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FEDERAL AVIATION ADMINISTRATION REAUTHORIZATION: REFORMING AND STREAMLINING THE FAA'S REGULATORY CERTIFICATION PROCESSES

(114–1)

HEARING

BEFORE THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

JANUARY 21, 2015

Printed for the use of the
Committee on Transportation and Infrastructure

Available online at: http://www.gpo.gov/fdsys/browse/committee.action?chamber=house&committee=transportation

U.S. GOVERNMENT PUBLISHING OFFICE

92–673 PDF WASHINGTON : 2016

For sale by the Superintendent of Documents, U.S. Government Publishing Office
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Committee on Transportation and Infrastructure
U.S. House of Representatives

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Washington, DC 20515

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Ranking Member

Christopher P. Bertram, Staff Director

Katherine W. Hedrick, Democratic Staff Director

January 16, 2015

SUMMARY OF SUBJECT MATTER

TO:	Members, Committee on Transportation and Infrastructure
FROM:	Staff, Committee on Transportation and Infrastructure
RE:	Committee Hearing on "FAA Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Processes"

PURPOSE

The Committee on Transportation and Infrastructure will meet on Wednesday, January 21, 2015, at 10:00 a.m. in 2167 Rayburn House Office Building to discuss the Federal Aviation Administration's (FAA) aircraft and flight standards certification processes. In preparation for the next FAA reauthorization, the Committee will hear witnesses' testimony on FAA's certification processes, progress the FAA has made to streamline the processes since the last reauthorization, and areas in need of additional reform. The Committee will receive testimony from industry representatives, the Government Accountability Office (GAO), the National Transportation Safety Board (NTSB) and the FAA.

I. FAA Certification Processes

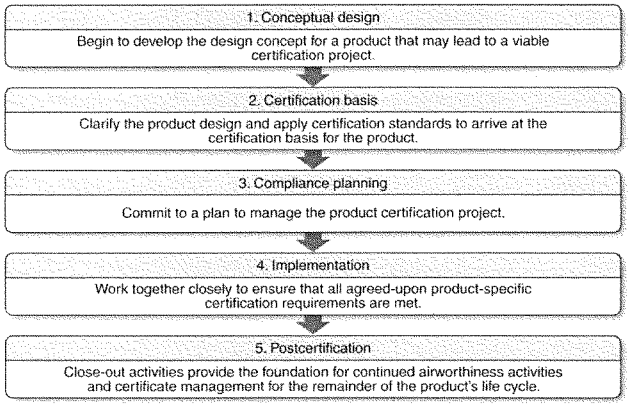
FAA's Office of Aviation Safety houses two offices that handle certification issues: the Aircraft Certification Service (AIR) and the Flight Standards Service (AFS).

Aircraft Certification Service

The FAA is responsible for issuing type and manufacturing certificates for aircraft, aircraft engines and propellers, as well as aircraft parts and appliances (aircraft and aircraft components). To ensure the safety of aircraft and aircraft components the FAA has developed a set of safety standards for aircraft and aircraft components. In exercising its discretion, the FAA has a system of compliance review that involves the certification of the design and manufacture of aircraft and aircraft components. Under this process, the duty to ensure that aircraft and aircraft components conform to FAA safety regulations lies with the manufacturer and operator, while the FAA retains responsibility for overseeing compliance. Thus, the manufacturer is required to (1) develop the plans and specifications and (2) perform the inspections and tests

necessary to establish that an aircraft design comports with the regulations; the FAA then reviews the data by conducting a risk-based review of the manufacturer's work. If the FAA finds that a proposed new type of aircraft and aircraft component comports with minimum safety standards, it signifies its approval by issuing a type certificate. If the design of a component or system is not directly addressed by existing regulations, the FAA issues one or more special conditions, which are subject to public notice and comment, to ensure the component or system design provides an acceptable level of safety. Figure 1 provides a basic overview of key FAA aircraft certification processes.

Figure 1: Key Phases in Aircraft Certification's Process for Approving Aviation Products[1]



Source: FAA.

Type Certificate

When a new aircraft or aircraft component design is being proposed, the applicant must first apply to the FAA for a type certificate. The applicant must show that the proposed design meets the applicable existing airworthiness requirements. The regulations provide for the issuance of special conditions when the Administrator finds that the airworthiness standards do not contain adequate or appropriate safety standards because of novel or unusual design features of the product to be type certificated. In order to receive a type certificate, the applicant must conduct a series of tests and reviews to show that the product is compliant with existing standards and any special conditions issued by the FAA.

[1] Government Accountability Office. "Aviation Safety: Status of Recommendations to Improve FAA's Certification and Approval Process." GAO 14-142T. October 30, 2013. Subcommittee on Aviation, United States House of Representatives.

Production Certificate

Along with seeking a type certificate, the applicant can simultaneously seek a production certificate from the FAA. A production certificate is an approval by the FAA to manufacture duplicate products of the type design approved by the type certificate. Before approving a production certificate, the FAA will review the manufacturer's quality control systems against regulatory and policy requirements. The holder of the production certificate is responsible for the quality of all parts, even those that are not specifically manufactured by the production certificate holder. Aircraft parts can obtain a parts manufacturing approval, which is equivalent to a production certificate but is only for one specific part.

FAA Modernization and Reform Act of 2012: Section 312: Aircraft Certification Process Review and Reform

The FAA Modernization and Reform Act of 2012 (Reform Act) contains two provisions addressing the FAA's certification process. Section 312 requires the FAA to conduct an assessment of the certification approval processes and develop recommendations to improve efficiency and reduce costs through the streamlining and reengineering of the certification process. After developing the recommendations, the Administrator is required to submit a report to Congress containing the results of the assessment and an explanation of how they will implement the recommendations contained in the report. Section 312 also directed the FAA to begin implementing the recommendations by February 2013.

The FAA released its initial implementation plan on January 7, 2013 to address the recommendations.[2] The FAA is currently addressing six recommendations that were developed in consultation with industry with the establishment of the 312 Aviation Rulemaking Committee (312 ARC) and included in the report. They include:

1. Develop a comprehensive means to implement and measure the effectiveness of implementation and benefits of certification process improvements;
2. Enhanced use of delegation;
3. Develop an integrated Roadmap and vision for certification process reforms;
4. Update part 21 to reflect a systems approach for safety;
5. Develop and implement a comprehensive change management plan; and
6. Review and implement process reforms and efficiencies needed for other aircraft certification service functions.

In addition to a number of milestones the FAA has developed to address the initiatives in the plan in the May 14, 2013 update, the FAA added measures of effectiveness to each initiative. Since publishing the initial implementation plan, the FAA has issued six updates outlining the progress the agency has made in implementing the initiatives that resulted from the 312 ARC. FAA's January 6, 2015 update of the implementation plan states that eight of the fourteen initiatives are completed, three initiatives will not meet the timeline for the end milestones, and

[2] Federal Aviation Administration. "Detailed Implementation Plan for The Federal Aviation Administration Modernization and Reform Act of 20120 Public Law No. 112-95 Section 312." January 7, 2013.

one initiative is in danger of going off schedule.[3] The three initiatives which FAA's plan states will not meet their milestone deadlines are; Part 23 reorganization[4], update Part 21[5], and consistency of regulatory interpretation.[6]

Aircraft Certification Prioritization

In response to one of the 312 ARC recommendations, on September 15, 2014, the FAA issued a new standard operating procedure (SOP) for the aircraft certification process. The Aircraft Certification Service (AIR) Project Prioritization Process (prioritization process) contains the guidelines for "prioritizing certification projects and managing certification project resources" within the AIR.[7] The goal of this new FAA process is "focusing FAA resources on safety but with an approach that allows work to begin without delay" once the applicant submits a complete application.[8] Under this new process, "when a certification project is initiated, the aircraft certification office responsible determines the project's priority and related task response times" (also known as office flow time.)[9] In the previous process, FAA workload was managed by delaying whole projects until FAA resources were available, which led to applicants potentially experiencing long delays and inability to anticipate when FAA would begin work on a certification project. With this new prioritization process, the applicant can begin those parts of the project for which the FAA has resources available or for which FAA action is not required. For those parts of the project for which FAA resources are not available at the time of initiation, the FAA will notify the applicant of the length of time it will take for that resource to become available. If the local project office is unable to support a task within the predetermined response time, the FAA will use resources across AIR to complete the task.

FAA Flight Standards' Certification Processes

The Flight Standards Service sets the standards for certification and oversight of airmen, air operators, air agencies, and designees.[10] It conducts certifications, inspections, surveillance, investigations, and enforcement actions, and manages the system for registration of civil aircraft and all airmen records. Flight Standards is responsible for issuing certificates and approvals for airmen, air operators, air agencies, commercial air carriers, repair stations, designees, and pilot schools. These certificate actions are handled by over 100 FAA field offices and roughly 4,000 flight standards inspectors. Flight Standards, in conjunction with the Aircraft Certification office, is responsible for continued oversight of (1) operational safety of certificate holders, (2)

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[3] Federal Aviation Administration. "Detailed Implementation Plan for The Federal Aviation Administration Modernization and Reform Act of 20120 Public Law No. 112-95 Section 312." January 6, 2015.

[4] The *Small Aircraft Revitalization Act of 2013* (P.L. 113-53) which was signed into law on November 27, 2013, directed the FAA to develop a final rule meeting certain consensus-based standards and FAA Part 23 Reorganization Aviation Rulemaking Committee objectives by December 15, 2015. However, the FAA's implementation plan for 312 states that the final rule will be issued in September 2017.

[5] This initiative addresses the policy and guidance that AIR is developing to align with a systems approach to certification as the FAA works to issue a safety management system rule.

[6] The initiative addresses the implementation Plan for Section 313 of the Reform Act.

[7] Federal Aviation Administration. "Standard Operating Procedure Aircraft Certification Service Project Prioritization and Resource Management." AIR-100-ALL-005. Effective date. Sept 15, 2014.

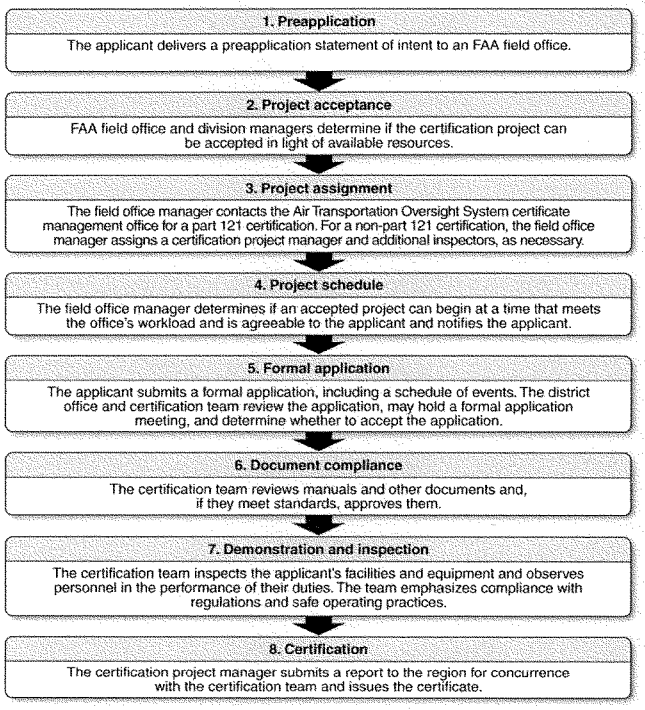
[8] *Id.*

[9] *Id.*

[10] See http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/.

designees, (3) air operators, and (4) air agencies' operation and maintenance. Figure 2 shows the process by which Flight Standards carries out their duties.

Figure 2: Key Steps in Flight Standards' Process for Issuing Certificates to Air Operators and Air Agencies[11]



Source: FAA.

Organization Designation Authorization

In order to ensure that all parts meet quality standards, the FAA also has the ability to issue a company an Organization Designation Authorization (ODA). The ODA Program, established by the FAA in 2005, allows a company to set up an organization of airworthiness representatives (AR) who act on behalf of the FAA. The FAA can grant ODAs to manufacturers and repair stations. According to FAA, there are currently 82 ODA holders (71 manufacturers and 11 repair stations).

[11] Government Accountability Office. "Aviation Safety: Status of Recommendations to Improve FAA's Certification and Approval Process." GAO 14-142T. October 30, 2013. Subcommittee on Aviation, United States House of Representatives.

The FAA, in conjunction with the approved ODA, develops a manual which specifies the procedures, processes, and practices to be used. The ARs are authorized by the FAA to carry out routine certification actions. FAA inspectors have the authority to perform any of these activities themselves should they wish to, or they can delegate the responsibility to the AR. An AR is approved by the FAA after going through a review process and is responsible for ensuring the manufacturers' compliance with FAA standards. The FAA has multiple processes that must be met to ensure that a new aircraft meets the standards of aircraft design and manufacturing. Ultimately, the FAA remains responsible for safety oversight. According to GAO, FAA's designees perform more than 90 percent of FAA's certification activities. [12] In April 2013 testimony, the GAO mentioned the concerns they had raised in their 2010 study with the lack of FAA oversight over the designees, particularly with new ODAs.[13] However in October 2013, the Department of Transportation Office of Inspector General (DOT OIG) testified that since their 2011 report on ODAs the FAA had "taken steps to improve its aircraft certification process and ODA program oversight." Furthermore, the DOT OIG testified that "given the expected continued growth of the aviation industry, effectively using ODA will be key to managing FAA's resources and meeting the industry's certification needs. However, it remains critical that adequate oversight controls are in place to ensure that qualified individuals are properly certifying critical aircraft components."[14]

FAA Modernization and Reform Act of 2012: Section 313: Consistency of Regulatory Interpretation

The second provision in the Reform Act addressing certification, Section 313, requires the Administrator to establish an advisory panel of government and industry representatives to review the GAO's October 2010 report[15] on certification and approval processes and develop recommendations to address GAO's findings and other concerns raised by interested parties. In addition, the Advisory Panel was tasked with developing plans to increase consistency of interpretation of regulations by Flight Standards Service and Aircraft Certification Service.

The FAA chartered an ARC (313 ARC) on April 30, 2013 and tasked it with reviewing the GAO report, determining the root causes of inconsistent interpretations and developing recommendations. On July 19, 2013, the FAA submitted the advisory panel's report to Congress.[16] The 313 ARC recommended the FAA should:

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[12] General Accountability Office, Aviation Safety: FAA Efforts Have Improved Safety, but Challenges Remain in Key Areas, GAO-13-442T (Washington, D.C.: April 16, 2013), p. 3-4.
[13] *Id.*
[14] Statement of Jeffrey B. Guzzetti Assistant Inspector General for Aviation Audits U.S. Department of Transportation Before the Committee on Transportation and Infrastructure, Subcommittee on Aviation, United States House of Representatives, October 30, 2013.
[15] U.S. Government Accountability Office "GAO-11-14, Aviation Safety: Certification and Approval Processess Are Generally Viewed as Working Well, but Better Evaluative Information Needed to Improve Efficiency." October 2010.
[16] United States Department of Transportation, Federal Aviation Administration "Report to Congress: Consistency of Regulatory Interpretation, FAA Modernization and Reform Act of 2012 (P.L. 112-95)- Section 313." July 19, 2013.

1. Review all guidance documents and interpretations to identify and cancel outdated material and cross-reference material to its applicable rule;
2. Develop a standard decision-making methodology for the development of all policy and guidance material to ensure such documents are consistent;
3. Review and revise regulatory training for agency personnel and make curriculum available to ensure the training includes interactive workshops, appropriate initial and recurrent training;
4. Establish a Regulatory Consistency Communications Board (RCCB) with representatives from the FAA to provide clarification to FAA personnel and certificate holders and applicants;
5. Improve the FAA's rulemaking procedures and guidance to ensure each proposed and final rule preamble contains a comprehensive explanation of the purpose, technical requirements, and intent; and
6. Determine the feasibility of establishing a full-time Regulatory Operations Communication Center (ROCC) as a centralized support center to provide real-time guidance to FAA personnel, industry, certificate holders, and applicants.

The FAA planned to submit an Action Plan on implementation of these measures by the end of September 2013, however most recently the FAA has stated that they expect the implementation plan to be released on January 31, 2015.[17]

II. International Certification

When a person or company seeks to operate or manufacture aircraft, aircraft components or avionic systems that have been certified by a foreign aviation authority in the United States, the FAA will work to validate that the certification has met specific safety and operational standards.[18] The FAA's validation of foreign certified products is dependent upon its confidence in the foreign aviation authority's certification processes.[19] Through bilateral agreements, the FAA does not always need to put the foreign certification through its own full certification process. Bilateral agreements are concluded only after the FAA has determined, among other things, that the other country's civil aviation authority is competent to make technical decisions about its aircraft's compliance with FAA requirements. According to the FAA, the U.S. has bilateral agreements with over 47 countries, including an agreement with the European Union that covers 28 nations in Europe.[20]

Manufacturers have reported that they can run into costly challenges when the validation process, either in the United States or in the foreign country, is unnecessarily delayed. During a July 2014 Aviation Subcommittee hearing, some witnesses testified that FAA was losing its "gold standard" in certification matters among safety regulators around the world and that the

[17] Federal Aviation Administration. "Detailed Implementation Plan for The Federal Aviation Administration Modernization and Reform Act of 2012 Public Law No. 112-95 Section 312." January 6, 2015.
[18] Federal Aviation Administration. "Fact Sheet: How the FAA Certifies Foreign Aircraft." "http://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=6266
[19] *Id.*
[20] Statement Of Margaret M. Gilligan, Associate Administrator for Aviation Safety, Federal Aviation Administration, Before the House Committee on Transportation and Infrastructure, Subcommittee on Aviation, Domestic Aviation Manufacturing: Challenges And Opportunities, July 23, 2014.

FAA must take a stronger leadership role in exporting U.S. aviation standards and facilitating the acceptance of U.S. products throughout the world.

Witnesses:

Panel I

Mr. Ray Conner
President and CEO
Boeing Commercial Airplanes, The Boeing Company

Mr. Aaron Hilkemann
President and CEO
Duncan Aviation

Panel II

The Honorable Chris Hart
Acting Chairman
National Transportation Safety Board

Ms. Dorenda Baker
Director, Aircraft Certification Service
Federal Aviation Administration

Dr. Gerald Dillingham
Director of Civil Aviation Issues
Government Accountability Office

FEDERAL AVIATION ADMINISTRATION REAUTHORIZATION: REFORMING AND STREAMLINING THE FEDERAL AVIATION ADMINISTRATION'S REGULATORY CERTIFICATION PROCESSES

WEDNESDAY, JANUARY 21, 2015

HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
WASHINGTON, DC.

The committee met, pursuant to call, at 10:05 a.m., in Room 2167, Rayburn House Office Building, Hon. Bill Shuster (Chairman of the committee) presiding.

Mr. SHUSTER. The committee will come to order. Good morning. Happy New Year to everybody. The committee has not formally organized, so we have to start off in asking for unanimous consent to conduct today's hearing under the rules of the committee under the 113th Congress, and without objection, so ordered. Hopefully our colleagues, Mr. DeFazio and others will in the next week or so, be ready to come together and——

Mr. DEFAZIO. Better organized on the day.

Mr. SHUSTER. OK. Great. And I know we have some new members on the committee, and you know what, I need a list of our members because we have got quite a few. I see many of them here today. Do you have your——

Mr. DEFAZIO. We have one new member here today. That will be it. You would like me to——

Mr. SHUSTER. Yeah, please.

Mr. DEFAZIO. OK.

Mr. NOLAN. Jared.

Mr. DEFAZIO. Well, Jared is not here.

Mr. NOLAN. He is new on the committee.

Mr. DEFAZIO. I know, but he is not here, so we aren't going to recognize him. Those who show up get rewarded, and those who don't.

Mr. Chairman, we have actually two new members, at the insistence of Mr. Nolan. Jared Huffman who is not here, so I won't go on about him, but I served with him on the Resources Committee, and he is very solid and will be a great contributor to the committee, and Julia Brownley who represents the smaller port of southern California, but yet a very important area and represents Ventura and that area around there and was also formally in the State assembly for was it——

Ms. BROWNLEY. Six years.

Mr. DEFAZIO. Six years. And so we are looking forward to her contribution, and a major focus for her will be intermodal and port activities.

Mr. SHUSTER. Well, thank you, and welcome to the committee. Also, I will introduce our new members to the committee starting with the gentleman from North Carolina, Mr. Rouzer, who has been on Capitol Hill before, so he has seen a couple of tours of duty here and other jobs on the Hill in other capacities, so I would like to welcome him. Mrs. Walters is not here today. She is from southern California. Mrs. Comstock, Barbara Comstock is from northern Virginia. Mr. Curbelo, and you know I know his first name but go and refresh me. What is his first name?

Carlos. Yes, I knew it began with a "C," but—Carlos Curbelo from the Miami area. Our senior new member is Mr. Woodall, Rob Woodall from Georgia, suburbs of Atlanta and the hinterlands of Georgia who have got some water issues. Mr. Rokita from Indiana, Mr. Katko from New York, upstate New York, I believe the Syracuse area. Mr. Babin, Brian Babin——

Dr. BABIN. Babin.

Mr. SHUSTER. Babin, I am sorry. Doc is easier. From Texas, what part of Texas exactly?

Dr. BABIN. Woodville, Texas.

Mr. SHUSTER. Woodville, Texas.

Dr. BABIN. Just northeast of Houston.

Mr. SHUSTER. OK. Cresent Hardy, who is from the entire State, I think, of Nevada, or 80 percent of it. That is correct, isn't it, Mr. Hardy?

Mr. HARDY. About 70 percent, yeah.

Mr. SHUSTER. Who is next to you? I can't see the name.

Mr. HARDY. Costello.

Mr. SHUSTER. I should know that, Ryan Costello. He is from the Philadelphia Eagles part of the fan base of Pennsylvania. I am from the Pittsburgh side, so hopefully we can come together on the committee here.

Mr. Garret Graves from Louisiana. What part of Louisiana?

Mr. GRAVES OF LOUISIANA. Baton Rouge.

Mr. SHUSTER. Baton Rouge, that is what I thought. And I believe that is it. So we got a big new lineup here. I am looking forward to working with all of you.

And today again, I want to welcome our witnesses for being here today. Mr. Conner, Mr.—how do you pronounce that, Hilkemann? Did I get it right?

Mr. HILKEMANN. Hilkemann.

Mr. SHUSTER. Hilkemann. OK. I can see the "L" there. I don't have my glasses on, so.

Again, welcome today. I am glad you are here with us today, and today's hearing is on "Federal Aviation Administration Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Processes," which I know you two have a lot to say about that.

The current FAA authorization is set to expire at the end of September, and passing a new bill that helps lay the groundwork for the future of U.S. aviation is a top priority for this committee.

I look forward to hearing about the progress the FAA has made to streamline the certification process since the last FAA bill was signed into law as well as areas that witnesses believe are in need of additional reform.

I think everyone here today understands the important role that aviation plays in our Nation's economy. Aviation manufacturing is at the heart of American leadership in aviation and high technology. This vital industry contributes billions of dollars and supports millions of jobs in our country's economy and is our leading export sector.

Today we are discussing FAA regulation, regulatory certification processes which have significant impacts on our Nation's ability to innovate, manufacture, export, operate, and maintain the very safest products in an increasingly competitive global market. The FAA is responsible for ensuring every aircraft in our skies is safe, and that those that maintain and fly those aircraft are well-qualified and well-trained.

Besides assuring the safety of aircraft, our certification system must be efficient, rational, and must be applied in a consistent and fair and transparent manner. Too often we are seeing unnecessary regulatory burdens that do not serve to improve actual aircraft safety. It seems to be a process simply for the sake of process.

We are seeing inconsistent interpretations of applications for a number of FAA policies and regulations. In fact, I have heard cases where from region to region it is different, from office to office it is different, and within even offices, inspectors see things in a different way. We have got to make sure that doesn't happen.

Products and technology that can actually enhance aircraft safety are often caught in a bureaucratic maze substantially delaying their implementation and the realization of safety benefits. I have heard concerns that our certification processes are much slower than in other countries, resulting in American companies being placed at a disadvantage to their foreign competitors who have a more streamlined process to get their products certified in the market.

While U.S. commercial aviation is the safest in the world, we must also ensure that our safety regulations and the processes they go through are effective, consistent, and keep pace with the modern marketplace. The FAA is the gold standard for aviation safety. It is a big part of what makes this country the global leader in aviation. We cannot let American leadership slip away or be squandered away because of regulatory processes that are overly burdensome, unnecessarily cumbersome, and inconsistently applied and out of sync with a changing world.

As aviation stakeholders innovate and seek to compete in a fast-paced marketplace, it is important that the FAA's standards keep pace. Instead of being the unquestioned global leader in bringing innovative products to market, the United States sometimes lags behind the rest of the world in the introduction of new technology. Given the concerns we have heard about the FAA's certification processes, we are looking to our witnesses to hear if there are additional reforms and streamlining efforts needed in the next FAA reauthorization and to ensure that our certification processes guarantee the safety of our system while not inhibiting aviation growth.

With that, I now yield to the ranking member, Mr. DeFazio.

Mr. DEFAZIO. Thank you, Mr. Chairman. Mr. Chairman, I am pleased to be here today and begin the focus of this committee for FAA reauthorization on the certification process. Twenty-eight years on this committee and I have seen a lot of changes. One, I just like to recall, because it points to the balance in the certification process, and that is, when I was early on the committee, I always thought that the old rule is basically going back to the CAB days where the FAA was charged with both promoting and regulating the industry in the interest of public safety were in conflict, and I was assured time and time again they weren't. In fact, in the 1996 FAA reauthorization, my amendment to strip them of the promotional authority was defeated.

A little later that year, a ValuJet went down, and we found that because this was essentially a lack of oversight and accountability with a contractor to a subcontractor, that people had died, and oddly enough, in those days we followed the rules, but somehow they found, even though my amendment had been defeated and was in neither the Senate nor the House bill, I got a call saying where can we put it in the bill. And we put it in the bill, and we stripped virtually all of the promotional, you know, rules and regulations pertaining to the FAA from the bill to make it clear that they are an agency that regulates in the interest of the public and public safety, and that brings us here today.

Certification. It is critical. We have been, as the chairman said, and should and hope to continue to be the gold standard in terms of the safety in the industry. We have been the world leader in terms of innovation, and we need to balance these things as well and as best as we can. You know, I have very little patience for repetitive work, bureaucracy. We need a system that is risk-based, that sets proper prioritization, but it has to also be robust and faultless, and I don't think we are quite at that point on either side.

You know, I am going to ask unanimous consent to put in the record, and I would actually recommend it to members because of the testimony, I read all of it today, it is the most meaningful, it is from PASS [Professional Aviation Safety Specialists], and they talk about problems with staffing. We can't pretend that we don't need to oversee the process even when we delegate, but more and more that is becoming the virtual reality. On the other hand, we can certainly do better on the agency level in terms of not going through repetitive processes.

Again, just ancient history, and I am sure this doesn't go on anymore, but many years ago I was visiting a manufacturer who made the film that goes inside the hull, essentially of the wallpaper in the airplane, and it had passed the flammability standards, and I said that is great, and they said, yeah, but, you know, we have to do it for every type. And I said, what do you mean for every type, and they said, well, you know, like 737–200, 737–300, 737–400. I said it is all the same hull, it is all the same interior, it is all the same flammability standard. They said, yeah, I know, but that is not the way the FAA does it.

