of the "hold harmless" language is for the United States government to use its authority to overturn the application of the EU ETS to U.S. airlines and aircraft operators through negotiations. As you know, we continue to urge the United States government to take concrete action to overturn the application of the EU ETS to U.S. airlines and aircraft operators.

Should the U.S. fail in its efforts to have the EU ETS withdrawn as to U.S. airlines and aircraft operators, it is our sense that this legislation would also make clear that the Secretary of Transportation could take other actions in the public interest, such as countermeasures, to address the effects of the unilateral EU law, particularly given that Section 3 of the legislation contemplates that the United States may order U.S. airlines and aircraft operators not to comply with the wrongful EU law. This could include imposing counter-charges on EU entities to compensate for losses by U.S. airlines and aircraft operators. The primary authority for this is provided in 49 U.S.C. § 41310. It is our sense that the provisions in Section 4 of H.R. 2954 and S. 1956 would work in tandem with existing law to ensure that the United States government has the tools in the particular case of the EU ETS to be sure that U.S. airlines and aircraft operators are not covered or harmed by the extraterritorial EU scheme.

Notably, A4A members have complied with the EU ETS—albeit under protest—since its substantive provisions went into effect in 2009. Indeed, for the past three years, our airlines have been covered by the scheme. They have complied under protest with the unilateral EU emissions monitoring, reporting and verification requirements that underpin the scheme, at tremendous expense.[1] Beginning on January 1 of this year, our airlines became subject to the scheme's emissions allowances purchase, trading and surrender obligations. Although airlines do not have to "settle

[1] Notably, U.S. airlines long have been subject to the world's most comprehensive aviation-related data reporting obligations, reporting to the U.S. Department of Transportation Office of Airline Information (OAI). That "Form 41" data provides detailed fuel-burn data that is translated into GHG emissions data. Thus, the United States has the most comprehensive aviation GHG data of any country in the world. Although A4A urged the EU to recognize the Form 41 data when adopting rules to implement the EU ETS with respect to aviation, the EU chose instead to create a whole new emissions reporting regime, subjecting U.S. carriers with EU flights to overlapping and differing reporting requirements.

up" on the obligation to surrender allowances until 2013, the liability is very real, triggering securities disclosures and significant expenditures for U.S. airlines to be prepared to pay the bill in 2013. A4A is hopeful that the United States will use its good offices to overturn the application of the EU ETS to U.S. airlines before they must surrender allowances in 2013 and before questions of counter-charges come into play.

Question 2. Ms. Young, other than the EU–ETS that you mentioned at the hearing, what do you see as the main sticking points at ICAO to achieving a global approach to reducing greenhouse gas emissions from the global aviation sector?

Answer. As I noted in my testimony, at its 2010 Assembly, ICAO adopted key elements of a global framework on aviation and climate change. It confirmed that fuel efficiency goals present the appropriate approach for addressing aviation GHG emissions through 2020 and established a sectorwide goal of carbon neutral growth from 2020. Further, the States agreed to track their aviation emissions and to submit "Action Plans," which were due at the end of last month, describing the steps they are taking to help achieve the global emissions goals. Also, after adopting a set of principles for market-based measures, the States directed ICAO to further assess the potential for market-based measures that might be agreed on a global basis and a framework (or more detailed "playbook") for such measures. This work is going on now, as is work on a first-of-its-kind CO_2 standard for aircraft.[2]

As noted, the angst and distrust the EU ETS has engendered has been the most significant obstacle to gaining further agreement on how to implement the 2010 ICAO Assembly Resolution, along with the EU's insistence that the world adopt the EU ETS approach on a global level. In addition, larger questions regarding what the various countries around the world are prepared to do on climate change in general also play into the discussions at ICAO. As you know, this has caused the larger climate negotiations in the context of the United Nations Framework Convention on Climate Change (UNFCCC) efforts to replace the Kyoto Protocol (whose terms expire at the end of this year) to stall, such that a new global climate change agreement is not expected until 2015. The airline industry, along with its aviation industry sector partners, has sought to cut through this in the ICAO arena by strongly advocating that the countries go forward with implementation of the 2010 ICAO Assembly Resolution. With the aviation industry supporting the global framework at ICAO and the many countries who oppose the EU ETS recommitting themselves to further address aviation GHG emissions through ICAO, we are hopeful that full implementation of this framework will be agreed at the ICAO Assembly in September 2013.

Question 3. Does A4A support the use of so-called market-based mechanisms as one means for reducing the greenhouse gas emissions from the global aviation sector?