I hope that doesn't go on today. That is nonsensical. We need to focus on new technologies. We need to focus on things that aren't

repetitive, things that are risk-based, that, you know, that promote real, you know, potential threats to the integrity and the airworthiness of our aircraft.

I also note in the testimony, and I will get into it with GAO, that I believe that there are some barriers being artificially created by our friends in the EU and elsewhere where they use their processes to disadvantage American manufacturers and advantage their own, or in the case of the Chinese, where they basically ask you to give them every single technical detail and proprietary bit of information on how something was produced but don't worry, they won't copy it before they will certify it, and I don't believe that the FAA has pushed back hard enough against some of these other, you know, foreign civil aviation authorities in the EU and elsewhere to give us a level playing field, and that is something else that warrants examining.

Thank you, Mr. Chairman.

Mr. SHUSTER. Thank you, Mr. DeFazio. And with that, I want to introduce our two witnesses today: Mr. Ray Conner, who is the president and CEO of Boeing Commercial Airplanes, The Boeing Company; and Mr. Aaron Hilkemann, I got it right that time, who is the president and CEO of Duncan Aviation. With that, Mr. Conner, I want you to go ahead and start off with your testimony.

TESTIMONY OF RAY CONNER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, BOEING COMMERCIAL AIRPLANES, THE BOEING COMPANY; AND AARON HILKEMANN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, DUNCAN AVIATION

Mr. CONNER. Thank you, Chairman Shuster. Chairman Shuster, Ranking Member DeFazio, members of the committee, thank you for this opportunity to provide Boeing's perspective as you begin the process of developing legislation to reauthorize the Federal Aviation Administration. I am Ray Conner, president and chief executive officer of Boeing Commercial Airplanes. It is an honor to be here to represent 80,000 Boeing Commercial Airplane employees and the world's largest commercial airplane manufacturer.

Mr. Chairman, I have longer remarks that, with your permission, I would like to submit for the record. My remarks this morning focus on the FAA's ongoing effort with the support of Congress to modernize the airplane certification process. They also address the importance of continuing this effort to both aviation safety and American aerospace competitiveness. Before I address that important topic, I want to make a couple general observations about the industry's shared commitment to safety.

Any discussion of U.S. aviation regulation should begin with this very important fact: Travel on a large commercial jet is the safest form of transportation in human history. More than 8 million people board airplanes daily and arrive safely at their destinations. While there have been some high-profile air tragedies of late, flying today is several orders of magnitude safer than it was 50 years ago.

In the U.S.A. today, a fatal accident occurs less than 1 out of every 45 million flights. This is an extraordinary safety record. It is a great accomplishment for the aviation industry and its regulators, and we have a shared commitment, one that is deeply embedded in the culture of our company to continue to improve. The

FAA's regulatory system and oversight efforts have, of course, been critical pillars of modern aviation's extraordinary safety record. The FAA certifies all Boeing's airplane designs, our production system, and each airplane that comes off our production lines in Washington State and South Carolina.

The FAA's regulatory approach has necessarily adapted over time in an effort to ensure that its resources are deployed where they can most effectively contribute to safety in a rapidly growing and technologically complex industry. The FAA will need to draw upon this tradition of robust and efficient risk-based oversight in the decades ahead as air travel continues to grow.

The last 5 years have been a great example of how Boeing and our industry are expanding. Since 2010, we have increased our production in our factories by 56 percent to meet the strong demand for our products. In 2014, we delivered 723 airplanes to our customers, and we have announced further rate increases in our production, and we expect growth in our industry will continue due to rising demand here and abroad.

To stay ahead of the competition, Boeing will bring several new products to market in the next few years. They include the 787–10, the 737 MAX family, and the 777X. Each of these new airplanes will further improve fuel efficiency and provide other benefits to our customers and the flying public.

The introduction of each airplane will also improve aviation safety as newer and safer airplanes, with enhanced safety technologies, replace older airplanes in the fleet. Of course, each airplane will have to be certified by the FAA, and the large volume of this work poses a significant challenge for the agency. To meet the challenge, the FAA will need to continue its work to modernize its certification process. This will ensure it is making optimal risk-based decisions to deploy its resources in a way that maximize safety benefit and that simultaneously enable industry to efficiently introduce new, safe, and compliant products.

One of the important tools that the FAA has at its disposal is Organization Designation Authorization, or ODA. My written statement includes detailed information about ODA. The point I want to stress here is that ODA has served the FAA, our industry, and most importantly, the flying public very well.

Mr. Chairman, it was gratifying to see the committee recognize the value and the importance of ODA in section 312 in the last FAA reauthorization bill. As you know, this provision directed the FAA to consult with the industry to determine ways to enhance the effective use of delegation, and to consider process reforms and improvements to the certification process. The FAA has made progress since the last reauthorization, and I am grateful for the agency's leadership in driving those improvements.

As I mentioned in my written testimony, there are three areas where Congress could continue to support these efforts: Accelerating the full use of ODA authority, developing and training the FAA workforce, and increasing international harmonization and certification standards.

Mr. Chairman, I really appreciate the committee's support of the FAA's efforts to modernize the certification activities, and with the leadership of Administrator Huerta and the Members of Congress,

I am confident that together we will tackle the challenges I have described, and I want to just thank everyone for the opportunity to be here today, and I am glad to answer any questions that you might have.

Mr. SHUSTER. Well, thank you very much, Mr. Conner.

And with that, we will turn to Mr. Hilkemann so you can proceed with your testimony.

Mr. HILKEMANN. Chairman Shuster, Ranking Member DeFazio, Aviation Subcommittee Ranking Member LoBiondo—excuse me, Larsen is the ranking member. Aviation Subcommittee Chairman LoBiondo, distinguished members of the committee, I would like to just talk a little bit about Duncan Aviation. We are a family-owned business. We began in 1956. We are based in Lincoln, Nebraska.

Mr. SHUSTER. Can you pull your mic closer to you?

Mr. HILKEMANN. Sure. We have over 2,000 employees, including over 500 veterans. We have three major facilities, Lincoln, Nebraska, Battle Creek, Michigan, and Provo, Utah. We have 18 satellite facilities around the country. Approximately 25 percent of our business is from the international foreign registered aircraft. I am currently vice chairman of the General Aviation Manufacturers Association's board of directors, and I also chair our Airworthiness and Maintenance Policy Committee.

I want to begin by commending the FAA for selecting, conducting, and coordinating the Aviation Rulemaking Committee, ARC. This panel was established under the FAA Modernization and Reform Act of 2012. The ARC developed six recommendations that Duncan Aviation supports. I would like to highlight two which I believe are key to assist both the FAA and industry.

The primary recommendation of the ARC was to establish a master electronic database for the agency and industry use. By including internal directives, policy memos, legal interpretations, the FAA and industry could consistently interpret regulations. The second key recommendation of the ARC that I believe is significant is the establishment of the RCCB, the Regulatory Consistency Communication Board. This would enable the FAA and industry to have an arbiter to settle different interpretations of the rules, both within each party and between the parties.

These two initiatives could significantly impact issues that Duncan Aviation and others in our industry encounter. These issues currently involve inconsistent interpretation and application of the regulation, and a lack of effective communication and dialogue during dispute resolution.

Duncan has encountered these issues for our mobile maintenance units in the past 2½ years. It was a process that directly impacted our ability to open additional units on a timely basis while also costing time and resources to resolve. Establishing the RCCB could have resolved this issue in a much more timely fashion. I want to point out that the FAA has recognized the need for more guidance on mobile maintenance units and is drafting additional guidance at this time.

Other improvements in oversight, including reducing redundant audits and moving to a more centralized risk-based approach to safety, the FAA is in agreement and recently issued a paper to ICAO. The upcoming FAA reauthorization offers the FAA policy-

makers and industry the opportunity to work together to promote safety and do so in an effective and efficient manner.

Chairman Shuster, Ranking Member DeFazio, Aviation Subcommittee Chairman LoBiondo, and Aviation Subcommittee Ranking Member Larsen, on behalf of Duncan Aviation, I want to thank you for your leadership and the opportunity to provide this perspective. I will be glad to answer any questions that you have.

Mr. SHUSTER. Well, thank you very much, Mr. Hilkemann, and I will begin the questioning.

Again, it is my concern and if anybody has been in the room with me over the last 2 years you have heard me say this over and over, I am very concerned that if we don't do something in this reauthorization to streamline, to make this work for us, we will lose leadership in the world, whether it is manufacturing aircraft parts, technology or—with the airline industry, I think we are already under attack from our opponents out there in the industry.

The Chinese have said they are going to want to build a commercial aircraft here in the next decade or so, so I think now is the time to really move forward.

Mr. Conner, you mentioned the ODA. Can you talk a little bit more in depth? I know it is in your testimony, but can you talk a little bit more about that and what is going on, and what you see as things we can do to change it?

Mr. CONNER. Yeah. Well, delegation has been around for quite some time, as you know; we have been granted full delegation authority, and what we are trying to do now is just to continue to use it to the largest extent possible. I think, for the most part, we have made great strides in that respect. We have a tremendous number of people that are qualified now by the FAA to do this. We are making strides, but still there are places where we should be moving to more of the risk-based, systems-type approach to these kinds of things where we are focusing our efforts on those areas of true safety concern and technology improvements where the FAA can use those resources and those talents to be able to do that. A little bit too often we are spending more time on areas where we could be the ones that are doing that kind of work.

Mr. SHUSTER. For some of our newer members here, can you explain exactly who works for you and how you train them and the FAA certifies them?

Mr. CONNER. Yeah, we have a—we have an organization that is—a delegated organization that really is, in essence, the arm of the FAA within The Boeing Company. They are——

Mr. SHUSTER. They work for you?

Mr. CONNER. They work for us.

Mr. SHUSTER. But they are certified, and——

Mr. CONNER. They are certified.

Mr. SHUSTER [continuing]. They are responsible for everything?

Mr. CONNER. They are certified and they are approved by the FAA to basically take on that effort, and they take that job very, very seriously, and so we have a large organization that does that already today on areas that are maybe of lesser, you know, safety issues, and you know, interiors and those kinds of things, we spend a lot of time with that.

What we would like to do is move more to the risk-based systems approach, or systems engineering is really the larger piece of this where the FAA spends its time so we can then spend our time with our resources that are highly technically capable and are approved by the FAA. Each individual is approved by the FAA to do that kind of work.

Mr. SHUSTER. And you pay those folks? It is on your dime? You are training them——

Mr. CONNER. It is completely——

Mr. SHUSTER. By Boeing?

Mr. CONNER. It is completely under The Boeing Company's responsibility——

Mr. SHUSTER. Right.

Mr. CONNER [continuing]. In terms of pay and those kinds of things, but they are viewed as——

Mr. SHUSTER. Right.

Mr. CONNER [continuing]. Essentially within our company, as an arm of the FAA.

Mr. SHUSTER. Thank you. And Mr. Hilkemann, can you talk some about the inconsistencies that you have seen out there, actual cases that help to highlight what we are talking about here, because I travel around the country, hear a lot of different things—so if you can give us some concrete examples that will be very helpful.

Mr. HILKEMANN. You know, on the mobile repair station unit we had been—there is a couple of different ways——

Mr. SHUSTER. And mobile repair station is something that goes out to the airplane and actually——

Mr. HILKEMANN. Right.

Mr. SHUSTER [continuing]. Fixes it, rebuilds it?

Mr. HILKEMANN. Exactly. They may have a truck or a van that they use to take the equipment out to. We had approximately 20 of those in place that we had been authorized as a work-away for, oh, probably a 10- or 15-year period. There was a change. They requested us to make a change to that. We wanted to discuss it. We asked for an extension, and normally you have 10 days to respond. We asked for an extension. The net of the story is we ultimately put in the applications at their request. About 6 months later we did start to receive letters of fines for operating in the interim period under that old way. Ultimately, it has been resolved, and today, after 2½ years of a process, we are putting the application back into—change them back to the original process.

So there was clearly a—you know, an indecision on what the correct manner. Neither changed what we were doing. It was really simply a matter of how they would be—under what compliance we were under and what rule.

Mr. SHUSTER. So after 2½ years, you were virtually doing the same thing as you were doing before?

Mr. HILKEMANN. Right.

Mr. SHUSTER. And that is why the RCCB is—is that in place now?

Mr. HILKEMANN. No. No, it is not in place now, but I do think, I feel strongly if that would have been in place and we could have brought that to that committee, it could have been resolved. I think

what happens, and I understand the process, once it becomes a legal matter, then it eliminates our ability to have further discussions, whether it is in Washington or in the region. It makes it a difficult process to get resolved.

Mr. SHUSTER. Well, thank you very much. Yield to Mr. DeFazio for questions.

Mr. DEFAZIO. Thank you, Mr. Chairman.

Mr. Conner, you referred to international harmonization, and I would probably kind of like to have you expand on that, although I know there are oftentimes sensitivities since you do have to deal with some of these foreign entities on an ongoing basis, but you know, the FAA is, you know, say they are working with the European agency on a so-called mutual acceptance model. Do you have any thoughts on that, whether—you know, what sort of a priority that should be, what sorts of problems that could solve?

Mr. CONNER. Yes. Thank you. I think from the standpoint of harmonization with respect to the regulations, I think that there has been a lot of work, really solid work that has been done, where the tendency to be a little bit different is maybe in interpretation of those, of those regulations. And clearly, the Europeans and EASA have taken a far greater approach to delegation than maybe what we have been able to do here with the—in the United States.

But I do believe that the FAA has done a very solid job of harmonizing, particularly with Europeans, around harmonization. Now, as the Chinese start to come into this world, then that is going to be another area that we have got to continue to focus on and are continuing around the entire world as we move forward.

Mr. DEFAZIO. OK. Well, I won't ask you here but perhaps you might opine to me privately on how you see sometimes the regulatory structure being used on competitive or anticompetitive basis, and I would be interested in thoughts on that, but I won't ask you to do that publicly.

Mr. CONNER. OK. I would love to spend some time with you on that.

Mr. DEFAZIO. Yeah, I would love that.

And to follow up on your statements, Mr. Hilkemann, is, you know, one of the parts of the PASS testimony, since I know you are not here representing GAMA, but you know, you do—you are involved with them, and they are saying because—and you know, part of this is, you know, part of this is sometimes a bureaucratic problem, but sometimes it is a resource problem in terms of expertise or actual just people to staff these issues, and they are saying that what is happening is because of the demands on the oversight in other areas and new problems that are having to be dealt with such as unmanned aerial vehicles, that, you know, smaller businesses, manufacturers in avionics and other areas who can't afford to, you know, go to an ODA are getting into a longer and longer and longer line for certification, and do you have any thoughts on that? How we can address that?

Mr. HILKEMANN. Duncan Aviation has an ODA. We have for a number of years.

Mr. DEFAZIO. Get a little closer to the mic.

Mr. HILKEMANN. I am sorry. Duncan Aviation does have an ODA, and we have for a number of years.

Mr. DEFAZIO. Right.

Mr. HILKEMANN. It has been very successful for us as well. There is a lot of work. We had a lot of staff.

In our case, what we are able to do is also hire unit members that we don't have on staff full-time. Because of the variety of the airplanes that we work on, we don't have dedicated unit members for each of the applications that we use, so we hire them as we do—as we need. So that is how some of the smaller companies go about doing it.

I would say there are members on my committee of GAMA, the Airworthiness and Maintenance Policy Committee, that do not have ODAs. And I think it depends on the region on how quickly, you know, they—they could be sequenced or they could not be. You know, I would say in our region, that has never been an issue to my knowledge, but I can't comment about all the other regions, but clearly it can be a challenge in certain smaller companies who don't have or can afford to invest in the ODA.

Mr. DEFAZIO. All right. Do you think prioritization is an issue? I mean, you know, I mean, they pretty much work, at least in my experience in dealing with problems with certification, pretty good as it relates to fire fighting has been a perennial issue in my part of the country. There doesn't seem to be a prioritization process like, OK, fire season is coming, we really need to certify it. Well, there are 15 people who applied for this, this, and this which are not so time sensitive. I mean, do you think the process needs to set some levels of prioritization better or it sounds like your region works pretty well, but——

Mr. HILKEMANN. Yeah, it is difficult for me to answer that question since I am not part of that process at this point.

Mr. DEFAZIO. Yeah. OK. And just from the perspective of Boeing, you know, to me, I mean, part of the solution here is a risk-based system which, you know, where we are looking, you know, not spending much time on routine things, but we are spending time on critical components, do you think the FAA is doing a good job of that or could they do a better job of that?

Mr. CONNER. Well, excuse me. Obviously, I think that we are—we are moving in the right direction. Are we moving fast enough? I think we could do a better the job on some of the things that we are currently involved with. You know, we have 1,000 people that are part of our ODA organization, and we have a tremendous amount of capability. I think it is time that we move to really risk-based approach to this systems engineering, allow us to do the detail engineering and those kinds of things.

Where we sometimes come apart is a little bit on the interpretation of some of the requirements, and we should have a vehicle in which we can deal with that, but, you know, we are—we are working towards it. Are we working fast enough? It is about speed. It is about efficiency and those kinds of things. And with the level of certification that we are going to have coming towards us, in addition to the amount of work that we are having with delivering 723 airplanes, we are going to be doing 4 million hours of engineering over the course of the next few years just on existing programs. That is not to say on these new development programs.

So there is a tremendous amount of work in order for us to continue to deliver airplanes that I think that we could do more of the—of the work that maybe that the FAA is doing today.

Mr. DEFAZIO. All right. Thank you. Thank you, Mr. Chairman.

Mr. SHUSTER. Thank you. And Mr. DeFazio, you asked for a UC. I didn't respond to the UC request to submit a PASS statement into the record. And without objection, so ordered.

[The information appears on pages 135–142.]

Mr. SHUSTER. And now go to Mr. LoBiondo.

Mr. LOBIONDO. Thank you, Mr. Chairman. And I would like to thank the chairman for elevating this issue to the full committee level because of its critical importance. And Mr. Conner, Mr. Hilkemann, thank you for being here. This certification process is critically important on our country's aviation sector, and I know you have touched on this, but for the new members, could you each elaborate on the impact of the FAA's certification process that that has on your company's ability to compete and to innovate, Mr. Conner?

Mr. CONNER. Well, the certification process is one of the key pieces of what we do in terms of getting a new—particularly new products to market. The 787 went through the most extensive certification and approval process in the history of aviation. Tremendous amount of work there. Where I think that we can spend and be better equipped to compete is again around this delegation piece of this thing.

The EASA is more—is working more towards delegation, allowing the manufacturer to do some more of the nonrisk type of items. Going towards a risk-based approach where the FAA is truly involved in the oversight of those highly critical systems, going to a systems engineering approach, maybe changing the workforce in little ways in terms of the—having systems engineering as part of that is, I think, more of the critical pieces here so we can—we can take on some of the more standard things that are common to every one of our airplanes, and they can be focused on those new technologies where—where the risk-based approach can be really utilized to the high—its fullest extent.

Mr. LOBIONDO. Yes. Mr. Hilkemann.

Mr. HILKEMANN. Sure. You know, the two areas that we interface with the FAA is on the repair station and then on the design and modification system, part 21. In both of those areas, you know, I would say we had—our interface with the FAA has been very positive. I think on the ODA side, for what we do, with a lot of insulation, they can range all the way from a complete new cockpit to a cabin management system to a WiFi system to just additional item in the cockpit. Most of those we are able to do under the ODA, almost all those. At some times, the FAA picks and choose to have oversight on some of those, but I would say the majority are done by the—through our ODA, and we approve those in the same manner that Boeing does on their authority. So in our case, I would say the ODA is working and it allows us to innovate and install a lot of new equipment.

Mr. LOBIONDO. Mr. Conner, do you feel that in any way, the FAA's certification process is hampering you with global competi-

tion that is under—dealing with some different standards than you may be?

Mr. CONNER. Well, I think it is dealing with—not standards. It is dealing with different interpretations at times. I think that, we need to be clear. I think the FAA has done a very good job of harmonizing those requirements with the international regulatory authorities.

The area where I think that we can be more effective is in terms of utilizing the delegation that has already been approved to the extent possible. We spend a lot of time in an effort in some of these areas where I think that our delegation could be utilized to a greater extent, and then the utilization of the FAA resources on those more critical areas.

So does it inhibit our ability? It makes things more complicated sometimes. At the very last minute when we are trying to deliver an aircraft, that can become an issue for us. It becomes an issue for us with our customer, can become an issue with us in terms of having to churn our production system a bit to make that happen. I just—I think that this is a place where we can move to the more risk-based approach, and I think that would be in the best interest of the industry, it is in the best interest of the utilization of the resources that the FAA has in their arsenal there.

Mr. LOBIONDO. Thank you, Mr. Chairman.

Mr. SHUSTER. Thank you, Mr. LoBiondo. With that, recognize Mr. Nolan. No questions for Mr. Nolan.

Mrs. Kirkpatrick is recognized for 5 minutes.

Mrs. KIRKPATRICK. I live in Arizona, and I spend about 10 hours a week in the air, so I thank you, Mr. Chairman, for having this hearing because I think a lot about airplane safety. But I have a really practical question. I mean, I am really concerned about certification, but you know, oftentimes—well, not too frequently, but sometimes I am on a plane and the pilot announces there is a mechanical problem and we sit on a tarmac for a couple of hours. What kind of oversight is there over that repair at that moment when we are sitting in the plane? What kind of oversight standards is there—does these certification standards apply to that?

Mr. CONNER. Yeah, but typically the mechanics in the airlines have an authority of which to go fix those kinds of issues. They are not necessarily—I mean, that is within the framework of the airlines, and I probably am not in the best position to be able to answer that, but that is more of an airline maintenance-type of approach to things, and these are things that typically come up every time. They have their own certification process, too, for their mechanics and those kinds of things.

Mrs. KIRKPATRICK. So how may certification processes are we talking about here?

Mr. CONNER. It is hard for me to say. I would——

Mrs. KIRKPATRICK. But you acknowledge there are different certification standards for different——

Mr. CONNER. Well, the airlines——

Mrs. KIRKPATRICK [continuing]. Areas?

Mr. CONNER. The airlines have theirs and then we have ours——

Mrs. KIRKPATRICK. Right.

Mr. CONNER [continuing]. As the manufacturer, yeah.

Mrs. KIRKPATRICK. So suppose we go to the risk-based certification process, how long does it take someone to get to that standard where they can do that?

Mr. CONNER. Well, I mean, that would be something that the FAA would probably be in a better position to be able to—but they have the people today that are able to do that. We are—we have people today that are delegated, trained, approved, like I said, 1,000 people are delegated and approved within The Boeing Company's ODA organization that can do—can approve design, approve installation on behalf of the FAA.

Mrs. KIRKPATRICK. Here is my concern. We have data that shows that there is about 1,000 people shortage in the certification process, so you have 1,000 at the FAA.

Mr. CONNER. At the FAA, yeah.

Mrs. KIRKPATRICK. Right. What I am trying to get to is how can we streamline—what can this committee do——

Mr. CONNER. Yeah.

Mrs. KIRKPATRICK [continuing]. To streamline that hiring process? That is a lot of people. We still have a lot of people who need jobs.

Mr. CONNER. Yeah. Well, we have ours. I think utilizing it to the fullest extent we possibly can in the right areas where there is not the highest risk areas with respect to the airplane itself, that is where we can become—be utilized so they don't have to use their resources unnecessarily. They can retrain or hire new people that are more systems engineering based that can be—provide oversight to those high-risk, you know, flight critical areas as opposed to maybe in some of the areas that we are more capable of and have more detail capabilities around.

Mrs. KIRKPATRICK. Thank you. And Mr. Hilkemann, I appreciate that you are hiring veterans. You know, we have very highly qualified veterans now who are back from Afghanistan and Iraq. Do you find that there could be a streamlining of the certification for veterans who may be already trained to do this kind of work but have to go through the whole recertification process?

Mr. HILKEMANN. What we find, you know, we hire people from all walks of the services. In other words, if they were working on tanks, they were working on aircraft, or if they were working on helicopters, they have a certain amount of mechanical skills that they have learned, and so we are able to hire them directly into our facility. And then, depending on the experience that they receive and their own abilities, they are able to move up very quickly in our organization.

So we don't have a lot of transition. A lot of the bases have their own transition training back into the public sector, so they are coming directly to us. I would say half of those are referrals from existing veterans that have been in our company in the last year, the last few years. So I get to meet every individual we hire through an orientation process, and I always ask them how did you find out about us and why did you decide to join us. And I would say of 50 percent of those are referrals from existing individuals, and in the case of veterans, it is from other veterans.

Mrs. KIRKPATRICK. Well, I appreciate that, and thank you for that. I yield back my time.

Mr. SHUSTER. Thank you very much. And Mr. Hanna is now recognized for 5 minutes. And also, I want to apologize, Mr. Larsen. You were at the top of the list, Mr. Larsen. I overlooked your name. I apologize for that.

With that, Mr. Hanna is recognized.

Mr. HANNA. Thank you, Chairman.

Mr. Conner, maybe you could elaborate on exactly what a risk-based approach is, because it sounds as though there is some margin there that is different than absolute perfection.

Mr. CONNER. Well, OK. First of all, I want to just drop back. You know, we talk about workforce training and development, and it is very important that we have the right skills not only within the FAA, but also within The Boeing Company to do these types of things. Systems engineering is very critical in this approach. Risk-based is about those flight critical pieces of the airplane, elements of the airplanes. Where maybe——

Mr. SHUSTER. Excuse me, Mr. Conner. Can you pull those mics closer to you? It is better the closer you get. We can hear you better.

Mr. CONNER. All right. Thank you. I didn't want to shout.

Mr. SHUSTER. I want to hear everything you have to say.

Mr. CONNER. OK. Where we can probably spend more of our time is on interiors' certifications, seats, lavatories, galleys, those kinds of things. We spend an awful lot of time in these areas, and this is where our customers, our airline customers want to differentiate themselves against their competition, and that is where we can spend more of our efforts whereby allowing us to take that——

Mr. HANNA. You want more responsibility over——

Mr. CONNER. Well, I want more responsibility——

Mr. HANNA [continuing]. Certain items?

Mr. CONNER [continuing]. In the right areas. This is where I want to make sure that I make myself very clear. We are not looking to eliminate. We are looking to make sure that we are working with the FAA on the right things and we are taking the right approach to these things.

Mr. HANNA. Let me ask you about Airbus for a minute.

Mr. CONNER. Yeah.

Mr. HANNA. They have a different system over there. How do you feel that you have—do you have a competitive advantage or disadvantage, and how does the FAA play into that for your whole company?

Mr. CONNER. Well, the FAA works with EASA, and then they come back and they validate the certification of which EASA has done on their—on the Airbus aircraft. What we do know is that the Airbus utilizes delegation to a further extent than probably we do. To what extent exactly, I couldn't speak to that. I think maybe the FAA could have a better feel for that, but we do know that their delegation, they have taken advantage of a greater portion of the delegation in areas such as interiors, in areas such as the things I just spoke about.

Mr. HANNA. So safe to say that you are at somewhat of a competitive disadvantage?

Mr. CONNER. Well, if we have to spend a lot of time in redoing or if the FAA is coming back and redoing some of the things that

we have already done, then that—I think it is just not a great utilization of either one of our resources.

Mr. HANNA. I understand.

Mr. CONNER. That is probably better—it is not nearly as efficient as it could be, and that then causes disruption within our production system, it causes disruption into the value stream of our suppliers, and it causes disruption to our customers as well.

Mr. HANNA. Uh-huh. Thank you, Chairman. I yield back.

Mr. SHUSTER. Thank you. With that, Mr. Larsen.

Mr. LARSEN. Thanks. So just to get some perspective here. I visited a small manufacturer up in Anacortes in my district, and they make a variety of components for smaller airplanes, including things called vortex generators, which I am sure Mr. Hanna knows all about since he flies smaller airplanes, but you know, the smallest one no longer than probably my thumbnail, and that has to get certified, it goes on the airplane.

For some perspective, except for the—except for the airplane itself on delivery, how many usual parts and components in a 737 approximately have to have an FAA stamp, metaphorical stamp?

Mr. CONNER. I mean, I don't know. Well, that is—I mean, every one——

Mr. LARSEN. Every single piece.

Mr. CONNER. Look, we go through a certification process of not only the production system, which includes the supply chain, but every part ultimately that is part of a design because the FAA certifies our design, and every single part then has to be certified.

Mr. LARSEN. So when you talk about the existing plans as well as future plans you are going to be designing and building——

Mr. CONNER. Yeah.

Mr. LARSEN. Each of those come with the same or different production process?

Mr. CONNER. It could, depending on what we do with technology.

Mr. LARSEN. And so the process itself as well needs to be——

Mr. CONNER. Yes.

Mr. LARSEN. If it is a new process, needs to go through a certification as well?

Mr. CONNER. Yes, yes.

Mr. LARSEN. So we are not just talking about parts and components?

Mr. CONNER. No.

Mr. LARSEN. We are talking about not what you make only, but how you make it?

Mr. CONNER. What type of system have you—when I talk about the production system: Are the quality inspections appropriate? Have you followed the intent of the planning documents and the engineering intent of what we put into the design? Those are all the same things that are a part of this certification process.

Mr. LARSEN. Yeah. So in all—again, it is not just the what you make, but it is how you make process as well.

Mr. CONNER. Yes.

Mr. LARSEN. So in terms of the how you make side of the production process, how much of that is currently ODA-related and how much of that is——

Mr. CONNER. We do an awful lot of that work ourselves, and then the FAA comes in and certifies our production system, and they do audits to verify those types of things, and we do audits ourselves, and we are—and it is a constant—it is kind of a—the production system is constantly being evaluated and audited.

Mr. LARSEN. Yeah. And in terms of the FAA inspectors that come in and do the auditing, you discuss, as your second point, the necessity of training——

Mr. CONNER. Uh-huh.

Mr. LARSEN [continuing]. An FAA workforce. I mean, do you have an estimate of what numbers of people? Do you have an estimate of how to train? What FAA ought to be training in?

Mr. CONNER. Well, I think the one place I would want to emphasize is the systems engineering piece of this thing as being a critical part to start to move towards as opposed to detailed design type of activity. That is where we—that is where we can be very helpful in that respect because we have the detail design capability and analysis and those kinds of things. Where they can become at a higher level and be looking at it more from a systems approach to that.

Systems engineering, I think, is one of the areas that will be an important piece of the workforce training for the FAA.

Mr. LARSEN. Yeah. And it talks about the supply chain as well, which is extensive for you and your main competitor——

Mr. CONNER. Correct.

Mr. LARSEN [continuing]. Throughout the country, around the world.

Mr. CONNER. Uh-huh.

Mr. LARSEN. How do you—how is that managed through ODA, and are there any changes that need to take place, or is that all—you don't deal, or you don't deal with that part?

Mr. CONNER. No, no, we deal with that part as well. We go in and we establish the production system. The FAA comes in and—which includes our supply base, and they come in and validate that as well through their audit process.

Mr. LARSEN. Yeah. Yeah. Thanks. Thanks for that.

Mr. Hilkemann, you mentioned that at least it has been your experience, I guess, that the ODA that you have, that you haven't had many—how you described it, many problems with inconsistent interpretation, perhaps, at least in your region; is that right? Is that what I heard you say?

Mr. HILKEMANN. Implementation and use of the ODA has worked well for us in our region.

Mr. LARSEN. OK. Have you had—do you have concerns or how should we address concerns that we hear about inconsistencies region by region?

Mr. HILKEMANN. Well, the inconsistencies have been more on the repair station interpretations as you get new inspectors and additional inspectors. I think if you look at the ODA, the more responsibilities, the more things that the ODA can do, because some ODAs are very limited.

Mr. LARSEN. Yeah.

Mr. HILKEMANN. The more things that the ODAs can train themselves, add staff to, and develop, in effect, you are decreasing that

thousand, you know, requirement jobs that you talked about that the FAA would need, or you make the resources available for those small companies that was suggested—you know, suggested is out there or concern for the smaller company.

So I think, you know, if we can get all the ODAs operating at the highest level possible and additional delegation, in effect, that reduces the need for additional inspectors and creates capacity for the rest of the system.

Mr. LARSEN. All right. Good. Thanks. Thank you, Mr. Chairman.

Mr. SHUSTER. Thank you. Mr. Rice is recognized for 5 minutes.

Mr. RICE. Thank you, Mr. Chairman, and thank you, gentlemen, for being here today. And Mr. Conner, particularly thank you for American excellence in aviation, and for employing so many thousands of the people in South Carolina. I appreciate that very much.

Aviation is certainly a shining light of American manufacturing and one area in which we maintain our leadership role in the world. I am focused very much on American competitiveness, and I have seen over and over and over again in my 2 years here in Congress how Government regulation too often, in the name of protecting the public, makes us less competitive and actually does very little to protect the public. That being said, if we sacrifice safety in American aviation, then we won't be competitive in that area very long, so I am sure you guys have a vested interest in that and that you need to make sure that that record of safety is maintained, and you don't want to do anything to compromise that.

Now, from what I understand, Mr. Conner, you are saying that the FAA is now looking at areas that don't necessarily deal with flight safety but more things within the plane that don't deal with its flight, like the interior of the plane, the lavatories, and the kitchens.

Mr. CONNER. Those are just examples, yes, yeah, correct.

Mr. RICE. Do they spend a significant amount of time dealing with these things that have nothing to do with the flight of the plane?

Mr. CONNER. We spend a lot of time in these areas to certify the airplanes, particularly the airplanes that we are delivering today. Maybe not nearly—not as much on the new development projects, but particularly in the areas that we are delivering today, yes, we do spend a lot of time in that.

Mr. RICE. Now, and you have certified FAA inspectors on your payroll?

Mr. CONNER. And engineers, yes.

Mr. RICE. Have you people or airplane manufacturers gone to the FAA and said, look, maybe you should be focused on areas that deal solely with the flight safety of the plane and not with what color the interior of the seats are and that kind of thing?

Mr. CONNER. Yeah. Well, yes, we have.

Mr. RICE. And they still want to focus on these collateral matters?

Mr. CONNER. Look, I think that—I want to make this clear is that we are working very closely with the FAA to move in this direction. What we would like to do is take advantage of the—or utilize the level of authorization that we do have from an ODA per-

spective so we can better utilize the resources that we have and better utilize the resources that the FAA has.

Mr. RICE. Have you run any estimates of the cost in money and/or time to deal with these collateral issues with the FAA? Not with flight safety but interiors and lavatories and——

Mr. CONNER. Well, I mean, we—for now, it is more anecdotal, but I can tell you that we spend an awful lot of time, so like we haven't necessarily—I don't have the data right in front of me, but it is something that we could probably compile over the course of time here, but I would just say that it is an inordinate amount of time spent sometimes on seat certifications, on interior certifications, on lavatory, galleys, these kinds of things, so I think that we have the capability to do a very good job.

We are highly trained in these areas. These are things we deal with every single day, and we have a full ongoing commitment. Our reputation as a company, as an industry, is built on safety, and I can tell you it is the top priority of every single individual within our company, and we are constantly working to improve the safety of our products, and we get that feedback every day from operations, from our customers, from our suppliers, and we work to enhance that constantly.

Mr. RICE. I don't want you to disclose any trade secrets here, but it would be safe to say with commercial aircraft being a relatively expensive item, that the markup is probably pretty low on these things, isn't it? The profit margin is not real high.

Mr. CONNER. No, it is not, and it is getting more difficult all the time. Our competitor is extremely aggressive in the marketplace, and they are very much focused on being the number one manufacturer in the world, and that would be Airbus and then with the advent of the Chinese, they are going to be coming as well.

Mr. RICE. And so with the ever expanding U.S. Government bureaucracy eating into that profit margin, it makes you a little less competitive in the world?

Mr. CONNER. Well, I think the most important thing here——

Mr. RICE. I know I am using terms that you wouldn't use.

Mr. CONNER. Yeah. Well, the most important thing is to continue to drive efficiency, speed, in the areas that are appropriate without compromising safety at any single level. Sometimes I think we are duplicating efforts, and that is where we want to move away from and allow the FAA to really focus on those things that are most critical to the safety of flight of our aircraft.

Mr. RICE. Thank you very much, sir, for being here, and again, thank you, both you gentlemen, for excellence in American aviation.

Mr. CONNER. Thank you.

Mr. SHUSTER. Thank you, Mr. Rice. And with that, Mr. Huffman from California is recognized. Do you have a question? OK. And I just want to take this opportunity to welcome you to the committee, and I understand you are going to be joining us this Congress, so again, look forward to working with you.

Mr. HUFFMAN. OK.

Mr. SHUSTER. Ms. Norton. Ms. Norton is recognized for 5 minutes.

Ms. NORTON. Thank you very much, Mr. Chairman. This is an important hearing.

Mr. Conner, I note—your pages aren't numbered like my students in my law class, but it is under "Delegated Authority."

Mr. CONNER. Yes.

Ms. NORTON. You go to great lengths to commend FAA's delegated authority.

Mr. CONNER. Yeah.

Ms. NORTON. You say there are stringent FAA requirements. You say you are held to very high standards.

Mr. CONNER. Correct.

Ms. NORTON. You talk about rigorous and closely overseen ODA systems. I wonder how you reconcile this glowing report with what the DOT and IG and the GAO have said and how they have criticized.

Mr. CONNER. Yeah.

Ms. NORTON. It seems to me it is fair to say sharply criticized both of them. These are independent overseers. Sharply criticized FAA oversight of certification programs. How do you reconcile your glowing report with these criticisms?

Mr. CONNER. OK. Thank you. I appreciate the question. I can tell you, it is a very stringent process in which we go through to achieve delegated authority, both on a companywide basis and on an individual basis, and it is constantly evaluated over again and over again.

Ms. NORTON. Well, let me just ask you about being constantly evaluated. There has been sequestration. There have been cuts. There have been furloughs. How often are you audited?

Mr. CONNER. I would have to ask for help on that, but——

Ms. NORTON. Well, I wish you——

Mr. CONNER. I can tell you, we are audited on a production system and on a design basis at least once a year, and it goes to our supply base—it goes not only to us. It goes to the supply base. It goes to all our facilities. The FAA is—in terms of auditing, they are quite often.

Ms. NORTON. So you see no shortage of personnel that had an effect or the cuts or the sequestration. You see none of that reflected?

Mr. CONNER. No. We were impacted by sequestration. We were not able to deliver airplanes on time because we were not able to get appropriate FAA inspectors to come in at certain times. They were limited in terms of their overtime capabilities. They were limited in terms of their ability to support in terms of certain critical inspection processes that come with the delivery of an airplane. So there were impacts from the standpoint of being able to deliver airplanes. Now——

Ms. NORTON. I think it is fair to put it on the record because if there are deficiencies, the question is going to come forward, are the deficiencies on your part or were those charged with oversight not doing their job? And I think it is important to note that you have testified that sequestration and cuts have had an effect on the ability of FAA to do its audits.

Could I ask you something about——

Mr. CONNER. Well, the audits take place, detailed, formal audits take place every 2 years. And then we do constant informal audits as the years—as time——

Ms. NORTON. So they are meeting the minimum requirements?

Mr. CONNER. Yeah. Well, that is the requirement.

Ms. NORTON. Could I ask you something about Boeing and noise or airplanes and noise?

Mr. CONNER. Noise.

Ms. NORTON. We are in a region—and this is typical of the United States, large cities, quiet suburbs—there have been real complaints about noise, and we find that what happens is that airplanes get rerouted. Well, if they get rerouted, for example, from the Nation's Capital, they are going over suburban Virginia, so then they complain.

Mr. CONNER. Uh-huh.

Ms. NORTON. Are you able to improve the noise levels of aircraft today at a rate that would satisfy these issues and what is going to be a situation where everybody's going to live in an impacted environment, even those who live in the suburbs?

Mr. CONNER. With each new airplane we bring to market, we are required to satisfy certain noise levels. And those noise levels get more stringent with each new airplane we introduce. And so, yes, I would say that we are complying to those strict standards.

Ms. NORTON. So those are part of the standards that you have to comply with?

Mr. CONNER. Yes, absolutely.

Ms. NORTON. So I will save that question for the FAA.

Mr. CONNER. Yeah.

Ms. NORTON. Finally, could I ask you, concerning international flights, your honest view, whether you have any compunctions, any fear, any sense that you should bring to our attention about these disastrous international accidents that have happened recently on international airlines? I want to know if you believe their counterpart oversight equals ours. I, of course, refer to the Malaysia Airlines, the most recent one, and, of course, to AirAsia.

Mr. CONNER. You know, I think it would be inappropriate for me to comment on those because they are still under investigation. We really don't know at this particular point in time. Once we do know, then we will be able to make——

Ms. NORTON. But on a peer basis, in dealing with these airlines, do you have confidence in airlines on an international basis that they are being held to the same kind of standards that you regard as rigorous that you are being held to?

Mr. CONNER. If they are certified, yes, they are.

Ms. NORTON. Thank you, Mr. Chairman.

Mr. SHUSTER. The gentlelady's time has expired.

Mr. Davis is recognized for 5 minutes.

Mr. DAVIS. Thank you, Mr. Chairman.

Thank you to both the witnesses.

Mr. Conner, I want to echo what my colleague Mr. Rice said about Boeing being an employer in his State. And thank you for what you do in the passenger side but also on the defense side to my constituents who work just across the river in Illinois from St. Louis. Anytime you would like to bring any South Carolina jobs

over to Illinois, we would be happy to work with Mr. Rice on a good compromise.

Mr. CONNER. OK. I will keep that in mind.

Mr. DAVIS. Thanks. Thanks.

Mr. Conner, in your testimony, you stress the importance of FAA delegating authority so it can shift its focus from low-risk items to higher level safety opportunities. Can you provide an example where the FAA still retained a low-risk item, and what reason did the FAA cite for retaining that low-risk item, and what kind of impact kid it have on your certification process?

Mr. CONNER. Well, you know, I want to stress here too that we have worked very well with the FAA on moving towards this delegation, and I think the leadership of Administrator Huerta, his staff, I think we are moving in a positive direction. The degree of which we move and the speed of which we move are areas where I think that we could improve on.

As I said, the areas of interior certification, whereby our customers want to have more control over how they differentiate themselves, but still staying within the requirements of the engineering design and the intent of the design and those kind of things, we have a lot of capability in these areas. These are areas where I think that the FAA could move a little bit more toward us doing more of the delegation—areas of galleys, areas of laboratories, areas of seats, areas of side walls, overall interior certification.

These are things that we do all the time, and I think that we spend—there is duplication of effort, and that is where we could then utilize their resources to work on some of the more critical items and use our resources to work on those because what we have today is both working in the same direction. But I do want to emphasize that we have worked very well in moving towards this. It is now—we are just getting to these points of the speed at which we move and the degree of which we move.

Mr. DAVIS. You outline a number of steps the FAA and this committee can take when crafting our new FAA reauthorization. What is, in your view, the most critical step?

Mr. CONNER. Utilization of the ODA. And one of the critical things is getting the workforce trained in a different way, in more of the systems engineering type approach. Now, this will take time. It is a cultural change, moving away from maybe some of the more detailed design effort, which we do and which we are approved to do and which we have an ODA delegation that would allow us to approve those things, but moving, again, toward more of that risk-based oversight, utilizing systems engineering type approach. So this will require some transition on the FAA's part from the standpoint of training and some of those other things.

Mr. DAVIS. OK. I have a little bit of time left. I am going to ask you one more question. The NTSB recommends that the FAA and manufacturers utilize outside experts when certificating new technology.

Mr. CONNER. Yes.

Mr. DAVIS. They believe it could be the most efficient way to ensure operations safety.

Mr. CONNER. Yes.

Mr. DAVIS. Do you use independent outside experts when certifying new technology, and can you give me an example?

Mr. CONNER. Yeah. I think that is a very good point. There was one, you know, we had the battery incident a couple years ago, and this is one where we complied with all the requirements that were known at the time. Everything was certificated. Most extensive certification ever. When we had the incidents, we drew on that outside expertise, from the automobile manufacturers, from different places. I think where we move, as we move to new technologies that are maybe being utilized in other areas, this is where we, as a community, FAA and ourselves, can draw on some of that industry knowledge to help us in terms of how we move forward and apply those to the aircraft.

Mr. DAVIS. OK. Mr. Chairman, I will yield back the balance of my time.

I thank you both.

Mr. SHUSTER. Thank you, Mr. Davis.

And Ms. Frankel is recognized for 5 minutes.

Ms. FRANKEL. Thank you, Mr. Chair.

Thank you to the witnesses.

Well, I can say this about most of us probably here is that we are experienced amateurs at flying; we do a lot of flying.

Mr. CONNER. We all are.

Ms. FRANKEL. Yes. And I actually feel rather safe when I fly, but I think the scariest thing for me and for probably most people is—for the customer, talking about the customer—is that when you get on the plane, you feel you have completely lost control of your life. Unlike a car, where if you hear a rattle or something, you can pull over. When you are in an airplane, it is like you are depending on somebody else. I mean, there is really not much you can do. You put your seat belt on, hold somebody's hand.

So I am not so sure I actually understand or maybe agree with, if you are saying that there are certain elements of the design of the plane that should not have an inspection by an independent party—is that what you are saying?

Mr. CONNER. No.

Ms. FRANKEL. I mean, for example, a bathroom.

Mr. CONNER. No.

Ms. FRANKEL. OK. So how would that work?

Mr. CONNER. Well, we are authorized. We have delegated people. These people are essentially the arm of the FAA. Although they are paid by us, they are within our organization, they are approved individually by the FAA. They carry the FAA authority, in essence. And we take that very, very seriously. Each individual takes that very, very seriously.

And I would say, when you get on an airplane, just know that the safety of that aircraft is the number one priority not only for everyone in our organization, but it is the priority of the FAA, and any other people involved in building or certifying the airplane.

But I can tell you, I am not saying our people have those capabilities as well. We are just saying in those areas where we have that capability, we have that strength, that are less flight-critical, that is where we could be utilizing those capabilities to a greater extent.

Ms. FRANKEL. But there would be circumstances where an uncomfortable passenger could lead to a dangerous situation in a cabin, correct?

Mr. CONNER. But that is not going to—I mean, sure. That happens, yes.

Ms. FRANKEL. So getting back to, I think, the focus of what you are trying to say is you are looking for safe ways to speed up getting the aircraft out into the marketplace.

Mr. CONNER. More efficient ways.

Ms. FRANKEL. More efficient ways. The problem right now, would you say, is it not enough inspectors? Not enough competent inspectors? Or a lack of focus of what is important?

Mr. CONNER. No, I think we have enough resources. Between the FAA and ourselves, we have enough resources to make this happen. It is how we utilize those resources in the most effective way possible so we can ensure that we maintain a safe and compliant product while still being efficient enough to be able to compete in the highly competitive aerospace industry.

Ms. FRANKEL. I still do think there is some power and influence when you are signing the paycheck. Is there any other independent person who could——

Mr. CONNER. Well, the FAA comes back in and—at any moment, they could come back in and evaluate that to make sure that we are doing exactly what we said we would do. And we are required through the ODA process on the individual basis to make sure that they are. Every 2 years, they come in and they audit our entire production system, which includes that.

Ms. FRANKEL. So could you just give some more concrete examples of what you would take off the list?

Mr. CONNER. Take off the list in terms of their——

Ms. FRANKEL. Yeah.

Mr. CONNER. Well, I would certainly, as I said, the interior aspect of the airplane, these are places where we could do more of the work, OK. These are things. Systems, how the systems interact with each other, how they interact in terms of flight, those kinds of things. When I say "systems," you know, it is about engines, it is about the flight controls. Those are the areas where I think that the FAA, from a risk-based—those are high-risk or risk areas in terms of flight that they could spend more of that energy in those areas and do them on a systems risk-based oversight basis.

Ms. FRANKEL. Thank you.

And, you know, Mr. Chair, I would just request, I don't know if there is anybody who could give us the other point of view or the view of the FAA, that would be of interest to me.

Mr. CONNER. I think they are.

Mr. SHUSTER. Stick around for the next panel.

Ms. FRANKEL. All right. Thank you. Thank you.

Mr. SHUSTER. And I think it is important, sometimes I think this goes without saying, but it needs to be said, Boeing and Mr. Hilkemann, they want those planes to work. They can't afford to put a plane out—I mean, that is your business.

Mr. CONNER. Chairman Shuster, our entire representation, our ability to sell, our ability to operate is built——

Mr. SHUSTER. Absolutely.

Mr. CONNER. We are a 100-year-old company, and for us to maintain that reputation that we built over the course of time is completely dependent on the ability to deliver and operate safe airplanes.

Mr. SHUSTER. Absolutely.

Mr. CONNER. That is the number one priority of every individual within the company, and if we ever find anyone deviating from that, they are immediately dismissed.

Mr. SHUSTER. Mr. Hilkemann, you echo those same sentiments for what you do?

Mr. HILKEMANN. One hundred percent. It is the most important thing for us. You know, our reputation is only as good as the last aircraft we delivered, so every aircraft has to go out.

Mr. SHUSTER. Absolutely. Thank you.

And next is Mr. Hardy.

Mr. HARDY. Thank you, Mr. Chairman.

First, I would just like to thank the chairman for the opportunity to be on this committee. Being involved in the construction industry, being involved in the regional transportation commission for many years in my State, I feel like I am well versed in many of the issues on this committee and appreciate that opportunity to be here.

Mr. SHUSTER. Mr. Hardy, I think you have got a bad mic. Do you want to scoot over?

Mr. HARDY. How about that?

Mr. SHUSTER. It is breaking up somewhere. Move over one chair and try to use someone else's mic. Thanks.

Mr. HARDY. Thanks. Can you hear me in now?

Anyway, being a new member on this committee, I would like to ask a question, a little out of line here, but in the past, on these reauthorization regulations that are set up, is there collaboration between the private sector and the public sector on the efficiency of this? And the reason I bring this up is, the State and local levels all over the country, because of this recession, have got together and been in the construction industry. We have worked together with those State and local entities to create a program to where we can build bridges and tunnels and dams more efficiently, cost-effectively, and still maintain a high standard of safety. So is that done in this process with the FAA?

Mr. HILKEMANN. From Duncan Aviation's standpoint, I guess I would look at it from GAMA, the Airworthiness and Maintenance Policy Committee. We have been in existence now for I think around 3 years, and I think almost at every meeting we have had, we have had an FAA representative there who can discuss issues and concerns and things that we are seeing in the industry. And so that was probably the genesis of the additional guidance on the mobile maintenance unit.

So, from our standpoint, it is very positive to have that interface. Everyone that is on that committee walks away saying, we are glad we came to that last meeting. And, you know, the feedback I have received from the FAA has been the same. So it is a great resource, and anyone who is not on the committees, they are losing out on a lot of opportunity to interface and have feedback back and forth.

Mr. HARDY. Thank you.

Another question I have. Mr. Conner and Mr. Hilkemann, you both have a vast amount of experience. You know your companies and industries very well. Instead of us telling you how to run your company and how we should restrict you, could you maybe elaborate a little bit on—tell us how regulations should be structured if you were in charge of the bases? And also please share with the committee the regulations that are hindering your company that pertains to your industry.

Mr. CONNER. Well, I think the regulations as they stand are, you know, I think it would be out of my experience to talk about, you know, what we should do with reform and such. But we have a good set of regulations. How we apply those regulations, how we manage those regulations, those are the things I think that we, as the company in working with the regulator, can spend more time.

I mean, beyond interiors, there is a number of different places where compliance is well known, well understood. We have done these things over and over again as an industry where we could take some of that, you know, relieve some of that burden from the FAA as well. I think this is more about taking what is there and applying it in a most efficient way so that both the FAA and industry can work in the most efficient way possible.

Mr. HARDY. Thank you, Mr. Chairman. I yield back.

Mr. SHUSTER. Thank you, Mr. Hardy.

And seeing no one on the Democrat side, Mr. Rouzer—who is on the Democrat side, actually.

Mr. ROUZER. Looks can be deceiving.

Mr. Conner, Mr. Hilkemann, I appreciate you all coming forward today. And, by the way, it is good to be up close and personal here.

I have just one quick question for you. I come from a policy background but also a business background as well, and anybody who has been in business understands that time is money. My question is, and we have been all around it, and I am just wondering if there is a concrete answer: How long does it take you to manufacture a plane from start to finish under the regulatory apparatus that we have today?

And then the followup question to that is: If we implement—or FAA is able to implement this risk-based approach that you have outlined several different times, how much does that save you on a time front, or is it more of an efficiency in terms of lower costs so, therefore, you can be competitive as well?

Mr. CONNER. It is a little bit of both, actually. I think that we can move a little quicker in the development aspect of things. That is typically, you know, developments in 5, 4 years type from start to finish with a new airplane. On an existing airplane, that varies depending on the airplane type in terms of start to finish, but where we could be more efficient, it is just about efficient and how we bring those airplanes actually into the hands of our customers. That is really where I think that things could be much better for us.

Mr. ROUZER. Mr. Hilkemann, do you have any comment, follow up?

Mr. HILKEMANN. No, I don't think so.

Mr. ROUZER. Thank you, Mr. Chairman.

Mr. SHUSTER. Thank you, Mr. Rouzer.

Mr. Gibbs is recognized.

Mr. GIBBS. Thank you, Mr. Chairman.

Mr. Conner, Boeing—I am over here—I want to commend you for—it is really exciting to hear about the increase of employment and planes you are building and new orders. That is exciting. And I want to kind of follow through a little bit on Mr. Hanna's questions about foreign competition and the regulatory structure. And I realize we have agreements with them and the FAA, and I am sure the airlines get involved.

And then, also, Mr. Hilkemann, on your written testimony, it kind of comes together a little bit. In your written testimony, you say there is frequent and redundant surveillance activities, many of which are conducted by foreign aviation authorities, duplicate similar efforts while producing low, additional value. And some of it is done by foreign authorities.

So I am trying to—you know, I think, Mr. Conner, you said that the bureaucracy sometimes, you know, takes longer, than what maybe it takes some of your foreign competitors.

And, Mr. Hilkemann, having run the largest maintenance, repair, and overhaul business in the United States, in this regard, you know, how level is the playing field? Or would you say the foreigners come in and cause the most problems? And see where I am going here. Can you kind of expound on what our challenges are to get our efficiencies in place so Mr. Conner can be competitive selling airplanes?