Answer. A4A and its members are part of a worldwide aviation coalition supporting the global framework at ICAO. Under this approach, all airline CO_2 emissions would be subject to emissions targets requiring industry and governments to do their part. As proposed by the industry, these would be an annual average fuel-efficiency improvement of 1.5 percent through 2020 and carbon-neutral growth from 2020, subject to critical government infrastructure and technology investments such as air traffic control modernization, with an aspirational goal of a 50 percent reduction in CO_2 by 2050 relative to 2005 levels. Our focus is on getting further fuel efficiency and emissions savings through new aircraft technology, sustainable alternative aviation fuels and air traffic management and infrastructure improvements. To the extent we are not able to meet our targets through these measures, the global aviation sector position is that a properly designed market-based measure could be used to "fill the gap." In our position papers, the global industry has set forth principles regarding the role that a market-based measure might play in this regard.[3]

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[2] A significant milestone in the work on the CO_2 standard was achieved a few weeks ago at a meeting of ICAO's Committee on Aviation Environmental Protection, which agreed to the means to best measure aircraft fuel and GHG efficiency in the context of an aircraft certification standard. (In technical terms, CAEP adopted the "metric system" that will apply to the future standard). See ICAO's release about this milestone, available at *http://www.icao.int/Newsroom/Pages/new-progress-on-aircraft-CO_2-standard.aspx;* and FAA's release at *http://www.faa.gov/news/updates/?newsId=68679*.

[3] More information on the industry-wide initiative on aviation and climate change is available at: *http://legacy.icao.int/icao/en/assembl/a37/wp/wp217□en.pdf* (the industry's joint paper to ICAO) and *http://www.airlines.org/Pages/A4A-Climate-Change-Commitment—A-Global,-Sectoral-Approach.aspx* (A4A's statement on the initiative).

Question 4. Do you concur with the scientific consensus that human-caused global warming is real?

- Do you agree that climate change will negatively impact the American economy and our citizens?
- How would you characterize the aviation industry's contribution to the build-up of greenhouse gases in the world's atmosphere? Is it a significant problem today and how will aviation's contribution change over time?

Answer. A4A has not questioned the science behind climate change concerns. As A4A (then named the "Air Transport Association of America" or "ATA") noted in a letter to Senator Boxer in 2009, a solid testimonial and scientific record has been established that indicates the world climate is warming and that human-caused emissions of CO_2 and other GHGs are a contributing factor in that warming. The science indicates that the impacts of a significantly warmer planet would be insidious and severe, dramatically affecting life on our planet.

It is through this lens and with the keen understanding that reducing fuel burn also is critical to our airlines' bottom line that we have relentlessly pursued means of improving our fuel efficiency and reducing emissions. Although the U.S. airlines contribute only 2 percent to our Nation's GHG inventory and the world's airlines contribute only 2 percent of the global CO_2 inventory, we acknowledge that we must continue to work to reduce our contribution.

We have a strong record and are committed to more. As I noted in my testimony, for the past several decades, commercial airlines have dramatically improved fuel and GHG efficiency by investing billions in fuel-saving aircraft and engines, innovative technologies like winglets (which improve aerodynamics) and cutting-edge route-optimization software. As a result, between 1978 and 2011, the U.S. airline industry improved its fuel efficiency by 120 percent, resulting in 3.3 billion metric tons of CO_2 savings—equivalent to taking 22 million cars off the road on average in each of those years. Further, data from the Bureau of Transportation Statistics confirms that U.S. airlines burned 11 percent less fuel in 2011 than they did in 2000, resulting in an 11 percent reduction in CO_2 emissions, even though they carried almost 16 percent more passengers and cargo on a revenue-ton-mile basis.

The global aviation industry commitment to fuel efficiency goals through 2020 and carbon-neutral growth from 2020 will help ensure that aviation GHG emissions are minimized. A4A and its members are committed to doing our part on the technology, operations and infrastructure measures that advance progress toward our goals. However, we need the U.S. government to work with us to advance fuel and emissions saving measures in areas where the government has significant control. For example, while the A4A airlines are doing all that they can to promote efficiencies within the current air traffic management (ATM) system, the limitations of that system account for 10–15 percent of unnecessary fuel burn and resulting emissions. To address this, and to achieve much-needed modernization of our outdated ATM system, A4A and its members are working with FAA and other agencies on a fundamental, business case-based redesign of the system through the Next Generation Air Transportation System (NextGen) project and on various regional airspace design initiatives.

Recognizing that improving fuel efficiency with today's carbon-based fuel supply can only take us so far, A4A and its members are working hard to stimulate the development and deployment of alternative fuels that meet the industry's strict operational and cost requirements while reducing environmental impacts. In 2006, A4A joined the Federal Aviation Administration (FAA) and others in co-founding the Commercial Aviation Alternative Fuels Initiative® (CAAFI) to hasten the production and use more economically viable, operationally reliable and environmentally preferred alternative fuels. A4A also is a principal in the Farm to Fly initiative, a collaborative effort between A4A, the U.S. Department of Agriculture and Boeing to develop and enhance sustainable feedstock opportunities for aviation biofuels, and we have a Strategic Alliance with the U.S. Department of Defense to coordinate military and commercial efforts to deploy sustainable alternative aviation fuels. Although we have made great strides with strong support of our collaborative partners, additional and sustained government support is needed. Thus, we are gravely concerned about proposals before Congress that might eliminate or cut back such opportunities.