Mr. HILKEMANN. Sure. To give you an idea of what we see in terms of redundancy, each week, we get about four or five paperwork audits a week that are sent into us. It is a requirement for most of the charter operators to conduct that and to send that to us. But we also have customers that follow those same standards. So that is happening on a weekly basis.

On a monthly basis, we are audited by the FAA at one or multiple sites of our facilities.

And then, on an international basis, we have six to eight international entities coming in for approximately a week throughout the year. And those are the audits that we pay for, either through license fees and additional audits. Some may stay for 2 or 3 days. Some may stay up to a week. So those are happening on a bimonthly basis.

Mr. GIBBS. Just to follow through with Mr. Conner then, would our American Airlines customers have the ability to go do that on foreign competition, airplane manufacturers like Mr. Hilkemann just kind of described?

Mr. CONNER. Well, when they go to pick up an airplane, then they typically would walk the airplane. They will buy off on the airplane, saying it meets their requirements. They will fly it and make sure that everything is to what they expect it to be. They will walk the interior to make sure that it is everything they expect it to be. A lot of situations, we have airline inspectors within our factories watching the airplane as it is built and approving in different stages of the build process.

Mr. GIBBS. I think you also mentioned the Chinese are getting into the airplane export.

Mr. CONNER. Yes. Well, they are beginning the process and starting to manufacture, yes. They haven't delivered yet, but——

Mr. GIBBS. They haven't delivered, but the process is being started, just from a safety aspect, since their planes, you know, would theoretically be flying over our skies——

Mr. CONNER. Sure.

Mr. GIBBS. We will have to have—the FAA, United States Government—will have an agreement with them?

Mr. CONNER. Yes.

Mr. GIBBS. It would be similar to what you have, I assume, with the French Government.

Mr. CONNER. And the FAA goes, with our airplanes, to be able to get certified in China or any other country, we work with their regulatory agency to get our airplanes certified as well.

Mr. GIBBS. OK. So I guess, you know, since we are looking at another FAA reauthorization, obviously, this is an issue that you are concerned about for the efficiency, so I assume you have probably got some more information you might want to share or——

Mr. CONNER. Well, I think one of the things that we want to—as part of this process, it is very important that we maintain the FAA as the gold standard in the world. And, therefore, having a presence in the international arena is very important. Supporting them, being in countries, working with the other countries, having people there, for instance, in China, some of these other places, where they can create influence, where they can actually do some things, working more closely and supporting them, being in different places around the world so they can make those kinds of things; that is very important as a world leader to be visible and active. And we support that fully.

We believe that the FAA should be the leading regulatory agency in the world. And there are agencies around the world, EASA and I would imagine that the Chinese would want to move in this direction too—they want to be the leader, and they are going to push the envelope to make sure that they are. So, from a regulatory standpoint, we are in a competition too.

Mr. GIBBS. OK. Thank you, Mr. Chairman.

Mr. SHUSTER. Thank you, Mr. Gibbs.

Mr. Duncan.

Mr. DUNCAN. Well, thank you, Mr. Chairman.

Mr. Conner, you mentioned that your company had had a 56-percent increase in business over the last 5 years, and some of those years weren't the best years.

And Mr. Hilkemann, I was wondering if you have had a similar increase in business.

And the first question I have is, what do both of you gentlemen see over the next 2 or 3 years? Do you see that business increasing even faster, or what do you see in that regard?

And then I have a second question: I chaired the Aviation Subcommittee for 6 years, from January of 1995 to January of 2001, and I was hearing these same complaints back then. Mr. Hilkemann mentions inconsistent interpretation and application of regulations, lack of effective communications in dispute resolutions. I am wondering, both of you have had ODAs now.

Mr. Conner, you said for 6 years, I think.

And, Mr. Hilkemann, you said for several years.

And then you have this section 313 advisory panel that put out a report in July of 2013, a year and a half ago.

Are we making some progress? Big progress? I mean, what do you see on those things, since we were hearing these same things years ago? So those two questions from both of you.

Mr. HILKEMANN. All right. In terms of growth, our business is heavy maintenance. And it is usually done 6 to 12 years after the aircraft are manufactured. So that is the bulk of our business. So we benefit from deliveries that occurred in the last 10 to 15 years. And even before the recession, we had record levels of deliveries in our industry. So because of that inaction in our industry, the large and ultra large aircraft continued to be sold during the recession—worldwide, more outside the U.S. than in the U.S.

But because of that, our business is still projected to grow. We have recovered the volume that we lost during the recession. We probably have grown—I think the numbers, if I look at it, from about $300 million to about $500 million today since 2009. So we have recovered the portion that we lost during that first year in the recession, and we have increased that. So that is on a positive standpoint.

As far as what progress have we made, you know, I think, on the ODA side, we have made progress because we have had more authorities and we can do more things. On the repair station side, we currently have 56 auditors that audit our facilities. And when you do that, you have 56 opinions. Now, those are managed through Lincoln—it is called ICAO—our managing office in Lincoln. But, clearly, when we have changed back to having that number of inspectors, you are going to have differences of opinion.

So, for about 12 years, we were in a certificate management unit where we had dedicated inspectors. We had five in Lincoln. We had three or four remote inspectors that were full time with us. I think the positive thing from that is it showed us that there were a lot of things over the years prior that created inconsistencies. We were able to fix those. We do have some concern. It is too early to tell you that it is going to be better or worse, but we do have some concerns when you have the quantity of the inspectors that we have today under this new system.

Mr. DUNCAN. All right. Mr. Conner.

Mr. CONNER. Yes. Well, do I see our business growing? Yes. We have committed to higher production rates in the next few years. There are 36,000 airplanes in demand over the next 20 years. About a third of those are already in the backlogs between ourselves and our competitors. But I do believe the next few years will determine market leadership for many years to come, so we are in a very highly competitive market as we stand today. One of the reasons why we are bringing these new airplanes to market is so they can compete better.

With respect to ODA, we are making progress in terms of the extent at which we utilize it. Are we moving with the speed that we would like? I think we are working very diligently to work with the FAA to make that a reality. What we would like to see happen is just continue to push forward and make it a reality and utilize

what has already been approved in terms of the authorization for delegation.

Mr. DUNCAN. All right. Thank you.

Mr. SHUSTER. Gentleman, Mr. Young.

Mr. YOUNG. Mr. Chairman, I just want to thank Mr. Conners. You build a great aircraft.

Mr. CONNER. Thank you.

Mr. YOUNG. I fly with them all the time and every time I get in an Airbus, I shudder, so your competitor can forget them.

Mr. CONNER. I do too, but that is OK. For other reasons.

Mr. SHUSTER. Thank you, Mr. Young.

And, with that, we thank the panel for being here today, appreciate your input and look forward to working with you for the next FAA reauthorization. We will take a few-moment recess so we can switch out the panels. Thank you very much.

[Recess.]

Mr. SHUSTER. The committee will come to order. We are joined by our next panel. I want to welcome our next panel. I guess everybody went to get coffee or a restroom break.

While we are waiting for our panel to rejoin, I know that a few of us are going to have to leave here close to 12 o'clock. Mr. LoBiondo and myself are serving on Armed Services.

Mr. Larsen, you are not in our meeting. We are picking subcommittees on the Republican side. You guys have already done that? OK.

So Mr. LoBiondo and I will have to excuse ourselves. I believe Mr. Davis is going to take over the chair at that time.

Mr. YOUNG. Well——

Mr. SHUSTER. Well, there is nothing wrong with you, Mr. Young. I just figured you had other things to do. You had other places to go.

Have we lost our two other panel members?

Mr. DEFAZIO. Bathroom break.

Mr. SHUSTER. Thank you, Mr. DeFazio.

Mr. DEFAZIO. Too much information.

Mr. SHUSTER. Right.

Why don't we go ahead? We have another appearance by Dr. Dillingham. He is the Director of Physical Infrastructure Issues for the Government Accountability Office. So on the guidance of Chairman Young, we will start with Dr. Dillingham, who has, again, been a frequent visitor to us.

So Dr. Dillingham, why don't you go ahead and proceed?

TESTIMONY OF GERALD L. DILLINGHAM, PH.D., DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, U.S. GOVERNMENT ACCOUNTABILITY OFFICE; HON. CHRISTOPHER A. HART, ACTING CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD; AND DORENDA BAKER, DIRECTOR, AIRCRAFT CERTIFICATION SERVICE, FEDERAL AVIATION ADMINISTRATION

Dr. DILLINGHAM. Thank you, Mr. Chairman, Ranking Member DeFazio, members of the committee. FAA has taken some important steps to address the challenges stakeholders face in getting U.S. aviation products certified for use at home and abroad. At the same time, we found that these steps are not sufficient and many

key challenges remain regarding domestic certification and the consistency of regulatory interpretation.

At the time we concluded our work, FAA indicated it had completed 8 of 14 initiatives established to address the Certification Process Committee's recommendations, and 2 were on track to be completed within 3 years. I understand from Ms. Baker's testimony that FAA has now completed 10 of the initiatives. When we completed our work of the remaining initiatives, one was at risk for not meeting planned milestones, and three initiatives would not meet planned milestones, including updating the regulations under which large and small aircraft are certified. Missing these milestones increases the risk of delays in improving the certification processes for a rapidly changing and expanding industry.

Regarding regulatory certification—regulatory consistency, FAA has drafted a plan to address the Regulatory Consistency Committee's six recommendations, which are targeted at improving the consistency of how regulations are interpreted by FAA and the industry. While the plan is expected to be released sometime this month, it is being released over a year beyond its original target date of December 2013.

Moreover, some key industry stakeholders told us that although FAA briefed them on its draft implementation plan, they were disappointed that they were not asked to participate in the development of the plan, as was suggested in the 2012 FAA Reauthorization Act. Stakeholders also expressed concerns about FAA's decision to close two of the committee's recommendations before the plan is finalized, including the recommendation on improving the clarity of FAA's final rules.

Turning to foreign approval of U.S. aviation products. The U.S. has historically been viewed as the gold standard for the approval of aviation products, with some countries accepting FAA's approval as sufficient evidence that the product is safe for use in their country. Other countries, however, do not accept FAA's certification, and more often, these countries are conducting their own approval processes for U.S. products. Stakeholders told us that such practices result in U.S. companies facing uncertainty and costly delays in delivering their products to foreign markets.

Additionally, these companies noted that some of FAA's internal processes, such as the prioritization of foreign approval applications and insufficient staff resources and expertise, also contributed to delays and increased cost in getting their products to foreign markets. Working within the limitations of national sovereignty and other factors, FAA has several initiatives underway aimed at alleviating current as well as heading off future challenges related to foreign approval.

GAO will continue to assist this committee by providing information and analysis on the certification process challenges and support committee efforts in considering these issues as part of the 2015 FAA Reauthorization Act.

Thank you, Mr. Chairman. This concludes my statement.

Mr. SHUSTER. Thank you, Dr. Dillingham.

Next, the Honorable Chris Hart, who is the Acting Chairman of the National Transportation Safety Board.

Mr. Hart, you may proceed.

Mr. HART. Good morning, Chairman Shuster, Ranking Member DeFazio, and members of the committee. Thank you for inviting me to testify on behalf of the National Transportation Safety Board today.

For many years, the NTSB has investigated accidents and incidents that have identified issues regarding the FAA certification process. Most recently, we investigated smoke and flames coming from a lithium ion battery on board a Boeing 787 at Boston's Logan International Airport. From this investigation, we recommended to the FAA actions that will address issues that they will continue to see in the certification process, especially as new technologies are introduced at an accelerating pace.

The recommendations included: Identifying new technologies and the need to consult with outside experts regarding those technologies; ensuring an FAA workforce that has up-to-date training regarding the new technologies; and evaluating certification from a systems perspective, as you have already heard this morning.

In the U.S. certification process, delegation of the certification has been in practice for many years and is necessary to improve efficiency of the FAA in the certification process.

In its current form, Organization Designation Authority, or ODA, usually works well. It is a risk-based approach that many DOT modal agencies have adopted to use their resources more effectively and to focus their oversight on the riskiest areas. But as the NTSB has said, in many investigations, risk-based systems only work well when the regulator exercises effective oversight.

In other investigations, the NTSB has recognized the need for the FAA to improve the certification process in the following areas: Ensuring no single-point failure modes; accounting for wear-related failures; and including structural failures and human machine system interaction failures in the assessment of safety critical systems.

We are pleased with the action taken by the FAA last year regarding icing based on our investigation of two accidents in 1994 and 1997, outlined in my full testimony, but it is unfortunate that needed changes that we identified in both incidents and accidents have taken so long to implement.

Additionally, the NTSB has investigated events that illustrate shortcomings with flight standards. In the investigation of a January 2003 accident, the NTSB identified improper maintenance at a repair station where the owner had been previously employed as a chief inspector at a repair station that had its license revoked. We identified that the FAA did not have any regulations that enabled them to deny applications for part 145 repair stations of applicants that are associated with repair stations that previously had their license revoked. And we recommended that the FAA promulgate a regulation to implement this authority.

The FAA published a notice of proposed rulemaking in May of 2012, but more than 10 years after the accident, it has not yet issued a final rule on the subject.

As you prepare to reauthorize the FAA, the certification process is a very important component to consider. Also, the NTSB has several other safety recommendations that could improve safety of our aerospace system, including strengthening procedural compliance

for pilots, expanding the use of recorders in general aviation aircraft and enhanced recorders in commercial aircraft, and oversight of public aircraft operations.

I would be happy to talk with you further about these topics as well. Thank you for inviting me to testify today. I would be happy to answer any questions you may have.

Mr. SHUSTER. Thank you, Mr. Hart.

And next, Ms. Baker, who is the Director of the Aircraft Certification Service at the Federal Aviation Administration.

Ms. Baker, please proceed.

Ms. BAKER. Chairman Shuster, Ranking Member DeFazio, members of the committee, thank you for the opportunity to speak with you today. As the Director of FAA's Aircraft Certification Service, I am responsible for the oversight of design, production, and continued operational safety of aircraft, engines, propellers, and articles. Overseeing the safety of the world's largest fleet of aircraft while simultaneously certifying innovative new products and technology is a challenge, but one that we recognize as critical to ensuring U.S. economic growth. As such, we continuously strive to improve the process.

The globalization of aviation, advances in technology, a high velocity of change, and heightened expectations from our stakeholders are all external forces driving us to reexamine how we conduct business. Since the 1920s, the FAA has relied on delegation to safely leverage the Government workforce. We apply safety management principles and use risk-based decisionmaking to leverage delegation and international partnerships and focus limited FAA resources. Today, we delegate 90 percent of certification activity. We are working to streamline the remainder.

My written statement includes an update on FAA's implementation of initiatives responsive to section 312 of the FAA Modernization and Reform Act of 2012. During implementation, it became clear that not all of industry's concerns can be addressed through national policy changes. Therefore, today, I would like to focus on how we are addressing certification reform at the local, national, and international level.

At the local level, we are reinvigorating concepts from the Certification Process Improvement Guide. This guide was developed in collaboration with industry over 10 years ago to improve cooperation and communication. Each company worked with their local office to define operating norms, develop an issue resolution process, and identify individual certification priorities.

Utilizing the same philosophy, the FAA will work with individual companies to establish short- and long-term goals to help them reach their vision of full utilization of the Organization Designation Authorization, or ODA. The FAA has also created an ODA scorecard to collect qualitative and quantitative data related to safety, FAA involvement, and ODA-holder compliance. On a local level, the scorecard will support constructive dialogue between the FAA management and ODA holders about compliance, timeliness, and performance improvements that may be needed.

At the national level, the roll up of the scorecard metrics will allow us to monitor the effectiveness and efficiency of all ODAs, help differentiate between national and local issues, and point to

areas where policy improvements are necessary. Globally, the FAA has been the leading model for safety and efficiency around the world. Yet the aviation industry is made up of an international web of networks and complex business arrangements that are challenging our traditional regulatory model.

We are working with our global partners to leverage our bilateral agreements to facilitate the needs of industry. In 2013, we formed a Certification Management Team between the FAA, the European Aviation Safety Agency, and the authorities of Canada and Brazil. This team discusses means to standardize and streamline certification of aviation products by reducing duplicative processes.

I know the committee is also interested in the progress the FAA has made in response to section 312 of the act, which focused on the consistency and standardization of the regulatory interpretation. While the implementation plan for section 313 was formally posted on the FAA Web site yesterday, we have already taken steps to implement the recommendations. In fact, we have closed two of the six initiatives and the plan was supported by industry.

The highest priority initiative is to develop a single master source for guidance organized by regulations. We are making progress and reviewing our existing databases to ensure the information is up to date. A challenge we face is that Enterprise Architecture Assessment identified 21 separate FAA document repositories.

Last week, I participated in a demonstration of the proof of concept for the tool that will link the documents from multiple sources. This week, it will be presented to the Associate Administrator for Aviation Safety for approval of funding to proceed to field beta testing. I was impressed with the system's capability. It will link regulatory material not only by regulation, as requested by industry, but also by concept, in case the user doesn't know the regulatory citation.

In conclusion, the FAA has made progress on sections 312 and 313 of the act. We are conscious of the fact that certification reform is essential for economic growth of the United States, and we are working continuously to improve. The FAA is tracking the progress of implementing the initiatives, the performance outcomes, and the global return on investment for the FAA and industry.

The FAA will continue efforts to develop meaningful metrics that promote open, constructive dialogue, facilitate positive change, and hold industry accountable to compliance with the regulations and FAA accountable to increasing efficiency of certification.

Mr. Chairman, I am happy to answer any questions you may have.

Mr. SHUSTER. Thank you very much, Ms. Baker.

As I said, I have to excuse myself, but I wanted to ask a question before I left.

Ms. Baker, your testimony said that you completed 10 of 14 of streamlining the FAA's aircraft certification process. Can you explain to us, does that mean it is fully implemented, or does that just mean a milestone?

Ms. BAKER. The 10 that are completed have been completely finished and implemented. There are some caveats where we have had some follow-on criteria to assure that it is working properly,

but the actual things, like the prioritization process, has been fully implemented.

Mr. SHUSTER. So 10 have been fully implemented?

Ms. BAKER. Yes.

Mr. SHUSTER. And then, again, talk about some of the things. How do you measure that, whether it is having a positive effect? I guess, if some of them have only just been approved, you haven't had time. But what is the process you go through to measure that to see if they are working and have the effect that we intended?

Ms. BAKER. Yes, we are continuing to work with industry to assure that we have a way to measure the effectiveness of what we put in place. We first started with phase 1 metrics, where measurements get put into place. Some of the information that we have had from an anecdotal standpoint was to get feedback on our approach. We had a 23-point plan to increase the ODA efficiency, and we met with industry to determine whether or not they felt that the changes that we had made were taking hold. The response that we got back was positive to neutral on what had occurred after the implementation.

On the project prioritization process, we no longer have a queue, so we have zero wait time for the projects, so we measure that as a success.

Mr. SHUSTER. Thank you.

With that, I am going to recognize Mr. DeFazio and excuse myself. Mr. Davis is going to take the chair. So, again, I thank the witnesses for being here today.

Mr. DEFAZIO. Thank you, Mr. Chairman.

Dr. Dillingham, on page 3 of your testimony, you talk about some other countries do not accept FAA certification to conduct their own approval process, which can be lengthy. You don't list them. Could you provide a list?

Dr. DILLINGHAM. Yes, Mr. DeFazio, we can provide a list. But I can tell you now that we spoke to a sample of manufacturers that represented a good proportion of those who export to foreign countries. And we asked them to tell us about their experiences and which countries seem to present the greatest problems right now and what was the nature of those problems.

What we were told is that it differs by country, but in terms of the top countries where they are experiencing the most problems, Europe and the issues behind the EC were related to cost, the cost of getting our products approved. And China was a top biller, and the issue for China was a combination of culture and their processes and procedures.

You would have heard earlier about—as a matter of fact, you were the one who said it—about requesting——

Mr. DEFAZIO. Detailed engineering and design criteria and coming over and observing the manufacturing process, and, of course, they are not going to copy it. Yeah, I got that. Right.

Dr. DILLINGHAM. So we will provide you the output from our survey of the manufacturers that we talk to.

Mr. DEFAZIO. OK.

So that leads me to Ms. Baker. I know you are somewhat constrained, but he does point to a number of things, the processes of these other nations in terms of reciprocity. And in dealing with the

EU, I note that they charge for certification, and we don't. And I know there is a provision of appropriations bill that says that we have to authorize a charge, but wouldn't it be great if you had a tool to say, Well, if you charge, we are going to charge you. So when Airbus wants certified, well, you are going to pay the same charges that Boeing has to pay in Europe.

Wouldn't that be reciprocal, and might that not get their attention?

Ms. BAKER. I am going to skirt that a little. I think——

Mr. DEFAZIO. Well, I mean, let's say, how far along are you then in getting them to reduce these charges voluntarily out of the goodness of their heart? You know, do you expect that to happen real soon? Yes or no.

Ms. BAKER. If we are successful, by June. We are trying to get an agreement with them to make significant reductions in their charges.

Mr. DEFAZIO. Yeah, but maybe it is a little more, a few more tools are necessary.

And what about the Chinese, where we know what they are doing. What are we doing about that? I mean, they just want to be able to manufacture these things themselves. They are charging us—they send their people over here for 2 weeks for something that should take 1 day. We are required to pay for that. You know, are we working on some reciprocal arrangements with the Chinese that might get their attention?

Ms. BAKER. We do. We meet with them at least once a year, but, recently, we have been meeting with them quite a bit because we are conducting a shadow program of their ARJ21 program right now. When we are aware of where they have overstepped their bounds, we have intervened.

Recently, there was a situation where they were asking for much more information on the Robinson helicopter than they should be requiring just to operate the helicopter in their country. We intervened. We told them we did not feel that it was appropriate and in the spirit of our bilateral relationship, and they changed their process. And so we will then work with them——

Mr. DEFAZIO. Good for you, and I hope you do a lot more of that.

You know, we have the PASS testimony, which, unfortunately, wasn't available to be read or given here, but they are pointing to the fact that a lot of times inspectors only show up at, you know, an ODA once every couple of years, you know, that you don't have enough staff to really provide robust monitoring. I mean, do you feel comfortable about, you know, your capabilities? Are you using sort of targeting—I know that you try and target people you think are problematic and put more scrutiny on them. But it seems to me there just aren't enough inspectors.

Ms. BAKER. We use a systems approach to oversight which, I think, has shown to be very, very successful in the manufacturing of aircraft. We have done that for many, many years. We rely on a system, and then our people will intervene and do spot checks. If they find problems, then they will dig deeper and take the necessary action, whether it was a fine or just a corrective action to change the procedure so that they align with what the manufacturer is actually doing. We are evolving to that with engineering.

As Ray testified, Boeing has a lot of engineers. They are very confident at what they do. We just need to assure that they are very versed in compliance with the regulations.

Mr. DEFAZIO. OK. And just one other quick question. You know, when you give an ODA to a large organization, what is to prevent—in terms of your monitoring, what protections legally do we provide to the members of their ODA? I mean, do you think the firewalls are adequate? Are there special protections that are afforded? I know we have got the hotline, but that is generally for operational things more than these sorts of things. Do you think there are enough tools out there to avoid undue influence by companies that are trying to meet deadlines for new technology, for instance?

Ms. BAKER. Well, first, you have to start with the premise that everyone is aiming for a safe product. Once you have passed that, then you look at the individuals within the company. If they feel unduly pressured, they can come directly to the FAA and ask that we retain an item and intervene. We also require——

Mr. DEFAZIO. Will they get protection at that point, some whistleblower or something?

Yeah, I will be right with you Don. Yeah, well, Don, actually, the custom is—and I was very good before—that the ranking member gets a little more time. Yeah, well, that is true.

Ms. BAKER. He could if he went through the program for a whistleblower. When they come talk to us, it is usually not at that level. It is either a misunderstanding or something that we can work out. The other thing I wanted to note is in order to be an ODA, you have to assure that there is separation in the company and the person who is in charge of the ODA has high enough ranking within the company that they aren't unduly influenced——

Mr. DEFAZIO. We will cut off at that point since the gentleman from Alaska has something urgent to add.

Mr. DAVIS [presiding]. Gentleman's time is expired.

Gentleman from Alaska is recognized.

Mr. YOUNG. Thank you, Mr. Chairman.

Ms. Baker, section 313, from your perspective, what is the status of implementing that perspective?

Ms. BAKER. We have closed out two items. One was what they were envisioning would be a regulatory oversight body that was 24/7 that you could go to, kind of like an op center. We decided to replace that with the Regulatory Consistency Communications Board, which then would vet the issues. So the 24/7 kind of op center was set aside.

And then we also have put forward means to train our employees.

Mr. YOUNG. When is the final time going to be?

Ms. BAKER. It is in process, so there are a number of things—just let me go back to what the main priority is. It is that big database in the sky that I talked about in my oral testimony. We have that proof of concept, but we have to do the beta testing, and then it will take probably another couple years before it would be implemented. And that is really the long——

Mr. YOUNG. I am going to make a suggestion. Just keep us informed, and I don't like dragging feet, you understand?

Ms. BAKER. Yes.

Mr. YOUNG. Second thing is your AFS and your AIR, are they working together to guide the manufacturers as well as the operators, or are they separated and don't talk to one another?

Ms. BAKER. We work very closely together. My office is right next to the Director of Flight Standards, and in the field, they work very cooperatively together. We have a group, called the Aircraft Evaluation Group, that is almost a part of my organization, providing the liaison between the two organizations.

Mr. YOUNG. That is important because, you know, I have watched agencies over my career here before you were born where they grow and they grow and they grow and they don't talk to one another, and that hurts the operator as well as the manufacturer of our aircraft, and where the ultimate goal is safety, not the building of an agency, so I am hoping that you work together.

Mr. Hart, of the investigations of what you do, what was the percentage of pilot error versus aircraft error?

Mr. HART. Thank you for the question. What we generally see is system error in which good people try to do the right thing in difficult circumstances and then make mistakes. It is very difficult to say pilot error versus system error because it is a total system error involving the pilot and the airplane.

Mr. YOUNG. OK. Now, I don't which one—how many new regulations have the FAA passed in 2014?

Ms. BAKER. I don't know off the top of my head.

Mr. YOUNG. Would you guys find out for us, and the reason I ask that, again, regulation for regulation's sake doesn't accomplish the safety which we are trying to achieve.

Ms. BAKER. Yes.

Mr. YOUNG. I hear a lot of times you are short on money, but I see a lot of FAA activity that has nothing to do with safety. It has nothing to do with it, like moving a fence on a golf course. Lots of money spent. No reason for it. Putting fences in airports there is nobody around, lots of money. Lots of little things within the FAA itself that takes away, I think, is your ultimate goal is safety, not all this other stuff, and you grow and you grow and you forget what your ultimate goal is. But overall, I haven't had that—too many complaints yet. Most are minor from what I call civil aviation and again an overenthusiastic inspector, who hasn't been trained to be an inspector, so we will look at that. It is not your problem. We are just pursuing that.

Mr. Chairman, I yield back.

Mr. DAVIS [presiding]. The gentleman yields back.

Mr. Larsen, the gentleman is recognized for 5 minutes.

Mr. LARSEN. Thank you. Mr. Hart, Chairman Hart, what concerns does NTSB—what concerns has the NTSB identified with FAA's certification efforts regarding new and novel technology, and what recommendations has the board made to FAA regarding the certification of new and novel technology?

Mr. HART. Thank you for the question. We have been looking at certification accidents for more than 20 years. The latest one that I mention in my oral testimony regarding the Boeing 787 battery had a wrinkle of being a new technology accident, and I suspect we are going to see more of that as new technologies come in at an

accelerating pace. The key to the process with new technologies is quality of the process. That is why we made recommendations ensuring that the broadest possible base of resources are consulted, in this case, looking at the lithium-ion battery. Since we knew the auto manufacturers had been using these batteries and had experiences with them, including some bad experiences, talk to them. We knew that the Defense Department had been putting lithium ion batteries in their equipment—good situations, bad situations—talk to them. The Department of Energy had a lot to inform the process, but they weren't consulted.

We are looking at how to get the broadest base of expertise regarding new technologies. Also, we are looking to make sure that the FAA workforce is properly trained to stay up to speed with the development of the new technologies because otherwise they may not know that the sources that they are looking at aren't as broad as they could be. Then last but not least, we recommend looking with a systems perspective at the introduction of the new technologies.

Mr. LARSEN. Ms. Baker, is the FAA using outside experts to the extent that the agency is suggesting or how would you—how would you characterize what the FAA is doing relative to those recommendations?

Ms. BAKER. The FAA has extensive use of outside experts. We go to RTCA, ASTM, SAE was useful. We have used MITRE, used a number of outside venues to get the expertise.

I think what Chris was highlighting is that one of the things that we all need to be cognizant of is that sometimes the knowledge is outside of the aviation sector, so we really need to reach out more broadly, and that would be something that we will take into consideration as we move forward.

Mr. LARSEN. All right. Can you, as well, Ms. Baker, discuss the accelerated use of ODAs and whether or not it has created oversight challenges with inspector's workload increasing beyond head count, and what assurance can you give the committee that the FAA will build a running ODA program while maintaining safety?

Ms. BAKER. Yes. I talked a little bit about the ODA scorecard in my testimony. Again, we are trying to look at what is going on nationally with all the ODAs, but then look at what is happening locally. We will not only track measures for our effectiveness in our oversight, but their effectiveness in compliance with the regulations, so we are going to be building on that. That will give me confidence that we can move further and further to a systems approach.

In section 312, you probably know that we already have looked into expanding to delegate noise, emissions, and the instructions for continued airworthiness, so I think there are many areas where we can continue to expand very safely.

Mr. LARSEN. Expanding, but how can you ensure then that appropriate FAA oversight is spent—we talked in the previous panel how Boeing and many other companies, frankly, want to use ODA as fully as possible but still need the FAA sort of behind that in order to do auditing, do oversight, so on.

Ms. BAKER. Each ODA is required to put together a manual, and we audit to the manual every 2 years, and then we do spot checks

along the way to see if they are truly doing the job as we would if we were in their shoes. I think that it has been effective and will continue to monitor that. We will be watching the results from our inspections of the ODAs and to determine whether or not we are finding an increased number of noncompliances to the regulations versus noncompliances of just following their manual. I think that will help keep a very good level of oversight.

Mr. LARSEN. OK. Dr. Dillingham, not that the FAA doesn't have enough to do, and we are not asking—not that we are asking you if they have enough to do, but in looking at the international certification side as you did, do you think the FAA needs to make its international certification to be as a higher priority if we are going to address these international challenges that you described in your testimony? Where do those fit?

Dr. DILLINGHAM. Thank you, Mr. Larsen, for the question. I would hesitate to suggest what FAA's priorities would be, but if you look at what is going on with international, the industry representatives that we talk to indicated that from an internal perspective, leave aside what happens once the application goes overseas, is that they think that FAA does not make this a high enough priority, that including the issue of getting full use of the ODA, the ODA program. I think from what we learn, what FAA is doing now with regard to working to make the bilaterals more efficient and more effective and working to get the concept of mutual acceptance of approvals from our longstanding partners, I think if that plays out, then the priority issue will be less of an issue going forward.

Mr. LARSEN. OK. Thank you, Mr. Chairman. Just one final note, Mr. Chairman. Not that I am pitching for a codel to the Paris Air Show, which by the way, you don't spend any time in Paris when you are at the Paris Air Show, just one walk around the pavilions at the Paris Air Show would let you know just how global the industry, aviation industry is and how important this issue of FAA certification international market is as well.

Mr. DAVIS. OK.

Mr. LARSEN. On the other hand, if we want to take in the Paris show, that is fine, too.

Mr. DAVIS. The gentleman from New York is recognized for 5 minutes.

Mr. HANNA. Thank you. Mr. Hart, Ms. Baker, I have Griffiss Air Force base, the former Griffiss Air Force base, my district, and as you know, it is one of the six sites selected for UAS tests, and it is becoming a little obvious that the FAA really hasn't done the rulemaking to allow them to move forward in the way that people anticipated because the questions that they need to answer really haven't even been asked yet, if that is fair, and that is a question.

Given your experience with the FAA certification process and all these challenges, how do you plan on doing that, assuming it hasn't been done, and I don't think it has. How do we take advantage of these test sites? And what are you going to do—there is an estimated 500,000 of these devices in the country. How are you going to manage all that knowing that other countries are already using them, some of them Japan, for example, 20 years, and it is a tremendous opportunity for this country for all the reasons that, you know, I don't need to go into, and you are already busy and these

sites are, for lack of a better word, they have the potential to linger and yet we have got a lot invested in them. I guess the question is what is going on? What can we anticipate? And how are you going to take advantage of Griffiss and help it grow?

Ms. BAKER. There is a lot going on. It is a very high priority of the Administrator to move out on UAS and to do it right. There are the activities with the rule on small UAS. Our aircraft certification office in L.A. actually certified a UAS on a restricted category-type of certificate to operate in the Arctic. We have also been working with the test centers so that they could get designees to issue airworthiness certificates so that that could facilitate them to do more work on our behalf and make them more self-sufficient. So again, I think that there is quite a bit going on.

One of the other things that we are doing in our organization is we put together an advisory circular that would identify the level of rigor that should be applied to the size and complexity of the UAS because, as you know, some could fit in your hand and others could be as large as a 747. So we are trying to establish how you would handle all of those UAS. But it is an interaction with our organization, AVS, aviation safety organizations, which is inspectors and flight standards and our engineers but also with air traffic to ensure that they will blend into the national airspace safely.

Mr. HANNA. But it doesn't feel like the FAA is up to the challenge right now, that they are behind. Would you believe—do you believe that? I mean, is that fair?

Ms. BAKER. I don't think we would say we are behind. We are working very carefully to introduce them into our national airspace. Some of the countries that has utilized them have different situations. They are different environments that they are working in. They either have more open space or they have less general aviation population that is working in their airspace.

Mr. HANNA. You don't think Iowa has a lot of open space?

Ms. BAKER. They do.

Mr. HANNA. I mean, you don't think—where I live, they are taking advantage of these other countries to monitor vineyards, which we have, monitor animals.

Ms. BAKER. Uh-huh.

Mr. HANNA. It doesn't—and these things are very controllable. I just wonder if there isn't a way to expedite the use of these at certain elevations, and I am familiar with the Supreme Court ruling, but my time has come to an end here but—yes, sir.

Dr. DILLINGHAM. Mr. Hanna, we have—we have a study underway looking at what it takes to get UAS into the national airspace for this committee, and we have—we have testified in the past that instead of the rule coming out when it was scheduled, the rule is going to be as much as 2 years late coming out. So what we have suggested is that there needs to be action taken in the interim, and some of those actions relate to the test sites, meaning get a greater use out of the test site, for example, giving them greater authority to allow testing and evaluation at the test site, look at ways in which things can be done now on an interim basis like section 333 of the regulation. Also, to take some lessons learned from other countries, particularly Canada, our northern neighbor, and talk

about what you heard several times this morning, sort of a risk-management approach to the integration of UAS.

So there are things that can be done, and we think that FAA is beginning to move in that direction because there is such a—almost a dam of industry and industry activities that are waiting——

Mr. HANNA. There is a huge demand, yeah, and Griffiss Air Force base is waiting, you know.

Dr. DILLINGHAM. Yes, sir.

Mr. HANNA. Thank you very much. My time is expired.

Mr. DAVIS. Gentlelady from the District of Columbia is recognized for 5 minutes.

Ms. NORTON. Thank you very much, Mr. Chairman.

Ms. Baker, I am about to have a town meeting in the District of Columbia because of complaints about noise over residential neighborhoods, and I asked Mr. Conner of Boeing whether or not noise was a part of the process. I think you yourself have testified that it is now part of the process.

Now, what we found out was that when there were complaints in the past about flying over areas, residential areas, in this case in Virginia, what FAA did was simply to fly over areas in the District of Columbia. As a part of the Next Gen process, you are supposed to have quieter aircraft, and, of course, Mr. Conner testified they were quieter. We have asked for aircraft to be flown over the river.

We are wondering whether when you get complaints about noise, why are we getting complaints about noise with all the new technology; and two, why would the FAA simply go from one area to another area to relieve those complaints? Do you have a system for relieving those complaints such as, for example, our suggestion in the Nation's Capital that you fly over the river where no one lives?

Ms. BAKER. The actual routing of the aircraft is a different part of the organization that I am not familiar with, but the noise of the aircraft, the actual noise levels are set by the EPA, and we work with companies like Boeing to make improvements.

Ms. NORTON. Noise is part of certification. Do you believe that considering Next Gen, and Next Gen is already in effect, to some extent, that the noise levels are consistent with increasingly flying over inhabited neighborhoods?

Ms. BAKER. The noise levels are set by the EPA, so what we would do is to assure that we can work with the manufacturers to ensure that the aircraft themselves are meeting the level of——

Ms. NORTON. Are you saying that EPA has told you that the noise levels are acceptable and that I should be talking to the EPA?

Ms. BAKER. They set the noise regulations, and we are delegated on their behalf.

Ms. NORTON. So here we have delegation on top of delegation?

Ms. BAKER. Yes.

Ms. NORTON. Let me ask a question that was never fully answered. It is very interesting and in some ways troubling to hear Mr. Conner testify, I think he raised this on his own accord, that FAA should not lose its own gold standard role. There was no question but that he feared that that was happening.

I then asked him whether or not sequester and cuts had had any effect. He didn't say they were the cause of the loss of the gold

standard, but he testified that those cuts had hurt, and he gave some specific ways in which they had hurt. Now leave aside China. This is my question. Why is the United States losing what had been the gold standard? What happened here, we are fine with you. What is the source of this loss of that lead role since there is no question, if you leave aside China, even the Europeans are second-guessing our role. I ask that of all three of you.

Ms. BAKER. Go for it.

Dr. DILLINGHAM. Ms. Norton, you know, we have heard that metric over the last couple of years about the U.S. being the gold standard, and in fact, the U.S. losing its position of the gold standard. I think that metric is more of a sort of an explanation that the world of aviation is changing. The manufacturers that we talk to had mixed opinions about whether the U.S. was the gold standard, or EASA was the gold standard or whatever, but what they were saying is, in the past, if the U.S. said OK, then it was OK. That was the gold standard, because if the U.S. approved it, it meant it was——

Ms. NORTON. So Dr. Dillingham——

Dr. DILLINGHAM [continuing]. Ready to go.

Ms. NORTON [continuing]. You are telling me it is not OK today?

Dr. DILLINGHAM. Well, there are some contributing factors to that. No one is saying that the U.S. standard of quality has changed, but what we see is, we see ICAO, the International Civil Aviation Organization, telling nation states that you must establish your own certification processes and apply those as you see fit. So instead of what it used to be that it could just go through, they are going through another process.

Ms. NORTON. So you don't think it casts any doubt on our standards here. It is just that everybody wants to do it his own way and wants to repeat what has already been done.

Dr. DILLINGHAM. Exactly. If—in other countries, those organizations have to pay for themselves, so automatically they are going to charge us, and no one is saying that, you know, our quality is any less. The world is just spinning with more civil aviation authorities in place.

Ms. NORTON. Can I ask you this: In terms of the training, Ms. Baker, of your own engineers, we understand there is a shortage. I don't know what it takes to be an engineer, if you have to be an engineer to be a certified engineer, but there are complaints of inadequate training, even from your own personnel. What are the difficulties you are encountering in certification of engineers so that you can feel confident that, in fact, the inspections should be recognized everywhere?

Ms. BAKER. When the engineers are hired by the FAA, they already come to us with an engineering degree, and most of the time with a lot of experience coming from a manufacturer of an aviation product. What Ray Conner——

Ms. NORTON. Do you do your own training?

Ms. BAKER. We do do our own training, and when there is new technology, we will send them out to training that is outside of FAA where there is the expertise for us to gain that knowledge from the absolute threshold of experienced people.

What Boeing was talking about was systems engineering. We are currently hiring people with a lot of expertise in fields like structures and avionics. What we are moving towards is a systems engineer, someone who can look at the entire system and judge where they should be making the interventions and how they can improve the system. That is more of a process type of thing versus a specialty engineering.

Ms. NORTON. Thank you.

Mr. DAVIS. The gentlelady's time is expired.

The gentleman from North Carolina is recognized.

Mr. MEADOWS. Thank you, Mr. Chairman. Thank you, Dr. Dillingham, for being back with us. It is good to see you again. I want to start with you to follow up. I know a lot has been discussed with regards to the ODA program, and it is my understanding that one of the biggest problems that we have is really with FAA engineers and specialists getting involved in the certification process, and essentially getting involved when the ODA has already authorized or conducted their review and duplicating efforts. And so in other words, the ODA is doing their job, and yet the FAA is retaining some of that work; is that correct?

Dr. DILLINGHAM. When we talked to manufacturers in preparation for this hearing, that was one of their concerns about the ODA.

Mr. MEADOWS. So that is reoccurring? It is not just one stakeholder. It is multiple stakeholders that said that?

Dr. DILLINGHAM. Yes, multiple stakeholders said that, and we think part of the explanation is that when you go to an ODA and you start to assign those kinds of inspection responsibilities outside of the FAA, we are talking about a significant cultural change from the way the agency has been doing business for eons, and it takes time for that to be in place. And I think the recent——

Mr. MEADOWS. So would you suggest more training on the FAA so they can understand the role of the ODA then? Because if it is a cultural change and you are saying that they are—they have got boundary lines that they are crossing over, how do we make sure that that happens in a very fast and effective manner so you don't lose out the competition from overseas?

Dr. DILLINGHAM. I think with as much speed as possible. As part of the 312, 313 recommendations, FAA has worked the ODA process and issued new guidance for how they are supposed to operate and their training and their oversight, so I think we are at the point now that change is possible and change in a relatively speedy time.

Mr. MEADOWS. So you have issued the regulation. So is the training actually happening or not? Because it is one thing to write a regulation; it is another to implement it.

Dr. DILLINGHAM. That is a good question. I am going to ask Director Baker to take that on.

Ms. BAKER. Thank you, Gerald. Yes, it is. It is happening. We have an understanding by all of the engineers, if they are to retain, they need to document why it is that they are retaining. The order that was updated, such that there are categories. Inspectors would identify where they are retaining based on those categories. Again, we talked about the scorecard that we were developing. We just re-

cently got some information back on some major ODA holders, and we found that it is amazing. There is a lot that is being delegated. In one particular case, 85 percent of the work didn't even require a notification letter to the FAA. Of the 15 percent that required the notification letter, only 5 percent was retained. What is happening is FAA keeps getting in the critical path to delivery of the aircraft.

Mr. MEADOWS. So critical path means delays in certification, delays in the process, and losing money?

Ms. BAKER. It does. So that is why we take what they have identified as where they have retained and why they have retained it, and we will start to delve deeper in at the local level.

Mr. MEADOWS. So if I would ask the stakeholders to give you a grade on your implementation, A through F, what would the stakeholders give the FAA in terms of a grade?

Ms. BAKER. Overall, we would probably get a C, but there are people who would grade us F and there are people that will grade us A. There are some organizations that are smaller and not having success at getting as much autonomy as they would like, and there are others that are still struggling.

Mr. MEADOWS. All right. So how do we move it from a C overall and an F in some cases to an A or a B? Because it really is not about a grade. It is about competitiveness, it is about profit, it is about keeping market share, and really when you look at certification process, somebody is going to do it. It is either us or we are going to lose out to other competition, so how do we move that during this reauthorization, how do we address that effectively?

Ms. BAKER. Again, I don't know that it is a national solution. I really think that you have got to get down into the documentation that the employees are supposed to make when they retain something. What we found when we just did this recent survey was that there were some areas that were instructions for continued airworthiness. We have got that taken care of, so now the companies just need to ask for that authority. Noise. It is in a beta test that will start to reduce the work that FAA will be involved in. Emissions. We can do that now. They just need to ask for that authority.

There are other areas where rules that were put in place recently and we were retaining them as the company gained experience, but now it is showing up as something that can be done nationally to reduce our involvement and then we will start to pull away where we can.

Mr. MEADOWS. Well, as we go through this process—my time is expired, but as we go through this process, this is something that we will be looking at very acutely and very keenly, and so as you look at it, we look for specific recommendations on how we can address that. And I thank the chairman, and I yield back.

Mr. DAVIS. The gentleman's time is expired. The gentleman, my colleague from Illinois, Mr. Lipinski, is recognized for 5 minutes.

Mr. LIPINSKI. Thank you, Mr. Chairman. I want to thank the witnesses for being here today. One of the biggest issues that I have been focused on during my time in this committee is streamlining the FAA's certification process to make sure that manufacturers can move innovative safety enhancing ideas from the design table to assembly line into the cockpit without months of delay in

unnecessary cost which unfortunately has been happening all too often.

First question I wanted to ask Ms. Baker, Ms. Baker, sorry. I was lead Democratic co-sponsor of the Small Airplane Revitalization Act. I was pleased that Congress recognized and responded to the challenges posed by the certification process. Many of us on this committee and many at DOT and FAA did the rewrite of part 23 rules as vital to safety innovation. So I want to ask, what steps have you taken to move this rule forward? And where is the rulemaking being vetted today? Has it been received by DOT and OMB?

Ms. BAKER. Yes. The part 23 rule is very important to us also. We have done a number of things to push the rule through as quickly as we possibly can. We have a dedicated technical team working on it. We have a headquarters attorney assigned solely to this particular rule. We meet weekly to look at the schedule for all of the rules, but we meet monthly to assure that there aren't any roadblocks to move the part 23 rulemaking forward. We are still working on it in our organization.

Mr. LIPINSKI. OK. So it hasn't been received by DOT and the OMB yet? Can you assure this committee that the NPRM for part 23 small airplane rule will be published by the summer?

Ms. BAKER. The official schedule has not yet been published. We have, again, worked as hard as we can to move it as quickly as possible, and we would be happy to keep you updated on the progress of the rule if you would like.

Mr. LIPINSKI. I would. I definitely would like you do that, and it is important that we move this forward as quickly as possible.

I want to follow up on part 23 with Mr. Hart. In your written testimony, you referenced general aviation safety, specifically loss of control mitigation as one of the items on your most wanted safety list. Data that Government and industry have used to develop recommendations show that loss of control counts for a significant portion of fatal accidents in general aviation. As I mentioned in the last question, the 113th Congress passed legislation that will enable safety enhancing features to be accelerated for part 23 category aircraft in order to address issues like loss of control accidents.

How can efforts like this legislation help to achieve improvement in aviation safety?

Mr. HART. Thank you for the question, Mr. Lipinski. We are troubled that more than 40 percent of the general aviation accidents are related in one form or another to loss of control, and most of those are related to aerodynamic stalls. In addition to training, which is a continual problem, we recommend equipping general aviation airplanes more extensively with angle of attack indicators so that the pilot will have a more direct awareness of the angle of attack. The pilot already has indirect indication of the angle of attack, but we are looking for more direct and more immediate awareness of the angle of attack to help avoid aerodynamic stall.

Mr. LIPINSKI. Are there any—you know, anything you could say what more needs to be done on this issue? I know the angle of attack indicator is very significant. Anything else you wanted to mention that is important here?

Mr. HART. The biggest complaint we hear generally from the Aircraft Owners and Pilots Association is that the angle of attack indicators are too expensive, and as usual, that goes back to a certification issue.

Mr. LIPINSKI. What are your thoughts on FAA's current policies and regulations on retrofitting of new equipment onto existing GA aircraft?

Mr. HART. That is hard to generalize because in some cases, retrofitting is realistic; in some cases it is not. So it is hard to make a general statement. I could give you an answer if you had a more specific question regarding a specific retrofit type. For example, retrofit of shoulder belts is very difficult in some airplanes. Retrofit of angle of attack indicator is another story altogether. It is very difficult to generalize about all retrofitting.

Mr. LIPINSKI. OK. With that, I will yield back. Thank you.

Mr. HART. Thank you.

Mr. DAVIS. The gentleman yields back the balance of his time. I see we have nobody else to ask questions besides me. So I appreciate all three witnesses being here today, and I reserved my questions till the end for my colleagues to be able to leave me here alone with you and not hear all your responses. I will gladly then tell them all exactly what you said.

First off, let me start with Director Dillingham. In your testimony, you indicate that the jury is still out as to whether the FAA is successfully carrying out implementation plans for certification. Can you give me, in your opinion, the best way the FAA could avoid the mistakes in the past when it comes to implementing these plans?

Dr. DILLINGHAM. Yes, sir. One of the problems that GAO has is we have—we have—we have been asked by this committee to look at a number of different instances where the implementation of initiatives or recommendations has been at the center of it, the implementation by FAA. And what we found is the definition of "implemented" and "completed" sort of varies from we just started to, we have got a plan to, we have actually done some things.

So our answer to that is, you know, as part of congressional oversight is to make sure that there are some metrics by which the agency can be held accountable, metrics that include sort of a baseline metrics, where do we start; an interim metric, where are we now when the Congress asks again; and in the end, an outcome metric, what did we actually achieve related to what the objective of the initiative was?

So we are very much into performance metrics and accountability so that we can get some consistency, and the Congress can know what it actually means when FAA says we have implemented 22 out of 30 or we have implemented 10 out of 14. It is kind of—it is hard for us to tell at this point without really digging, digging, and digging.

Mr. DAVIS. All right. Well, welcome to our world. So in your opinion, basically, we should hold the FAA accountable to these metrics and these performance measures and ask more specific reasons why these performance measures are not being followed.

Dr. DILLINGHAM. Exactly. And what do they mean? I mean, it is OK to use the concept of implemented and completed, but what do

they actually mean? What is the, you know, sort of where is the beef kind of answer.

Mr. DAVIS. So what you are saying is the FAA is not clear?

Dr. DILLINGHAM. It varies in terms of when you ask the status of something. It varies as to what the term means.

Mr. DAVIS. Absolutely. Well, thank you very, very much. Thanks for bearing with me, too.

Chairman Hart, your testimony before us today highlights accidents and incidents where the agency has used its investigative authority to actually promote safety objectives. Can you elaborate on what the purview of the NTSB is today? And given the safety advances that have been made in aviation as well as other modes, how has the agency evolved since its inception?

Mr. HART. Thank you for the question. I know I look old, but I am not old enough to have been around since its inception, but I will do my best on answering that nonetheless. We recognize that there is a new environment today and we need to respond to that new reality. The new environment is new mostly because of huge IT advances, and so that is going to change the way that all of us do business, and we are looking to respond to that new reality.

In the old days, after an accident, we would do our exhaustive investigation, identify all the links in the chain and come out with a report in 18 to 24 months. The report was very useful to management because they would say, I didn't know that happened in my airline every day, and it was very useful to the FAA who would say, I didn't know that happened in that airline every day. The worker bees, of course, knew about it because they did it every day.

Fast forward 20 years, today we issue that same report, and by the time it hits the street in 18 to 24 months, because of the amazing advances that the industry has made through collaboration with the Government in collecting and analyzing data, there is a good chance they already know about the problems and they are already fixing those problems.

So what is the value that we bring to that table? And that is one of my challenges is to make sure that we position ourselves strategically to add value to that equation because the industry has done very well, but there is always room for improvement, and our challenge is how do we play a strategic role in that improvement.

Mr. DAVIS. Thank you. Thank you.

Ms. Baker, my district is a very rural district in central Illinois. It is a district that includes many acres of agricultural land and large real estate tracts, and we have seen that unmanned aircraft, unmanned aerial vehicles are easily utilized to help not only on the production side of the agricultural sector, but also on the real estate side to ensure that property could be shown effectively since they are very large and very difficult for an individual to go walk the entire acreage of some of the tracts of land.

So I am concerned about what I think is the FAA's somewhat slow activity in the rulemaking process. There is obviously a growing demand. All you had to do was hear the stories from the Christmas season about UAVs and how they were popular gifts. I didn't get one, so I hope maybe you did. But what is the status of the FAA's efforts to put a risk-based certification system in place for UAS?

Ms. BAKER. There are, again, various activities that are ongoing. If we are looking for an actual certification of it, I think we have got a good AC, and we have already shown that we can certify them in a restricted category and would like to continue to in that vein. But we are also issuing the exemptions, as Gerald mentioned, the section 333 of the last reauthorization to allow people to start to use these in areas where they can mitigate the possible damage to people and property.

So I think that we have ways to accommodate many of the things that you are talking about now and will move on to make sure that we provide more and more opportunities in the future.

Mr. DAVIS. Well, you granted 333 exemptions so far?

Ms. BAKER. No, no, the section 333 of the last reauthorization bill.

Mr. DAVIS. Oh, you granted 13 in section 333, you granted 13 exemptions so far, right?

Ms. BAKER. I am not—you might have a better number than I, but we knew we weren't doing a very good job at getting them out the door, and so just last week we pulled a group together and assured that they had everybody that needs to be involved in establishing the mitigations that are necessary to assure that we can do this safely and put them in one room so that we can get these out as quickly as possible. So they are building templates. What happened before was that there were offices that were remote from each other, and just the sheer need to send emails and stuff back and forth was causing delays. So we got everybody in one room, the attorneys, the engineers, the inspectors, everybody at one place so that we could churn up the volume.

I would hope that in a week or two, you will see a lot more coming out of our doors. We have 120-day metric that we want to assure that we beat by quite a bit, and to do that, we have this group of people that are solely focused on just issuing those exemptions.

Mr. DAVIS. I mean, I hope they are still not locked in the room right now.

Ms. BAKER. Almost. We probably bring them in pizza.

Mr. DAVIS. I mean, we have 13 that have been granted. How many do you estimate have been requested, exemptions have been requested?

Ms. BAKER. I don't know what the count is now, but we are anticipating hundreds.

Mr. DAVIS. In the hundreds. OK. And Canada has granted thousands of exemptions, and I mean, we just have some concerns over—we look to UAVs as part of our flight and part of our aviation sector for years to come, and there has got to be a way for us to be much more—much more receptive to the newness and much more receptive to ensuring that they don't provide any opportunity for incursions in and around our airports, and it is just simple rulemaking, it is simple procedures.

We ought not to, in my opinion, look to the future with exemptions, and more so look at how do we implement them into our existing system. I would urge the FAA to do that, and as you know, as you come in front of this committee often, I will probably be asking you more.