Question 5. Ms. Young, during the June 6, 2012 hearing, we discussed some of the voluntary commitments the aviation industry has made to reduce their greenhouse gas emissions beyond business-as-usual. Can you specify what those commitments are?

- How confident are you that these commitments will be met?

- Do you believe that there are enough tools available to ensure that all major emitting nations and their carriers participate and will meet these commitments?
- What do you think are the most cost-effective ways to reduce greenhouse gases from the aviation industry?
- Are there particular efforts or case-studies, such as the Green Skies program at SeaTac Airport, you believe Congress should look at when considering how best to address this issue?

Answer. As outlined above, the global aviation industry—including the world's airlines, airports, airframe and engine manufacturers and air navigation service providers—is committed to a set of emissions targets and measures to further address aviation GHG emissions. The targets include:

- an annual average fuel-efficiency improvement of 1.5 percent through 2020;
- carbon-neutral growth from 2020, subject to critical government infrastructure and technology investments such as air traffic control modernization; and
- an aspirational goal of a 50 percent reduction in CO_2 by 2050 relative to 2005 levels.

A4A member airlines are committed to these goals as part of the global coalition. We are meeting our fuel efficiency goals and are working with the International Air Transport Association (IATA) and the Air Transport Action Group (ATAG) to further elaborate means of demonstrating achievement of the carbon-neutral growth goal.

As recognized by the Future of Aviation Advisory Committee (FAAC), the most cost-effective ways for reducing aviation GHG emissions include improvements in ATM efficiency and technology development.[4] Also, as noted by A4A's Senior Vice President of Legislative and Regulatory Policy, Sharon Pinkerton, in the Aviation Subcommittee hearing you held last year on aviation fuels, sustainable alternative aviation fuels could well be a game changer in terms of the industry's GHG emissions. As Ms. Pinkerton noted, the aviation industry and would-be alternative jet fuel suppliers are on the cusp of creating a viable alternative jet fuel industry. But government support is needed in the near team to provide financial bridging and other tools necessary to help us get over the cusp.[5]

The Greener Skies over Seattle program is a terrific example of how the public-private partnership can work to advance aviation efficiency, fuel savings and reduced emissions. Importantly, this program includes all relevant players—FAA, airlines, airports and major airframe and engine manufacturers, including Boeing. By using Required Navigation Performance (RNP) and other new procedures, aircraft can fly shorter, continuous descent approaches instead of traditional stair-step landing paths. This demonstration project serves as a role model for the FAA's NextGen air traffic control system. A4A and its carriers are participating in an array of such programs throughout the country.

Question 6. Rather than regulating downstream at the point of emission such as an airplane's exhaust, would limiting carbon emissions upstream where fossil fuels are extracted possibly be a more efficient and technology-neutral way to squeeze carbon out across the economy?

- Would an upstream carbon limit reduce the need for more monitoring, enforcement, and regulatory complexity?

Answer. As noted, A4A and its airlines are committed to continuing to reduce our GHG footprint and we have specific plans in place for doing so. We see potential promise in certain upstream measures as well, such as carbon sequestration that might be employed by those in the fossil fuel production chain. Also, sustainable alternative aviation fuels typically provide the bulk of their emissions savings upstream, as biomass reduces the lifecycle emissions of the fuels.

While such measures can complement our efforts, A4A strongly opposes the application of carbon taxes on the fuels we use. Airlines are already driven by the high cost of fuel—which is our airlines' number one cost center—to be as fuel efficient as possible. And our airlines already pay a disproportionately large share of taxes and fees. In spite of the airlines' enormous contribution to the economy, air travel is taxed at a higher Federal rate than alcohol and tobacco—products that are taxed to discourage their use. Since 1990, the number of aviation taxes/fees has increased from six to 17; the total amount of taxes paid by the industry has grown from $3.7

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[4] U.S. DOT, Future of Aviation Advisory Committee, Final Report (April 11, 2011), available at *http://www.dot.gov/faac/docs/faac-final-report-for-web.pdf*.

[5] Ms. Pinkerton's testimony is available at *http://www.airlines.org/Pages/Aviation-Fuels—Needs,-Challenges-and-Alternatives.aspx*.

billion to $17 billion over the same period. Such taxes harm the airlines, consumers and the economy. Moreover, a carbon tax would be counterproductive to our efforts, as it would siphon away from aviation the very funds our airlines need to continue investing in the technological, operational and infrastructure improvements that bring real emissions improvements within the industry.

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In sum, the U.S. airline industry is strongly committed to additional action to improve our fuel efficiency and reduce GHG emissions from aviation. While we believe the unilateral EU ETS is the wrong approach for our nation, U.S. airlines and the global aviation sector, we are committed to implementation of a global sectoral framework under ICAO and to implementing measures that reduce aviation's carbon footprint while supporting our nation's economy. We appreciate your leadership on sustainable alternative aviation fuels and on other measures to enhance aviation operations, technology and infrastructure.

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