Is there any—are there any performance measures—you mentioned 120 days for the group now that you have gotten together locked in the room, and you expect that to actually be done before 120 days for all of the hundreds of applications?

Ms. BAKER. We have a metric for all exemptions to get them out within 120 days. That is regardless of whether it is on UAS or other things. What we are trying to do is to reduce the amount of time that it takes to get the UAS exemptions out because of the sheer volume.

Again, if we can get templates, people can see what others are granted and make theirs as similar to the request as one that was already granted, it will expedite our ability to get them out.

Mr. DAVIS. OK. Well, I look forward to working with you, and just as you offered to keep my colleague Mr. Lipinski up to date on part 23, I would actually ask that you also send that to my office, too.

Ms. BAKER. OK.

Mr. DAVIS. All right. And thank you very much for your testimony. If there are no further questions, although I am still always haunted by former Chairman Young looking at all of us up here in front of you, if there are no further questions, I thank the witnesses for their testimony, and the members who are not here, for their participation. I ask unanimous consent that the record of today's hearing remain open until such time as our witnesses have provided answers to any questions that may be submitted to them in writing, and unanimous consent that the record remain open for 15 days for additional comments and information submitted by members or witnesses to be included in the record of today's hearing. Without objection, so ordered. The committee stands adjourned.

[Whereupon, at 12:48 p.m., the subcommittee was adjourned.]

Testimony of Ray Conner
FAA Reauthorization Hearing
Transportation and Infrastructure Committee
U.S. House of Representatives
Jan. 21, 2015

Chairman Shuster, Ranking Member DeFazio, members of the Committee, thank you for this opportunity to provide Boeing's perspective as you begin the process of developing legislation to reauthorize the Federal Aviation Agency later this year. I am Ray Conner, president and chief executive officer of Boeing Commercial Airplanes.

Mr. Chairman, I will focus my remarks today on the FAA's ongoing effort, with the support of Congress, to modernize and enhance the airplane certification process—and on the importance, both to aviation safety and to American aerospace competitiveness, of that effort continuing. But before I address that important topic, I want to make some general observations about our industry's shared commitment to safety.

Aviation Safety

Any discussion of U.S. aviation regulation should begin with an acknowledgement of an important fact that I expect is well-known to members of this Committee: travel on a large commercial jet is the safest mode of transportation in human history. On average, more than 8 million people board airplanes daily and arrive safely at their destinations. There have been some high-profile air tragedies recently, including the shoot-down of a commercial jet over Ukraine, the mysterious disappearance of a commercial jet over the Indian Ocean, and most recently a crash into the Java Sea. However, since the dawn of the jet age, the industry's safety record has steadily improved. By the most important measure—the occurrence of accidents involving fatalities—flying is several orders of magnitude safer than it was fifty years ago. Today, in the United States, a fatal accident occurs in less than one out of every 45 million flights.

This extraordinary record is a great accomplishment for the aviation industry and its regulators. And we have a shared commitment—one that is deeply embedded in the culture of our Company—to continue to improve. At Boeing, that commitment begins with the design of our airplanes, which feature multiple layers of protection and a redundancy of critical systems; we design our products to ensure that there is no single point of failure that could jeopardize safety. To cite just one example, twin-engine airplanes are designed to land safely using the power of a single engine, should one of the engines fail. We also continuously improve our products based on our customers' operating experience, as well as our own internal research and development projects. As a result of advances in technologies, materials, design techniques, manufacturing processes and other factors, the airplanes we are building today, and are planning to build in the years ahead, will enable our industry to continually improve its already stellar safety record.

The FAA's regulatory system and oversight efforts have, of course, been critical pillars of modern aviation's extraordinary safety record. The FAA certifies all of Boeing's airplane designs, through a robust process demonstrating that each new airplane satisfies the agency's extensive safety requirements. It also certifies all of our production lines, to determine that Boeing has a production system that ensures that each aircraft we build will meet those certification standards. Finally, each airplane that comes off our production lines receives an airworthiness certificate that indicates that it is ready for safe commercial operation.

The FAA's regulatory approach has necessarily adapted and evolved over time in an effort to ensure that its regulatory resources are deployed where they can most effectively contribute to safety in a rapidly growing and technologically complex industry. One of those practices, to which I will return in a moment, is the FAA's use of a carefully overseen and congressionally sanctioned system of delegated authority that allows for the use of industry expertise while simultaneously maintaining regulatory oversight. The FAA's oversight and certification processes—and its ability to adapt and improve those processes as the industry it regulates continues to evolve—have long made the FAA the world leader in global aviation regulation.

The Challenge Ahead

The FAA will need to draw upon this tradition of robust and efficient risk-based oversight in the decades ahead. Air travel continues to substantially outpace global economic growth, and the aviation industry will continue its expansion to meet this demand. Last year Boeing delivered 723 airplanes to customers around the world—an increase in production of 56% in just the last 5 years—and we expect that trend to continue. Our overseas competitors are also ramping up their production rates.

To meet this historic demand, and to keep ahead of the competition in an increasingly intense global competitive environment, Boeing will bring several new products to market in the next few years. They include a new version of the 787 Dreamliner—the 787-10—which we will start delivering to customers in 2018. Also under development for the U.S. Air Force is the KC-46 tanker, which is based on the 767 and is scheduled for first delivery in 2016. New, re-engined versions of the 737—a group of 4 airplanes that we refer to as the 737 MAX family, is right behind the tanker, with first delivery scheduled for 2017. And on the heels of those product introductions will come the 777X – a new version of the 777 that will feature the largest composite wing ever built.

Each of these new airplanes, when it enters service, will deliver substantial fuel efficiency advantages and other benefits to our airline customers and to the flying public. And these new airplanes, when introduced, will enhance aviation safety, as new, state-of-the-art airplanes replace older airplanes in the worldwide commercial fleet. But each of these airplanes will, of course, need to be certified by the FAA. The large volume of certification work ahead poses a significant challenge for the agency. To meet it, the FAA will need to continue to modernize its certification process to ensure it is making optimal, risk-based decisions about how to use its resources to maximize safety benefit, while simultaneously enabling industry to efficiently bring new, safe and compliant airplanes to the market.

Delegated Authority

As I mentioned, one of the important tools that the FAA has as its disposal is the effective use of delegated authority. I want to take a moment to provide some background on this authority, as there are some misperceptions about it. To begin with, it is not a new practice. It dates back to the late 1920s, and when Congress created the current FAA in 1958, it correctly surmised that if FAA officials were to analyze and review compliance with every single certification requirement, it would require thousands of new engineers and inspectors, additional facilities, and likely hundreds of millions of dollars in new annual funding. Congress back then recognized the fiscal and practical necessity of using private sector expertise to keep pace with the growing aviation industry, and wisely gave the FAA authority to delegate certain certification activities to qualified persons – in effect enabling the agency to leverage its own resources by tapping into the considerable expertise of the private sector.

For reasons of both effectiveness and efficiency, delegated authority has transitioned over time from individual designations to organizational designations. Organizations that demonstrate and maintain strict accountability to certification requirements and processes may receive Organization Designation Authorization, or ODA. As the name implies, ODA status allows an organization to perform certain certification tasks on behalf of the FAA. It is a privilege that is hard to obtain and that carries with it serious legal obligations. Notably, the FAA remains in complete control of the certification process. It retains authority for approval and oversight of all ODA procedures, determines which portions of any given certification project are delegated, and retains ultimate and sole authority to issue airplane type certificates.

ODA holders are governed by stringent FAA requirements that include having an FAA-approved process for selecting and training individuals to perform the delegated tasks. In accordance with FAA procedures, the agency is notified when an individual is selected for ODA membership, and it is given an opportunity to participate in the evaluation of candidates and provide feedback. The FAA also retains the right to direct the removal of an underperforming member.

Boeing received its ODA delegation six years ago, and I can tell you from personal experience that the members of the Boeing ODA are held to a very high standard. They are well qualified, well trained, and take their responsibilities as representatives of the FAA Administrator very seriously. These professionals focus intensely on one goal – to ensure full compliance with all FAA requirements. And they are, by design, and with the full support of the company, protected from any pressures to act in a manner inconsistent with FAA procedures and standards. Through this rigorous and closely overseen ODA system, the FAA has the ability to enhance both the quality and efficacy of its certification process; it can pull expertise from industry into the certification process, and devote its resources more fully to the highest-priority oversight tasks.

Meeting the Challenge

Mr. Chairman, it was gratifying to see Congress recognize the value and importance of ODA and process reforms in its last FAA reauthorization bill. Congress directed in section 312 of that bill that FAA consult with industry to determine methods for enhancing the effective use of delegation and consider process reforms and improvements to the certification process. That process must be robust enough to ensure that new airplanes are safe and compliant, but also efficient enough to ensure that innovation and U.S. competitiveness are not jeopardized. As this Committee knows, Boeing now faces an increasingly fierce competitive landscape against heavily subsidized or state-sponsored aerospace companies overseas. Ensuring continued innovation and competitiveness in the aerospace sector is important not just to the 160,000 employees of the Boeing Company, but to the broader U.S. economy. Boeing supports 1.5 million jobs through its vast U.S. supply chain, and produces America's number one manufactured export. Aerospace, in fact, is one of the few industrial sectors that maintain a positive balance of trade -- $61.2 billion in 2014, according to the Aerospace Industries Association.

As I mentioned earlier—and as Congress wisely recognized—safety and efficiency need not be in tension: since each generation of new airplanes has advanced the safety of commercial jet travel, a robust but efficient certification process will result in new, safe and compliant airplanes entering the market sooner. And a certification process that encourages innovation will result in more efficient development of safety technologies. The challenge facing the FAA—which I believe the FAA is committed to meeting—is to continue to modernize its certification process to address the significant certification burden it confronts in the years immediately ahead. We believe it can do so—in ways that do not compromise, but indeed improve, aviation's extraordinary safety record.

As Congress specifically noted in section 312, enhanced utilization of the available ODA capability that exists throughout our industry should be a cornerstone of this effort. The agency should continue its trend of delegating more routine certification activities--tasks that either do not involve safety-critical items, or that delegated organizations have proven they have the expertise and experience to perform professionally and efficiently. One area where further progress might be made is in the area of software certification where the FAA has recently approved detailed standards, and where hundreds of experts in delegated organizations have been qualified by the FAA to perform approvals.

In this area, and others, the effective use of delegated authority can further enable the FAA to shift its attention and resources from low-risk, low-priority items to higher-level safety opportunities. Such a risk-based, systems-level approach would better enable the FAA to focus on ensuring that an airplane manufacturer like Boeing has the proven systems and technical expertise in engineering, design, test and quality assurance needed to perform day-to-day certification functions. And once that determination is made, the agency then could delegate more of the low-priority tasks, and use its own resources to oversee the delegated organization's work and to focus on the new airplane design issues it considers most critical to safety. Such a system would enhance both aviation safety and U.S. aerospace competitiveness.

Recommendations for Congress

Mr. Chairman, we appreciate this Committee's past work to support the FAA's efforts to modernize and improve its certification processes. We urge the Committee to continue to support these efforts, to help both the FAA, and the American aerospace industry, maintain its world leadership.

The FAA has made progress in this area since the last reauthorization, and I am grateful for the agency's leadership in driving those improvements. As I hope my remarks have illustrated, it is of great importance that more progress be made, given the certification workload the FAA faces in the years immediately ahead. The next reauthorization bill presents an opportunity to consider new proposals that will assist the FAA in modernizing and streamlining the certification process, and in developing and supporting the FAA's workforce.

As I mentioned earlier, the key to unlocking further safety and efficiency benefits is to accelerate the use of ODA, and we would encourage Congress to continue to support the FAA's efforts in this regard. This will enhance the efficiency of the certification process and thus the competitive posture of the U.S. aerospace industry. It will solve pressing resource issues at the FAA, and most importantly it will enable the FAA to spend more of its time and resources pursuing the biggest opportunities for enhancing the safety of new products.

We also suggest that Congress support the FAA's efforts to increase training for its aircraft certification workforce. Specialists at the FAA need the right training to enhance their effectiveness at systems-level oversight. We would like to see Congress work with the FAA to establish a systems engineering discipline at the FAA, to develop the critical skills the agency's workforce needs to support this type of enhanced oversight.

We also would welcome any steps Congress and the FAA could take to encourage increased harmonization of certification standards and the interpretation of these standards with overseas aviation regulators. Doing so would reduce inconsistency and ensure a level regulatory playing field.

In each of these areas, this Committee can help the FAA modernize its oversight structure, and serve both safety and competitiveness in the process.

Close

Mr. Chairman, we appreciate your Committee's support and encouragement of the FAA's efforts to modernize its certification and oversight activities. I look forward to further discussing these efforts with you today, and to working with the Committee and others to advance this important objective in the months to come. With the leadership of Administrator Huerta at the FAA, and the leadership I've seen from both parties and both chambers of Congress, I am confident we will make the adjustments needed to tackle the challenges I've described. We have an opportunity ahead of us to enhance the certification process in ways that will enhance aviation safety, while also enabling U.S. aerospace companies to develop new airplane products on time and at a cost that airlines can afford—thus helping us win in an increasingly fierce competition for global aerospace preeminence.

Thank you for the opportunity to be here today, and I will be glad to answer any questions you may have.

"FAA Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Processes"
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
Wednesday, January 21, 2015, 10 a.m.
2167Rayburn House Office Building
Washington, D.C.

Questions for the Record (QFR) to Ray Conner, President and Chief Executive Officer, Boeing Commercial Airplanes, The Boeing Company

Submitted on behalf of Congressman Shuster

1. Have you seen any improvements in the use of Organization Designation Authorization (ODA) since the passage of the 2012 FAA Modernization and Reform Act? As you cited in your testimony, in Section 312 of that law, Congress directed the FAA to consult with industry to determine methods for enhancing the effective use of delegation and consider process reforms and improvements to the certification process.

ANSWER: As was discussed in Mr. Conner's testimony, some limited improvements have been seen in the utilization of ODA since the passage of the 2012 FAA Modernization and Reform Act. From Boeing's perspective, such improvements since the Act include a reduction in project sequencing delays for smaller ODAs, release of a revision to the FAA ODA Order to incorporate the FAA/Industry ODA Streamlining recommendations enabling individual ODAs and the FAA to implement improvements, and selected increases in delegation. The FAA has also taken initial steps toward enabling additional delegation of Noise, Emissions, and Instructions for Continued Airworthiness approvals. The updated FAA ODA Order enables improvements that have yet to be realized, such as requiring the FAA to provide rationale for retaining involvement so ODAs can improve capability or performance. Finally, there has also been action taken by the Aircraft Certification Service to develop a consistent ODA scorecard across all ACOs, although further work is needed to ensure that this process and metrics are mature.

2. How do you think Congress and industry should work with the FAA to establish a systems engineering discipline at the FAA, to develop the critical skills the agency's workforce needs to support this type of enhanced oversight?

ANSWER: Systems Engineering is an essential approach for developing complex systems and ensuring requirements and objectives are met and integrated in the most effective manner. In this context, it would contribute to, among other things, clear compliance requirements for a design that are safe, realistic and achievable by the designing organization.

In terms of establishing a systems engineering approach in the FAA, there are a number of Departments in the US. Government that have already begun this transition and we would

recommend that Congress and the FAA look to these examples for lessons learned and initial benchmarking. We believe that Congress should work with the FAA in creating a new job/role specific to systems engineering at a level commensurate with a FAA Engineering Specialist job today, and then transition its workforce to this new job role, through appropriate training for the existing workforce and management team.

Since this would be a major project, we would also recommend assigning an executive program manager who would set management expectations about driving culture change, oversee the transition, curriculum development, recurrent training, audit training and metric reviews.

3. Do you believe the FAA has done a sufficient job implementing the recommendations of the Section 312 Aviation Rulemaking Committee to streamline aircraft certifications? Are there areas that still require more of a commitment on the part of the FAA?

ANSWER: The FAA has completed a large number of actions from Section 312. However, we have not yet seen those actions bring about the desired results. While some selected delegation expansions have been completed, there are still many instances of retention of low-risk, routine compliance actions that ODAs are capable and qualified to perform. The Boeing Company appreciates the efforts to date by the FAA to increase utilization of ODAs. However, there are areas where improvements were anticipated but have not yet been realized. The FAA/Industry ARC recommended implementation of a robust, risk-based ODA oversight model, yet we continue to see an increase in certain FAA activities that do not appear to take a systems engineering, risk-based approach to delegation. While we've seen increases in delegation in some selected areas, the FAA continues to retain projects in low-risk areas such as interior certification and software certification. As we've mentioned previously, full use of delegation increases both safety and efficiency. It enables the FAA to spend more of its time and resources pursuing the biggest opportunities for enhancing the safety of new products.

We also believe it important that the FAA continue to work to reduce the frequency of with additional late, subjective requirements, or rule interpretation changes which can affect Boeing airplane deliveries. One possible approach that could be considered is an internal FAA arbitration or review process to ensure consistency of interpretations. Section 312 also gave FAA leadership the action to provide a vision and roadmap for the future of the organization and workforce. While the AIR Vision 2018 has been released, we would encourage that additional work be done, and direction provided, to ensure that the workforce understands how their job role or daily actions are expected to change in support of those goals.

Finally, in the area of metrics: the FAA has been working with industry to implement metrics which demonstrate performance of ODAs as well as FAA change progress. We appreciate these efforts; as mentioned above, while use of an ODA scorecard has just begun, the other metrics have not yet been implemented.

4. Can you tell me, has Boeing moved from paper guidance and manuals to an electronic library? If so, can you share any lessons learned in the transition that can help the FAA in implementing the recommendation to consolidate its electronic guidance libraries into a master source guidance system?

ANSWER: Boeing's transition to electronic recordkeeping began more than a decade ago. Boeing's timekeeping, performance management, salary planning, and design change system are all electronic, just to name a few. To ensure business continuity and compliance with both regulations and internal processes, these systems require regular maintenance, routine training of employees and updates to procedures as new our business evolves.

In 2009, Boeing's ODA saw the advantages of transitioning project records and correspondence from paper to electronic records. The implementation plan executed included the creation of a record keeping process and system, and which set a date certain for full implementation of switching over to electronic-only document retention. Existing paper records are converted to electronic versions according to a set annual goal. Boeing transmits data via an FAA-hosted SharePoint, also sending a paper copy to meet the FAA's record keeping needs. This electronic version benefits both organizations, since review of the documents may begin immediately instead of waiting for the paper copy to arrive. Responses from the FAA arrive electronically and are logged, distributed and archived by Boeing within minutes of the artifact's arrival.

Boeing recommends the FAA adopt full electronic record-keeping, as it would provide efficiency and integrity benefits for the FAA, Boeing and other applicants as well.

5. I understand that Boeing received Organization Designation Authorization (ODA) six years ago. From your perspective, how has this process evolved in the past six years? What are the lessons learned? How has Boeing benefitted from the ODA Program?

ANSWER: The Boeing ODA has continued to mature as a delegated organization, an evolution that began under DOA in 2004. This continuous improvement process is an important component of any form of delegated organization. The improvement is driven through the corrective actions from Boeing internal and FAA audit findings, voluntary disclosures and notifications of non-compliance, as well as lessons learned during compliance projects. However, the Boeing ODA processes have grown in complexity.

There is no question that ODA authorization has provided benefits to the Boeing Company. The benefit is primarily enabling Boeing to support the development of new products and growth in production rates over the past decade – in spite of a limited set of FAA resources. An example is the recent delegation to the Boeing ODA of the capability to provide required training on behalf of the FAA to manufacturing inspectors. Without this delegation, the FAA would not have been able to support the demand for training, resulting in production and delivery delays. In addition, delegation has enabled Boeing to perform FAA functions on behalf of the FAA at suppliers around the world, without the limitations of FAA travel, expenses, and resource availability.

Despite these benefits, as discussed above, there is both a need and an opportunity for much more effective utilization of ODA capabilities. With continued growth in demand for aerospace products, OEMs across the US are increasing production and development rates to record levels.

The Transport Directorate has recently re-intiated a Partnership for Safety Plan with Boeing in an effort to enhance open communication and undertake projects to increase ODA utilization. This is a positive step forward and we look forward to future improvements in certification efficiency and effectiveness from this activity.

Testimony of Aaron Hilkemann

President and Chief Executive Officer, Duncan Aviation

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House Committee on Transportation and Infrastructure

FAA Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Processes

2167 Rayburn House Office Building

January 21, 2015

Introduction

Chairman Shuster, Ranking Member DeFazio, Aviation Subcommittee Chairman LoBiondo, Aviation Subcommittee Ranking Member Larsen, and distinguished members of the Committee: My name is Aaron Hilkemann, and I'd like to thank you for the invitation to testify before the House Transportation and Infrastructure Committee. As the President and Chief Executive Officer of Duncan Aviation, I appreciate the opportunity to discuss our company's business and our vital work with the Federal Aviation Administration (FAA) Flight Standards Division, as well as other portions of the agency.

By way of background, Duncan Aviation is located in Lincoln, Nebraska. We are the largest family owned Maintenance, Repair & Overhaul (MRO) organization in the world, providing complete acquisition sales and support services for business aircraft. The Duncan family has owned and operated the business since our founding in 1956, and we provide service and support for nearly every major make and model of business jet aircraft in operation today. Duncan Aviation has more than 2,000 hard-working aviation maintenance and engineering team members, including more than 500 veterans, in locations throughout the United States. We have major service centers in Lincoln, Nebraska, Battle Creek, Michigan, and Provo, Utah, and operate 18 smaller, satellite avionics facilities at the highest-volume business aviation airports across the United States.

Duncan Aviation is also a member company of the General Aviation Manufacturers Association (GAMA) and I currently serve as Vice Chairman of that organization's Board of Directors. I also serve as Chair of GAMA's Airworthiness and Maintenance Policy Committee, which represents manufacturer and repair station organizations on issues affecting continued airworthiness and maintenance of general aviation products. Our company is also a member of the National Air Transportation Association (NATA), the National Business Aviation Association (NBAA), the Aircraft Electronics Association (AEA), the Professional Aviation Maintenance Association (PAMA), the National Aircraft Resale Association (NARA) and the Aeronautical Repair Station Association (ARSA). We regularly engage with the FAA, TSA, European Aviation Safety

Agency (EASA), and International Civil Aviation Organization (ICAO) to ensure appropriate regulations and policies for aircraft maintenance, repair stations, and the overall safety of aviation.

Today, I would like to discuss some of the issues that affect FAA regulation and oversight and the resulting impact on our repair station business. At the same time, I'd like to highlight other topical areas that impact our ability as a company to provide services and remain competitive in the broader global marketplace.

The MRO Marketplace

Before I speak to those examples, let me provide some information on the influence that MROs have on the aviation marketplace. MROs are the primary maintenance providers for aircraft of all makes, models, and sizes. This includes regular maintenance, repairs, overhauls, and upgrades/retrofits that are necessary to improve the safety, efficiency, and reliability of aircraft and air travel.

Duncan Aviation is a prominent player in the business aviation segment of the marketplace, which includes all business jets manufactured by Bombardier, Embraer, Dassault Aviation, Gulfstream, and Textron. We are an FAA-certificated part 145 repair station and hold an FAA aircraft certification Organization Designation Authorization (ODA). Our ODA pertains to Supplemental Type Certificates (STCs) for interior modifications and avionics system installations and upgrades, Major Repair and Alterations (MRA), and Parts Manufacturing Approval (PMA). According to the Aeronautical Repair Station Association's Global MRO Market Economic Assessment of January 2014, prepared by Team SAI consulting services, U.S. FAA certificated repair stations employ 195,114 people and generate $21.3 billion in U.S. economic activity[1].

Duncan Aviation competes in the global market and is certificated by 21 international authorities as a repair station. Approximately 25 percent of our revenue is derived from aircraft that are registered internationally and based outside the United States. Our activities as a repair station are governed by the FAA's Flight Standards Service, so this is where most of our experience lies.

Working with FAA Flight Standards

As many of you know, the FAA's Flight Standards organization has very broad responsibility, including certification and oversight of pilots, mechanics, air carriers, airlines, and repair stations, as well as all general aviation aircraft operations and maintenance. As a repair station, Duncan Aviation works extensively with our local Flight Standards District Office, or FSDO, in Lincoln, Nebraska. As an ODA, we also work with Aircraft Certification Offices (ACOs),

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[1] Global MRO Market Economic Assessment, Team SAI Consulting Services, prepared for Aeronautical Repair Station Association, January 2014 : available at http://arsa.org/wp-content/uploads/2014/03/ARSA-TeamSAI-EconomicReport-20140319-R2.pdf

Manufacturing Inspection District Offices (MIDOs), and Aircraft Evaluation Groups (AEGs). We sincerely value our relationship with the FAA and we recognize and commend the agency for its dedication to aviation safety. However, successful organizations must always strive for continuous improvement. In that light, as the 114th Congress prepares to reauthorize the laws governing the FAA, I'd like to share some thoughts regarding ways to improve the effectiveness and efficiency of FAA regulations and oversight.

First, it is important to underscore the work that Congress already started in the last authorization to address one of the leading systemic issues with flight standards affecting the industry, and to update you on where we are today.

The FAA Modernization and Reform Act of 2012 included Section 313, a provision designed to improve the consistency of regulatory interpretation, enhance communications between the FAA Flight Standards and Aircraft Certification offices and industry, and promote better and more timely regulatory decision making. The Act required the FAA to establish an advisory panel to review and address findings of an October 2010 report by the Government Accountability Office that cited inconsistent interpretation and application of regulations as one of the leading systemic issues affecting repair stations, air carriers, and manufacturers.

In July of 2013, the FAA submitted a report to Congress with the recommendations of this advisory panel. I'd like to highlight two recommendations that are of particular interest to Duncan Aviation and MROs generally.

The primary recommendation was for FAA Aviation Flight Standards (AFS) and FAA Aircraft Certification Service (AIR) to consolidate the service organization-level regulatory and guidance libraries into a single Aviation Safety (AVS) master electronic database resource to allow the agency and industry access to relevant rules and documentation. Further, the FAA should conduct a review of all regulatory, guidance, policy, and interpretation documents to identify potential conflicts, cancel outdated material, and ensure proper cross-reference with applicable regulations. This ensures that FAA inspectors and industry representatives have access to the regulations and all relevant interpretative material and acceptable methods of compliance to support consistent interpretation and application.

The Section 313 report also recommended that the FAA establish a Regulatory Consistency Communications Board (RCCB) comprising representatives from AFS, AIR, and the Office of the Chief Counsel (AGC) that would provide clarification to FAA personnel and certificate/approval holders and applicants on questions related to the interpretation and application of requirements. This promotes consistency of interpretation and application of regulations to determine acceptable methods of compliance. The RCCB would be the arbiter for all parties.

The establishment of the RCCB will help promote constructive dialogue between the FAA and applicants for the resolution of potentially adverse issues in an expeditious and fair manner.

Without the advisory panel in place to expedite a decision, individual inspectors will continue to apply inconsistent safety measures and enforcement actions.

As the Committee can see, the thrust of Section 313 was to ensure that regulations are applied equitably and consistently by different regional offices of the FAA. If implemented, when questions arose regarding concerns of isolated compliance methods or interpretations, there would be an established process to provide guidance utilizing past or existing examples. Although progress has been made in some areas, the challenges of inconsistent interpretation and application of the rules, and the lack of an efficient system to prevent these issues, continue to hamper U.S. businesses.

To date, the FAA has been considering the recommendations of the Section 313 advisory panel and determining the feasibility of implementation within current resource and budget constraints. Although some initiatives are already underway, significant progress in putting into place the consolidated centralized library or establishing the RCCB advisory panel has not been made.

I'd like to highlight how the lack of progress in these areas continues to negatively impact both Duncan Aviation and broader repair and maintenance organizations. From our perspective, there are three areas that need focused attention to create improvements and improve safety. They are:

- Inconsistent interpretation and application of regulation and the impact this has on business
- Lack of effective communication or Dispute Resolution
- Improvement in Oversight

Inconsistent Application and the Impact to Business

The FAA's inconsistent application of policy can have a profound impact on companies like ours. The MRO marketplace is extremely competitive due to the fact that it is global in nature. Therefore, Duncan Aviation has to continuously evolve to address advancements in technologies and customers' expectations.

Inconsistencies and the ability of the FAA to provide interpretation and application of requirements in this dynamic environment have a direct impact on our business. Our ability to implement improvements, expansions, or changes that affect our competitiveness is reliant on this process.

For example, Duncan Aviation has been working with the FAA for more than two years to address an issue that resulted from the reinterpretation of an FAA position on acceptable means of compliance for mobile maintenance units. While the regulations were clearly intended to support this type of operation, recent FAA Orders have provided inconsistent messages to the FAA field personnel working to authorize, support, and oversee this ongoing activity. Across the U.S., different FAA inspectors utilize a variety of methods to authorize this activity, and varying

methods to oversee this activity, and in some cases, choose to prohibit this activity—all based on guidance material in the FAA Orders that either conflicts with other material or with the regulation itself.

This is an example of an issue that affects the broader repair station community. To be fair, the FAA managing policy office has been very responsive to our concerns and is actively working to address these issues. Guidance is expected to be published in 2015 that will help to clarify the proper control processes of a mobile maintenance unit. Duncan Aviation is grateful for the support and applauds the FAA for its efforts. I raise this issue simply to highlight an example of when inconsistent interpretation and application create an uncertainty that could have been corrected through the aforementioned recommendations.

Lack of Communication or Dispute Resolution

Repair providers experience challenges when attempting to discuss compliance methods with the FAA, especially when there are inconsistencies in regulatory interpretations among FAA inspectors or offices. When a company raises concerns about differing or new interpretations of regulations, inspectors can be reluctant to discuss these, leaving industry with a lack of clarity as they choose a compliance method. Once a compliance method is chosen, sometimes the FAA safety inspectors will issue a "Letter of Investigation" (LOI) or even levy fines rather than offer the chance for an explanation or the opportunity to escalate it to an FAA Regional Managing Office. This puts industry in an untenable position.

Once the enforcement has been initiated, it removes the option to address the issues directly with the local office involved and it removes any authority of the regional or Washington, D.C. office, since it is now a legal enforcement action. This process completely circumvents the FAA's safety mission and the objectives of the compliance and enforcement program, which is to promote consistent compliance with statutory and regulatory requirements. Instead, this practice is more aligned with a lack of due process and the encouragement of sanctions. It also wastes resources, as an issue that could have been resolved through dialog becomes a protracted, expensive, and counterproductive distraction from meeting our mutual safety goals.

Improvements in Oversight

Over the last decade, the aviation industry has experienced a shift in the way maintenance organizations operate. As a result, there has been an increase in the number of audits that are conducted on MROs by regulatory agencies, air carriers, and the repair facilities. These frequent and redundant surveillance activities, many of which are conducted by foreign aviation authorities, duplicate similar efforts while producing little additional value; they do not increase the level of safety. Simply stated, the current system is not efficient, and we need to move to a more risk-based approach to system safety.

The FAA is in agreement with these concerns and recently presented a paper to ICAO on "Assuring Compliance with International Oversight Obligations without Duplication; Shared Surveillance of Approved Maintenance Organizations." In it, they suggest that in order to improve the efficiency and effectiveness of surveillance activities, aviation authorities should consider ways to consolidate and enhance auditing programs at the national, regional, and international level.

Duncan Aviation supports these initiatives and, in consultation with other stakeholders, has offered to provide the FAA with information that identifies areas where improvements can be made. This is an initiative that will require broader strategic planning, and we ask that the FAA continue to provide international leadership in establishing the recognition and acceptance of FAA-certificated repair stations. I urge the Committee to support the FAA and ensure the FAA can continue these initiatives because our competitiveness in the global environment requires that the FAA continue to provide global leadership.

Conclusion

I hope my testimony underscores why today's hearing on FAA oversight is merited. We believe the upcoming FAA reauthorization offers the FAA, policymakers, and industry the ability to constructively and collaboratively address some of these concerns and ensure a robust system that promotes safety and more effective and efficient oversight.

Chairman Shuster, Ranking Member DeFazio, Aviation Subcommittee Chairman LoBiondo, and Aviation Subcommittee Ranking Member Larsen: On behalf of Duncan Aviation, thank you for your leadership and the opportunity to provide this perspective on the FAA's Flight Standards activities. I would be glad to answer any questions that you may have.

United States Government Accountability Office

GAO

Testimony
Before the Committee on Transportation and Infrastructure, House of Representatives

For Release on Delivery
Expected at 10:00 a.m. ET
Wednesday, January 21, 2015

AVIATION SAFETY

Issues Related to Domestic Certification and Foreign Approval of U.S. Aviation Products

Statement of Gerald L. Dillingham, Ph.D.
Director, Physical Infrastructure Issues

GAO-15-327T

GAO Highlights

Highlights of GAO-15-327T, a testimony before the Committee on Transportation and Infrastructure, House of Representatives

January 21, 2015

AVIATION SAFETY

Issues Related to Domestic Certification and Foreign Approval of U.S. Aviation Products

Why GAO Did This Study

FAA issues certificates for new U.S.-manufactured aviation products, based on federal aviation regulations. GAO and industry stakeholders have questioned the efficiency of FAA's certification process and the consistency of its regulatory interpretations. As required by the 2012 FAA Modernization and Reform Act, FAA chartered two committees—one to improve certification processes and another to address regulatory consistency—that recommended improvements in 2012. FAA also assists U.S. aviation companies seeking approval of their FAA-certificated products in foreign markets. FAA has negotiated BASAs with many FCAAs to provide a framework for the reciprocal approval of aviation products. However, U.S. industry stakeholders have raised concerns that some countries conduct lengthy processes for approving U.S. products.

This testimony focuses on (1) FAA's progress in implementing the certification process and regulatory consistency recommendations and (2) challenges selected U.S. companies face in obtaining foreign approvals. It is based on GAO products issued from 2010 to 2014, updated in January 2015 based on FAA documents, and preliminary observations from GAO's ongoing work on foreign approvals. This ongoing work includes an analysis of FAA data on approval applications submitted January 2012 through November 2014 and interviews of a nongeneralizable sample of 15 U.S. companies seeking foreign approvals, selected on the basis of the number of applications submitted and aviation product types manufactured.

View GAO-15-327T. For more information, contact Gerald L. Dillingham, Ph. D. at (202) 512-2834 or dillinghamg@gao.gov.

What GAO Found

The Federal Aviation Administration (FAA) has made progress in addressing the Certification Process and the Regulatory Consistency committees' recommendations, but challenges remain and could affect successful implementation of the committees' recommendations.

- FAA is implementing its plan for completing 14 initiatives for addressing the 6 *certification process* recommendations. According to a January 2015 FAA update, 10 initiatives have been completed or are on track to be completed, whereas the rest are at risk of not meeting or will not meet planned milestones.
- FAA has developed plans for addressing the six *regulatory consistency* recommendations. In late December 2014, FAA officials indicated that the final plan to implement the recommendations is under agency review and is expected to be published in January 2015. According to a draft version of the plan, FAA closed two recommendations—one as not implemented and one as implemented in 2013—and plans to complete the remaining 4 by July 2016.

While FAA has made some progress, it is too soon for GAO to determine whether FAA's planned actions adequately address the recommendations. However, industry stakeholders continue to indicate concerns regarding FAA's efforts. These concerns include a lack of communication with and involvement of stakeholders as FAA implements the two committees' recommendations.

As part of its ongoing work, representatives of 15 selected U.S. aviation companies GAO interviewed reported facing various challenges in obtaining foreign approvals of their products, including challenges related to foreign civil aviation authorities (FCAA) as well as challenges related to FAA.

- Reported *FCAA-related challenges* related to (1) the length and uncertainty of some FCAA approval processes, (2) the lack of specificity and flexibility in some of FAA's bilateral aviation safety agreements (BASA) negotiated with FCAAs, (3) difficulty with or lack of FCAA communications, and (4) high fees charged by some FCAAs. Although FAA's authority to address some of these challenges related to FCAAs is limited, FAA has been addressing many of them. For example, FAA has created a certification management team with its three major bilateral partners to provide a forum for addressing approval process challenges, among other issues. FAA has also taken action to mitigate the challenges related to some BASAs by holding regular meetings with bilateral partners and adding dispute resolution procedures to some BASAs.
- Reported *FAA-related challenges* primarily involved (1) FAA's process for facilitating approval applications, which sometimes delayed the submission of applications to FCAAs; (2) limited availability of FAA staff for facilitating approval applications; and (3) lack of FAA staff expertise in issues unique to foreign approvals, such as intellectual property concerns and export control laws. FAA has initiatives under way to improve its process that may help resolve some of these challenges raised by U.S. companies. For example, FAA is making its approvals-related data more robust to better evaluate its relationships with bilateral partners.FAA is also addressing its resource limitations by taking actions to improve the efficiency of its process.

Chairman Shuster, Ranking Member DeFazio, and Members of the Committee:

I appreciate the opportunity to testify today on the status of the Federal Aviation Administration's (FAA) efforts to improve its processes for approving new aviation products for domestic use, and the challenges faced by U.S. aviation companies seeking product approvals in foreign countries. As you know, among its responsibilities for aviation safety, FAA grants approvals (called type certificates) for new aircraft, engines, and propellers. Studies published since 1980,[1] our prior work,[2] industry stakeholders, and experts have long raised questions about the efficiency of FAA's certification processes and varying interpretations and applications of its regulations in making certification decisions. Over time, FAA has implemented efforts to address these issues, but as we reported in July 2014,[3] they persist as FAA faces greater industry demand and its overall workload has increased. The 2012 FAA Modernization and Reform Act required FAA to work with industry to resolve these issues.[4] In response, in April 2012, FAA chartered two aviation rulemaking committees—one to address certification processes (the Certification Process Committee) and another to address regulatory consistency (the Regulatory Consistency Committee)—which recommended

[1]See National Academy of Sciences, *Improving Aircraft Safety: FAA Certification of Commercial Passenger Aircraft*, National Research Council, Committee on FAA Airworthiness Certification Procedures (Washington, D.C.: June 1980); Booz Allen & Hamilton, *Challenge 1000: Recommendations for Future Aviation Safety Regulations* (McLean, VA: Apr. 19, 1996); RTCA Task Force 4, *Final Report of the RTCA Task Force 4 "Certification"* (Washington, D.C.: Feb. 26, 1999; and Independent Review Team Appointed by Secretary of Transportation Mary E. Peters, *Managing Risks in Civil Aviation: A Review of FAA's Approach to Safety* (Washington, D.C.: Sept. 2, 2008).

[2]GAO, *Aviation Safety: Certification and Approval Processes Are Generally Viewed as Working Well, but Better Evaluative Information Needed to Improve Efficiency*, GAO-11-14 (Washington, D.C.: Oct. 7, 2010) and GAO, *Aircraft Certification: New FAA Approach Needed to Meet Challenges of Advanced Technology*, GAO/RCED-93-155 (Washington, D.C.: Sept. 1993).

[3]GAO, *Aviation Manufacturing: Status of FAA's Efforts to Improve Certification and Regulatory Consistency*, GAO-14-829T (Washington, D.C.: July 31, 2014); *Aviation Safety: FAA's Efforts to Implement Recommendations to Improve Certification and Regulatory Consistency Face Some Challenges*, GAO-14-728T (Washington, D.C.: July 23, 2014).

[4]Pub. L. No. 112-95, §§ 312 and 313, 126 Stat. 11, 66 and 67 (2012).

improvements in 2012.[5] In 2013, FAA published an implementation plan for addressing the six certification process recommendations and stated it would publish an implementation plan for addressing the six regulatory consistency recommendations at a later date. As we previously reported in July 2014, FAA's current efforts to improve these processes are aimed at (1) improving its decision-making process for issuing certificates, (2) keeping pace with emerging technology, and (3) enabling industry growth and innovation.[6] We previously concluded that it will be critical for FAA to follow through with reforms to its certification processes to meet industry's future needs.[7] We have also recommended that FAA develop a continuous evaluative process with performance goals and measures to determine the effectiveness of the agency's actions to improve its certification processes.[8]

FAA also assists U.S. aviation companies in getting their U.S.-certificated products approved for export to foreign countries. Once U.S. aviation companies obtain a type certificate from FAA to use an aviation product in the United States, the companies often apply for approvals for the same products for use in other countries.[9] According to the Aerospace Industries Association, U.S. aviation products continue to be a global commodity for foreign markets because of their widely recognized quality

[5]Report from the Aircraft Certification Process Review and Reform Aviation Rulemaking Committee to the Federal Aviation Administration: *Recommendations on the Assessment Of The Certification And Approval Process*, May 22, 2012; and Report from the Consistency Of Regulatory Interpretation Aviation Rulemaking Committee to the Federal Aviation Administration: *Recommendations On Improving Consistency Of Regulatory Interpretation*, November 28, 2012.

[6]GAO-14-829T and GAO-14-728T.

[7]GAO-14-829T; GAO-14-728T; and GAO, *Aviation Safety: Status of Recommendations to Improve FAA's Certification and Approval Processes*, GAO-14-142T (Washington, D.C.: Oct. 30, 2013).

[8]GAO-11-14. Specifically, we recommended that FAA develop a continuous evaluative process and use it to create measurable performance goals for the actions, track performance toward those goals, and determine appropriate process changes. We also recommended that FAA develop and implement a process in Flight Standards to track how long certification and approval submissions are wait-listed, the reasons for wait-listing them, and the factors that eventually allowed initiation of the certification process. FAA partially addressed the first recommendation and fully addressed the other. Also see GAO-14-142T.

[9]FAA also approves foreign aviation products that are manufactured in other countries for use in the United States as a result of sales to U.S. customers.

and safety.[10] In 2012, the U.S. aerospace industry contributed $118.5 billion in export sales to the U.S. economy, with this sector remaining strong in the European markets and growing in the emerging markets of Asia and the Middle East. Internationally, according to the General Aviation Manufacturers Association,[11] the U.S. has historically been viewed as setting the global standard for the approval of aviation products. In fact, some countries accept the FAA approval outright as evidence that the product is safe for use in their country. Some other countries, however, do not accept the FAA certification and conduct their own approval processes for U.S. products, which can be lengthy, according to U.S. industry stakeholders. These stakeholders have raised concerns that such practices provide no additional safety benefit and result in U.S. companies facing uncertainty and costly delays in delivering their products to foreign markets.

This testimony discusses (1) FAA's progress in implementing the aviation rulemaking committees' recommendations regarding its certification process and the consistency of its regulatory interpretations and (2) the challenges, if any, that selected U.S. companies reported they have faced when attempting to obtain foreign approvals of their products, and how FAA is addressing some of the reported challenges. My statement is based on several GAO products issued since 2010, selected updates on this work, as well as preliminary observations of our ongoing study of the challenges faced by companies seeking foreign approvals.[12] The reports and testimonies cited in this statement contain detailed explanations of the methods used to conduct our prior work. For this testimony, we updated the information in our previous work on FAA's certification process[13] in January 2015 through a review of more recent FAA and industry documents, including the committees' reports to FAA, FAA's reports to Congress in response to the committees' recommendations as well as additional government and industry documents and reports related to this topic.

[10]The Aerospace Industries Association represents major U.S. aerospace and defense manufacturers and suppliers.

[11]The General Aviation Manufacturers Association represents leading global manufacturers of general aviation airplanes and rotorcraft, engines, avionics, and components.

[12]The final results from our ongoing study are expected to be completed by Spring 2015.

[13]GAO-14-728T and GAO-14-829T.

For our ongoing work in determining the challenges faced by companies seeking foreign approvals, conducted from March 2014 to January 2015, we reviewed (1) FAA data on the approximately 1,500 applications for foreign approvals submitted January 2012 through November 2014, (2) bilateral aviation safety agreements (BASA)[14] and related documents, and (3) FAA and industry reports and studies. We also interviewed 15 of the approximately 288 U.S. companies that submitted applications for foreign approvals—these companies submitted about 34 percent of the roughly 1,500 applications to foreign countries from January 2012 through November 2014.[15] We selected these 15 U.S. companies to interview primarily on the basis of the number of approval applications submitted and to represent a diversity of aviation product types (e.g., engines, large airplanes, small airplanes, rotorcraft, propellers, and parts). Because the 15 companies represent a non-generalizable sample, their views cannot be attributed to all U.S. company applicants. We determined that the FAA data were sufficiently reliable for the purposes of providing information on the approximate number of approval applications, types of products for which approvals were typically sought, and for selecting U.S. companies to interview. This determination was based on consultation with FAA officials responsible for overseeing the data. We also conducted interviews with FAA headquarters and field staff and other industry stakeholders—including representatives of the International Civil Aviation Organization (ICAO) and U.S. aviation stakeholder groups. In order to better understand whether the challenges faced by U.S. aviation companies are unique or more commonly faced by aviation companies worldwide, we also interviewed representatives of three foreign aviation companies. Our selection was based on the company being a known importer of aviation products into the United States, as well as based on the type of product they produced. We provided a draft of the new information in this statement to the Department of Transportation (DOT) for technical review and addressed its views where appropriate.

[14]BASAs represent bilateral partnership agreements, negotiated between FAA and other countries' civil aviation authorities, that provide a framework for the reciprocal approval of aviation products imported and exported between the U.S. and other countries.

[15]According to FAA officials, the agency's data on numbers of applications received for foreign approvals may not be complete—for reasons which will be described in more detail later—and therefore this is an approximate number. The FAA data included 486 applications in 2012, 505 in 2013, and 543 in 2014. Also, while not included in our total count of roughly 1,500 applications, the data included approximately 350 applications that FAA received prior to January 2012 or did not indicate a date for when FAA received them.

The work upon which this testimony is based was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

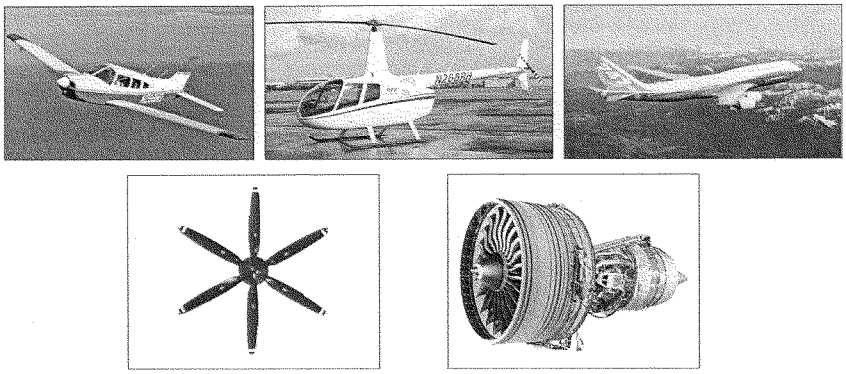
Background

FAA is the key federal agency responsible for certification of U.S. aviation products to be used in the United States and has a significant role in supporting approvals of U.S. products in other countries. Located in FAA's Office of Aviation Safety (Aviation Safety), the Aircraft Certification Service (Aircraft Certification) issues certificates, including type certificates and supplemental type certificates,[16] for new aviation products to be used in the national airspace system. Certification projects, which involve the activities to determine compliance of a new product with applicable regulatory standards and to approve products for certificates, are typically managed by one of Aircraft Certification's local offices (generally known as aircraft certification offices, or ACOs).[17] Figure 1 illustrates the range of U.S.-manufactured aviation products—including aircraft, helicopters, propellers, and engines—for which Aircraft Certification issues type certificates and supplemental type certificates once all requirements are met.

[16]A type certificate is issued for original designs that comply with applicable regulatory standards. A supplemental type certificate is issued for modifications to the original design.

[17]Aircraft Certification has local offices that serve geographic areas across the United States for aircraft certification-related activities in: Anchorage, AK, Atlanta, GA; Boston, MA; Chicago, IL; Denver, CO; Fort Worth, TX; Los Angeles, CA; New York, NY; Seattle, WA; and Wichita, KS.

Figure 1: The Federal Aviation Administration Issues Certificates for a Variety of U.S. Aviation Products



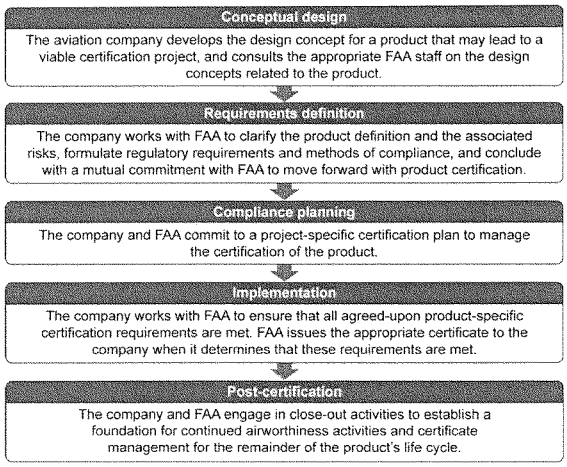
Sources: Piper Aircraft, Robinson Helicopter Company, Boeing, Hartzell Propeller, and GE Aviation. | GAO-15-327T

As we reported in 2010, Aircraft Certification previously delayed the start of some new projects when resources were not immediately available to begin the work.[18] However, in September 2014 it instituted a new process—project prioritization and resource management—that aims to

[18]See GAO-11-14. In addition, also located in Aviation Safety, the Flight Standards Service (Flight Standards) conducts certifications of new operators, such as air carriers, in the national airspace system. When projects are accepted in Flight Standards, they are processed on a first-in, first-out basis within each office once FAA determines that it has the resources to oversee an additional new certificate holder. Flight Standards, in particular, has historically had difficulty keeping up with its certification workload across its regions and offices. For more information, see DOT Office of Inspector General, *Weak Processes Have Led to A Backlog of Flight Standards Certification Applications*, Federal Aviation Administration, Report Number AV-2014-056 (Washington, D.C.: June 12, 2014).

eliminate such delays.[19] Figure 2 lists the key phases in FAA's process for issuing certificates for aviation products. As depicted in the figure, both the applicant company and Aircraft Certification staff are involved in each phase.

Figure 2: Key Phases in the Process Used by the Federal Aviation Administration's (FAA) Aircraft Certification Service for Issuing Certificates for New Aviation Products



Source: FAA. | GAO-15-327T

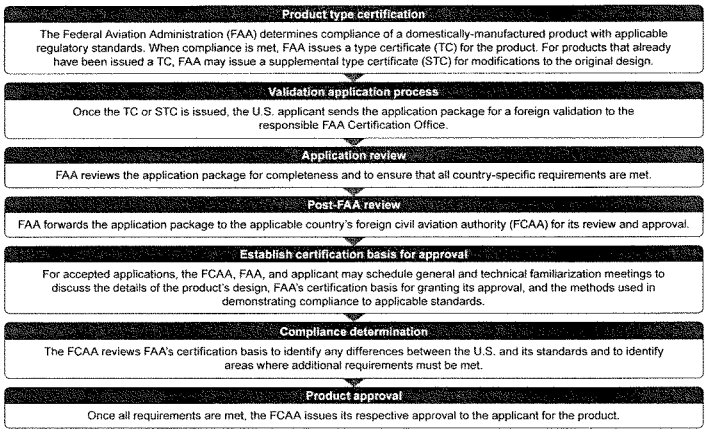
[19]Similar to the previous process, known as project sequencing, the new project prioritization process focuses FAA resources on safety but with an approach that allows work to begin without delay following acceptance of an application package. Under this new process, when a certification project is initiated, the responsible ACO determines the project's priority and related task response times. Project sequencing, which began in 2005, was an effort to focus limited resources on safety enhancements, but the workload was managed by delaying (wait listing) entire projects until resources were available. Applicants were sometimes subject to long delays and could not anticipate when FAA personnel would start work on a project.

Note: FAA staff involved may include managers, engineers, inspectors, flight test pilots, chief scientific and technical advisors, as well as an aircraft evaluation group from FAA's Flight Standards Service. The aircraft evaluation group is responsible for evaluating aviation products for conformance to operations and maintenance requirements.

Under the Convention on International Civil Aviation (known as the Chicago Convention), each country is responsible for the safety oversight activities for its civil aviation system, including the continued operational safety of the people and products operating within the country's airspace. ICAO is the international body that, among other things, promulgates international standards and recommended practices to ensure that civil aviation throughout the world is safe and secure.[20] The Chicago Convention also requires each contracting member country to adopt airworthiness standards for the design and performance of aviation products. As counterparts to FAA, other countries' civil aviation authorities—which we will refer to as foreign civil aviation authorities (FCAA)—also approve domestically-manufactured aviation products for use in their respective countries. ICAO allows a member country to (1) accept a product approved by another member country (called *type acceptance*), (2) conduct an approval process to evaluate another country's basis for certification to ensure that a product meets that member country's airworthiness standards (called *validation*), or (3) conduct its own certification. Therefore, FCAAs also approve U.S. aviation products for use in their respective countries. While FAA is responsible for issuing the type certificates and supplemental type certificates for U.S.-manufactured aviation products, the agency also provides technical and practical support to U.S. companies seeking foreign approvals in other countries by defending the original type certificate issued for a product. Applications for foreign approvals are generally submitted to FAA for review, and, once satisfied that all FCAA submission requirements are met, FAA transmits the applications to the relevant FCAA. Figure 3 outlines the general steps for obtaining approvals of U.S. aviation products from FCAAs.

[20]ICAO was formed following the 1944 Convention on International Civil Aviation, and in 1947 it became a specialized agency of the United Nations. A primary objective of ICAO is to provide for the safe, orderly, and efficient development of international civil aviation. There are currently 190 signatory nations to the Chicago convention, including the United States. ICAO members, including the United States, are not legally bound to act in accordance with ICAO standards and recommended practices. Nations that are signatories to the Chicago convention, however, agree to cooperate with other member countries to meet standardized international aviation measures.

Figure 3: General Steps for Obtaining Approvals of U.S. Aviation Product from Foreign Civil Aviation Authorities



Source: GAO presentation of FAA information. | GAO-15-327T

Note: This figure outlines the general steps for a sequential approval process in which the company first seeks a type certificate or supplemental type certificate from FAA. However, applicants may opt for a concurrent approval process in which its aviation product undergoes an FCAA's approval at the same time it undergoes the FAA certification process. In fact, according to FAA, a number of foreign approvals are issued the same day as the FAA certification.

FAA has negotiated BASAs with many of its civil aviation authority counterparts.[21] These agreements provide a framework for the reciprocal approval of aviation products imported and exported between the U.S. and other countries. According to FAA, it has 21 BASAs which affect 47 countries, including one BASA with the European Union (EU) that covers its member nations. For a new BASA to be initiated, FCAAs initiate negotiations with the United States through a diplomatic note to the U.S. Department of State. BASAs are generally structured in two parts:

- First, an executive agreement is negotiated by the U.S. Department of State with its foreign counterpart that authorizes the two countries to enter into a BASA.
- Second, Implementation Procedures for Airworthiness (IPA) are negotiated between FAA and the respective FCAA. The IPA outlines the airworthiness technical cooperation between FAA and its bilateral partner, and may include procedures for the reciprocal acceptance of product approvals and changes, production and surveillance oversight, and continued airworthiness activities.[22]

While BASAs exist to assist in streamlining the approval process for imported aviation products between bilateral partners, each country retains control of its basic regulatory framework for ensuring the safety of those products—effectively a recognition of the sovereignty of each country. For example, in cases of differing interpretations of regulations or standards during the approval process between bilateral partners, some BASAs contain a clause that notes that the interpretation of the country whose regulations and/or standards are being interpreted will prevail.

[21]BASAs require that U.S. aviation companies submit applications for foreign approvals through FAA; however, there is no such requirement for applications to countries where a BASA does not exist. However, FAA encourages companies preparing applications to non-bilateral partners for approvals to submit the applications to FAA for transmittal to the relevant FCAA.

[22]More recently, instead of an IPA, FAA incorporated Technical Implementation Procedures (TIP) in the BASA with its European counterpart, the European Aviation Safety Agency (EASA). TIPs outline the detailed duties and responsibilities for how FAA and a FCAA interact in terms of level of involvement, as well as the technical steps during the approval process.

FAA Has Made Progress in Addressing the Certification Process and Regulatory Consistency Committees' Recommendations

FAA Reports that Most of the Initiatives to Improve Its Aircraft Certification Processes Have Been Implemented, but It Is Too Early to Assess Whether Expected Outcomes Will Be Achieved

Aircraft Certification is implementing and has set milestones for completing 14 initiatives in response to May 2012 recommendations of the Certification Process Committee. This Committee was chartered to make recommendations to Aircraft Certification to streamline and reengineer its certification process, improve efficiency and effectiveness within Aircraft Certification, and redirect resources for support of certification. Several of the initiatives were originally begun as part of earlier certification process improvement efforts. The initiatives range from developing a comprehensive road map for major change initiatives, to reorganizing the small aircraft certification regulations.[23] Although we reported in 2013 that the Certification Process Committee's recommendations were relevant, clear, and actionable, it is too soon for us to determine whether FAA's 14 initiatives adequately address the recommendations.

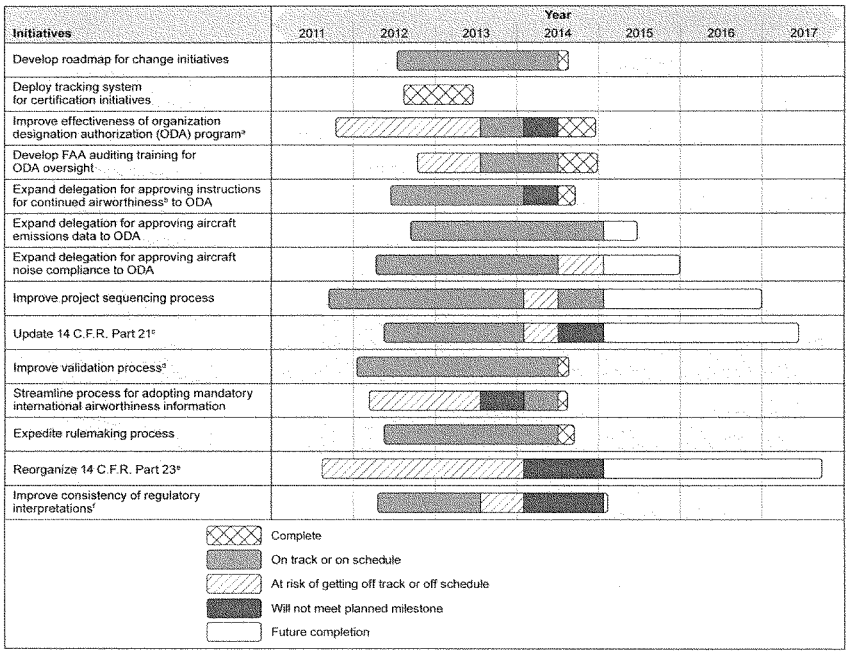
According to an update prepared by FAA in January 2015, eight initiatives have been completed, and two are on track to be completed within 3 years. However, according to this update, one initiative was at risk of not meeting planned milestones, and three initiatives will not meet planned milestones, including the update to 14 C.F.R. Part 21—the regulations under which aircraft products and parts are certificated. We reported in July 2014 that this initiative was in danger of not meeting planned milestones because the October 2013 government shutdown delayed

[23] 14 C.F.R. Part 23. In June 2013, a joint FAA-industry committee recommended to FAA changes to part 23. According to FAA officials, FAA will devise a plan to implement the recommendations and initiate a new rulemaking for part 23 in 2015.

some actions FAA had planned to move it into the rulemaking process.[24] In its January 2015 update, FAA indicated that the formal rulemaking project timeline has been delayed to late fiscal year 2015 to allow for additional work with industry on developing guidance material and new certificate holder requirements. Figure 4 illustrates the evolving status of the 14 initiatives based on the publically-available periodic updates reported by FAA.

[24]GAO-14-728T.

Figure 4: Federal Aviation Administration's Reported Status Updates of its Initiatives to Address the Certification Process Committee's Recommendations, as of January 2015



Source: GAO presentation of FAA information. | GAO-15-327T

Note: Future completion shown in the figure indicates when an initiative is planned to be completed.

[a]FAA delegates authority to organizations under the organization designation authorization program to carry out certain functions on behalf of the agency. 14 C.F.R. Part 183, Subpart D.

[b]Instructions for continued airworthiness include such things as maintenance manuals and inspection programs for maintaining operational safety of aviation products.

[c]Aircraft products and parts are certificated under 14 C.F.R. Part 21.

[d]The approval (i.e., validation) process is a form of certification to establish compliance for aviation products designed outside their countries in order to issue a type certificate for these products.

[e]Small airplanes are certificated under 14 C.F.R. Part 23.

[f]This initiative is on hold until issuance of the implementation plan for addressing recommendations to improve regulatory consistency.

We found in October 2013 that Aircraft Certification lacked performance measures for many of these initiatives.[25] As of July 2014, FAA had developed metrics for measuring the progress of the implementation of 13 of the 14 initiatives.[26] According to FAA officials, they plan to develop these metrics in three phases. For the first phase, which was documented in the July 2014 update of its implementation plan, FAA developed metrics to measure the progress of the implementation of the initiatives. For the second phase, FAA plans to develop metrics for measuring the outcomes of each initiative. For the third phase, working with the Aerospace Industries Association and General Aviation Manufacturers Association, FAA plans to develop metrics for measuring the global return on investment in implementing all of the initiatives, to the extent that such measurement is possible. FAA did not provide us a time frame for developing the second and third phase metrics. While we continue to believe that this plan for establishing performance measures is reasonable, and recognizing that FAA is in the early stages of implementation, it is critical for FAA to follow through with its plans for developing and utilizing metrics to evaluate improvements to the certification process. Without these metrics, FAA will be unable to fully determine whether its efforts have been successful in addressing the Certification Process Committee's recommendations as intended, identify areas that may need more attention, and modify efforts to sufficiently address any gaps. In our previous work, we have reported on instances where the implementation and metrics related to FAA efforts have not achieved the intended outcomes as expected, e.g., modernizing the air traffic control system under the Next Generation Air Transportation

[25]GAO-14-142T.

[26]The initiative without performance metrics focuses on improving the consistency of regulatory interpretation and is on hold until issuance of the implementation plan for addressing a separate set of the recommendations to improve regulatory consistency within FAA. However, as we discuss later, Flight Standards is taking the lead in addressing those recommendations and is developing a plan and associated performance metrics. Flight Standards' implementation plan is scheduled to be published in late January 2015.

System (NextGen)[27] and the integration of unmanned aerial systems into the national airspace system.[28]

FAA Has Developed Plans to Address Recommendations to Improve the Consistency of Its Regulatory Interpretations, but Progress Has Been Slow

Flight Standards has also developed initiatives in response to the six November 2012 recommendations of the Regulatory Consistency Committee, but the planned initiatives have not yet been released officially. This Committee was chartered to make recommendations to FAA to improve (1) the consistency in how regulations are applied in making certification decisions and (2) communications between FAA and industry stakeholders regarding such decisions. In late December 2014, FAA indicated that the draft plan to implement these recommendations was currently under review within FAA but the final plan is expected to be published by the end of January 2015, more than a year past the initial target publication date of December 2013. However, according to an October 2014 draft version of the plan that FAA provided to us, despite not having yet officially released the plan, FAA noted that it had closed 2 of the 6 recommendations and plans to complete the remaining four by July 1, 2016. FAA also noted that it had developed performance measures to measure the progress of the implementation of the remaining 4 recommendations. Table 1 provides a summary of the recommendations and FAA's plans for addressing them, based on the October 2014 draft plan that FAA provided to us.

[27]NextGen is a federal effort to transform the U.S. national airspace system from a ground-based system of air traffic control to a satellite-based system of air traffic management. See GAO, *FAA Reauthorization Act: Progress and Challenges Implementing Various Provisions of the 2012 Act*, GAO-14-285T (Washington, D.C.: Feb. 5, 2014).

[28]Unmanned aircraft systems are remotely piloted aircraft or drones. They do not carry a pilot aboard, but instead operate on pre-programmed routes or are manually controlled by commands from pilot-operated ground control stations. See GAO, *Unmanned Aerial Systems: Efforts Made toward Integration into the National Airspace Continue, but Many Actions Still Required*, GAO-15-254T (Washington, D.C.: Dec. 10, 2014).

Table 1: Summary of the Federal Aviation Administration's Planned Actions to Address the Regulatory Consistency Committee's Recommendations, as of October 2014

Recommendation	Planned FAA action(s)	Estimated completion
(1) Master Source Guidance System In its top priority recommendation, the Committee recommended that FAA: (a) review all guidance documents to identify and cancel outdated material and electronically link the remaining materials to its applicable rule, and (b) consolidate electronic guidance libraries into a master source guidance system, organized by rule, to allow FAA and industry users' access to relevant rules and all guidance materials.	• Flight Standards and Aircraft Certification officials plan to map or link identified guidance documents to the appropriate section of the Code of Federal Regulations where possible, with the eventual goal of creating a document management framework that encompasses all Aviation Safety regulatory guidance documents. Based on the results of the document mapping process, Flight Standards and Aircraft Certification plan to determine the requirements for an electronic platform that would accommodate the search parameters emphasized by external stakeholders.	• March 31, 2016
(2) Instructional Tools for FAA Personnel for Applying Policy and Guidance Noting multiple instances where FAA guidance appeared to have created inconsistent interpretation and application and confusion, the Committee recommended that FAA develop a standardized decision-making methodology for the development of all policy and guidance material to ensure such documents are consistent with adopted regulations.	• FAA plans to implement this recommendation by evaluating current government best practices and transitioning to a comprehensive document management framework for drafting, revising, and reviewing regulatory guidance documents.	• October 31, 2015
(3) FAA and Industry Training Priorities and Curriculums The Committee recommended that FAA, in consultation with industry stakeholders, review and revise its regulatory training for applicable agency personnel and make the curriculum available to industry.	• FAA plans to conduct a gap analysis of existing training to identify any deficiencies. As part of this analysis, FAA plans to review current available training to ensure that it meets the needs of aviation safety inspectors and aviation safety engineers in applying regulations in the field and for safety inspectors and engineers with their responsibilities for rulemaking and policy development/revision. FAA plans to develop a plan of action to address any deficiencies found during the gap analysis. This plan of action is expected to include appropriate performance measures.	• July 31, 2015

Recommendation	Planned FAA action(s)	Estimated completion
(4) Regulatory Consistency Communications Board (RCCB) and (5) Regulatory Operations Communication Center The Committee made two similar recommendations for FAA to consider: (1) establishing a Regulatory Consistency Communications Board comprising various FAA representatives that would provide clarification on questions from FAA and industry stakeholders related to the application of regulations and (2) determining the feasibility of establishing a full-time Regulatory Operations Communication Center as a centralized support center to provide real-time guidance to FAA personnel and industry certificate/approval holders and applicants.	• To address recommendation 4, FAA plans to establish an RCCB to begin documenting, and tracking policy application and intent questions in a consistent manner. The RCCB is planned to be responsible for developing a policy question tracking process that will be introduced internally at the outset, with the goal of expanding the process to external industry stakeholders. • FAA does not plan to address recommendation 5. According to FAA officials, the agency has addressed the intent of this recommendation with its plan to establish an RCCB.	• Recommendation 4: June 30, 2016. • Recommendation 5: Closed and not implemented.
(6) Clarity in Final Rules The Committee recommended that FAA improve the clarity of its final rules by ensuring that each final rule contains a comprehensive explanation of the rule's purpose and how it will increase safety.	• According to officials, FAA considers this recommendation closed through the implementation of a rulemaking prioritization process and tool in 2013. Officials noted that FAA rulemaking includes other process elements that help ensure clarity in final rules. These elements include the development of rules by subject matter experts as well as multiple rounds of review within FAA and by the Department of Transportation and the Office of Management and Budget.	• Closed and implemented in 2013 through a separate initiative, according to FAA.

Source: GAO presentation of FAA information. | GAO-15-327T

We reported in 2013 that the Regulatory Consistency Committee took a reasonable approach in identifying the root causes of inconsistent interpretation of regulations, and its recommendations are relevant to the root causes, actionable, and clear.[29] However, it is too soon for us to determine whether FAA's planned actions adequately address the recommendations. In addition, FAA's draft plan stated that the resources required to implement the recommendations must be balanced with other important FAA activities, such as agency priorities and existing rulemaking initiatives, and that if future priorities change, it may be forced

[29]GAO-14-142T.

to modify elements of this implementation plan. As we reported in July 2014, it will be critically important for FAA to follow through with its initiatives aimed at improving the consistency of its regulatory interpretation as well as its plans for developing performance metrics to track the achievement of intended consistencies.[30] We have previously reported that large-scale change management initiatives—like those recommended by the regulatory consistency committee—require the concentrated efforts of both leadership and employees to realize intended synergies and accomplish new organizational goals.[31]

Further, industry representatives have continued to indicate a lack of communication with and involvement of stakeholders as a primary challenge for FAA in implementing the committees' recommendations, particularly the regulatory consistency recommendations. FAA has noted that the processes for developing and updating its plans for addressing the certification process and regulatory consistency recommendations have been transparent and collaborative, and that FAA meets regularly with industry representatives to continuously update them on the status of the initiatives and for seeking their input. However, several industry representatives recently told us—and we reported in July 2014[32]—that FAA has not effectively collaborated with or sought input from industry stakeholders in the agency's efforts to address the two sets of recommendations, especially the regulatory consistency recommendations. For instance, some stakeholders reported that FAA does not provide an opportunity for them to review and comment on the certification process implementation plan updates, and did not provide an opportunity for them to review and offer input on the regulatory consistency implementation plan. However, FAA did meet with various industry stakeholders in October 2014 to brief them on the general direction and high-level concepts of FAA's planned actions to address each regulatory consistency recommendation.

[30]GAO-14-728T.

[31]GAO, *Results-Oriented Cultures: Implementation Steps to Assist Mergers and Organizational Transformations,* GAO-03-669 (Washington, D.C: July 2, 2003).

[32]GAO-14-728T.

Selected U.S. Companies Report Challenges in Obtaining Foreign Approvals, Which FAA Is Taking Steps to Address within Sovereignty Constraints

U.S. Companies Reported that they Experienced FCAA-Related Process, Communications, and Cost Challenges and FAA is Attempting to Address These Challenges

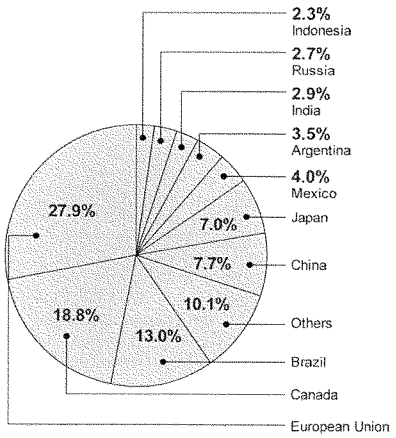
Representatives of the selected 15 U.S. aviation companies we interviewed, as part of our ongoing work on foreign approvals, reported that their companies faced challenges related to process, communications, and cost in obtaining approvals from FCAAs.[33] The processes involved included FCAAs' individual approval processes as well as the processes spelled out in the relevant BASAs. FAA is making some efforts to address these challenges, such as by holding regular meetings with some bilateral partners and setting up forums in anticipation of issues arising.

According to FAA data, from January 2012 through November 2014, U.S. companies submitted approximately 1,500 applications for foreign approvals to a total of 37 FCAAs.[34] Figure 5 shows the percentage of applications submitted to the top ten and other markets for foreign approvals from January 2012 through November 2014.

[33]Some aviation companies discussed multiple challenges; therefore, the total number of companies that are discussed for each reported challenge throughout this part of this statement will not add to 15.

[34]The total includes Hong Kong, which is counted separately from China.

Figure 5: The Top Ten and Other Foreign Markets to Which U.S. Aviation Companies Submitted Applications for Foreign Approvals, January 2012 through November 2014



Source: GAO analysis of FAA data. | GAO-15-327T

Notes: Percentages in the figure do not total 100 percent due to rounding.

Others include the following bilateral partners, in descending order of the number of applications submitted: South Korea, South Africa, Taiwan, New Zealand, Malaysia, Israel, and Singapore.

The percentages are based on an approximation of the total number of submitted applications by U.S. aviation companies. According to FAA, the number of applications may be undercounted because there is no formal requirement for U.S. aviation companies to submit applications to FAA for foreign approvals unless the country is a FAA bilateral partner. Thus, some applications may not have been entered into FAA's tracking system.

Reported FCAA Process Challenges

Of the 15 companies we interviewed, representatives from 12 companies reported mixed or varied experiences with FCAAs' approval processes, and 3 reported positive experiences. Thirteen companies reported challenges related to delays, 10 reported challenges with approval process length, and 6 reported challenges related to FCAA staffs' lack of knowledge or uncertainty about the approval processes, including FCAA requests for data and information that, in the companies' views, were not needed for approvals. Representatives of three companies stated that, in

their opinion, the EU's process is sometimes lengthy and burdensome, resulting in delays. Representatives of four companies noted examples of approval projects that, in their opinions, were expected to be granted within weeks or hours by FCAAs, in general, but instead took months or years. As an example, there were several media reports on the EU's 4-year process for the approval of the Robinson R66 helicopter, which was reportedly awarded by EASA in May 2014.[35] However, because we were not provided the relevant factors and circumstances that could have affected the delays in the specific examples provided, we did not assess whether the approvals took longer than necessary. Eight companies also noted that China often makes requests for data and detailed product design information that in their view is not necessary for an approval, and sometimes holds up approvals until those requests are fulfilled.

FAA has taken actions aimed at alleviating current and heading off future challenges related to foreign approval processes. In September 2014, FAA—along with Brazil, Canada, and the EU—established a Certification Management Team to provide a forum for addressing approvals and other bilateral relationship issues. FAA also recently established a pilot program that allows a U.S. company to work concurrently with multiple FCAAs for obtaining approvals (initially for the Boeing 737 MAX[36]) and to identify key FCAA approval needs and ensure adequate FAA support.[37] In 2011, FAA and EASA assembled a joint team to analyze potential approval process difficulties occurring between the two FCAAs.[38] Also, FAA is negotiating an IPA to implement the BASA with China that will provide clarity on the procedures for U.S. companies seeking foreign

[35]See, for example, "Robinson R66 Certified by EASA," *Aviation Week's Aerospace Daily and Defense Report*, May 8, 2014, p. 3.

[36]The 737 MAX is Boeing's newest family of single-aisle airplanes. It can accommodate up to 200 seats, and the first flight is scheduled in 2016 with deliveries to customers beginning in 2017.

[37]According to FAA, this is a pilot program in which all of the FCAAs to which Boeing submitted approval applications will meet jointly with Boeing rather than each having separate meetings with Boeing. Therefore, Boeing would be able to identify common needs from all of the FCAAs for their approvals.

[38]The FAA-EASA Validation Implementation Team is a partnership between FAA, led by Aircraft Certification's International Policy Office, and EASA which studies ways to improve and effectively implement type validation as bilateral partners.

approvals, and is expected to be completed in fiscal year 2015.[39] According to FAA officials, this IPA is also expected to reduce the level of involvement of the Civil Aviation Administration of China (CAAC) in conducting approvals and prevent its certification staff from doing extensive research for each approval project.

Reported Issues Related to Some BASAs

Although representatives from 11 of the 15 U.S. companies and the 3 foreign companies we interviewed reported being satisfied with the overall effectiveness of having BASAs in place or with various aspects of the current BASAs, representatives of 10 U.S. companies reported challenges related to some BASAs lacking specificity and flexibility, 2 raised concerns that there is a lack of a formal dispute resolution process, and 1 noted a lack of a distinction between approvals of simple and complex aircraft. Companies suggested several ways to address these issues, including updating BASAs more often and making them clearer.

FAA has taken action to improve some BASAs to better streamline the approval process that those countries apply to imported U.S. aviation products. For instance, according to FAA officials, they meet regularly with bilateral partners to address approval process issues and are working with these partners on developing a common set of approval principles. FAA also noted that there are basic dispute resolution clauses in most of the IPAs, and FAA is working toward adding specific dispute resolution procedures as contained in the agreement with the EU. FAA aims to complete negotiations to add a dispute resolution clause to the BASA with China in fiscal year 2015. FAA officials also indicated that they are working with longstanding bilateral partners—such as Brazil, Canada, and the EU—to identify areas where mutual acceptance of approvals is possible.

Reported Challenges in Communicating with FCAAs

Representatives from twelve U.S. companies reported challenges in communicating with FCAAs. Representatives from six U.S. companies reported, for example, that interactions with developing countries can be confusing and difficult because of language and cultural issues. Representatives from two companies noted that they hire local

[39]The BASA with China was signed in 2005 but will not go into effect until the corresponding IPA is signed.

representatives as consultants in China to help them better engage CAAC staff with their approval projects and to navigate the CAAC's process. One company's representative also reported having better progress in communications with FCAAs in some Asian countries, such as India Japan, and Vietnam, when a local "third-party agent" (consultant) is involved because it provides a better relationship with the FCAAs' staff. They added this requires a lot of trust that the local agent will support the best interests of the company, and, at times, this arrangement becomes difficult because the company's experts would prefer to be in charge of the communications with FCAAs during the approval processes. Representatives from three companies also reported that, in general, some FCAAs often do not respond to approval requests or have no back-ups for staff who are unavailable. They noted that potential mitigations could include a greater FAA effort to develop and nurture relationships with FCAAs. According to FAA officials, they are working with the U.S.-China Aviation Cooperation Program to further engage with industry and Chinese officials.

Reported Challenges Related to Foreign Approval Costs

Representatives from twelve of the 15 U.S. companies and 2 of the 3 foreign companies indicated challenges with regard to approval fees charged by FCAAs. They specifically cited EASA and the Federal Aviation Authority of Russia (FAAR). For example, they noted that EASA's fees are significantly high (up to 95 percent of the cost of a domestic EASA certification)[40]—especially relative to the amount levied by other FCAAs[41]—are levied annually, and are unpredictable because of the unknown amount of time it takes for the approval to be granted. The fees are based on the type of product being reviewed for approval and can range from a few thousand dollars to more than a million dollars

[40]EASA's March 2014 proposal to amend the Agreement between the U.S. and the EU on cooperation in the regulation of civil aviation safety notes that in principle, the EASA process for approval of certificates issued by a country with which the EU has an appropriate agreement should result in a different workload from the process required for certification activities by that certifying country. However, in the approval of U.S. products, EASA currently charges U.S. companies up to 95 percent of the cost of conducting a domestic certification of a similar European-manufactured aviation product.

[41]For example, according to media reports citing information obtained from Robinson Helicopter Company, EASA charged Robinson about $1 million to approve the R66 helicopter while other FCAAs' charges ranged from $2,709 (Argentina) to $178,000 (Russia). According to one report, Robinson also noted that Canada—where it stated that the team size and depth of review of the FAA certification was very similar to that of EASA—levied a total fee of about $80,000 to certify the R66.

annually. Representatives from two companies also noted that EASA lacks transparency for how the work it conducts to grant approvals aligns with the fees it levies for recovering its costs.[42] FAA officials indicated to us that a foreign approval should take significantly less time and work to conduct than the work required for an original certification effort—roughly about 20 percent—and that they have initiated discussions with EASA officials about making a significant reduction in the fees charged to U.S. companies.

Representatives of two companies also indicated that some FCAAs (e.g., China and Indonesia) routinely conduct site visits to the United States to, for example, review data and conduct test flights. According to the companies we interviewed, these visits are paid for by the U.S. companies seeking the approvals and the cost of these visits are unpredictable because the logistics and duration are determined by the FCAA. For example, representatives from one company told us that one FCAA typically conducts 2-week visits, but they only need one and a half days to provide information. Four companies' representatives told us that they sometimes (1) offer to send their staff to the FCAA or another location because they can often do so less expensively or (2) schedule these site visits to better coincide with a more favorable budget environment for the company.

U.S. Companies Also Reported FAA-Related Challenges Which FAA Is Taking Actions to Address

Reported Challenges Related to FAA

As mentioned previously, FAA provides assistance to U.S. companies by facilitating the application process for foreign approvals of aviation products. U.S. companies seeking to export their aviation products to countries with BASAs in place submit application packages for foreign

[42]Pursuant to the regulation establishing EASA—Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008—EASA is financed primarily through fees paid for certificates issued by the agency and charges for publications, training, and other services.

approvals to an appropriate ACO.[43] ACO staff facilitates this process by reviewing the application package for completeness and to ensure that all country-specific requirements are met; and then forwarding the package along with an FAA cover letter to the applicable FCAA for review and approval.[44] According to FAA officials, after the FCAA has reviewed the package, sometimes the authority will submit "certification review items"—which document issues related to the original certification of a product that requires an interpretation on how compliance was met or additional clarifications, or represents a major technical or administrative problem—to the responsible ACO for review and response. The assigned ACO staff reviews these items, determines whether a response is required from the applicant company, and coordinates the response to the FCAA. In some cases, ACO staff prepares issue papers which outline, among other things, the certification basis upon which the original type certification was issued. Also, according to FAA officials, FAA staff supports general and technical meetings between applicant companies and FCAAs for foreign approvals.

According to FAA officials, the agency strives to make its process in place to support foreign approvals of aviation products as efficient as possible. In an effort to measure progress toward this goal, FAA has centrally tracked since January 2012 data on foreign approvals, including: the total number of foreign approval applications received and processed, the dates that applications are received by FAA, the dates packages are sent by FAA to the FCAA, and the date when the FCAA ultimately approves or finalizes the application. This data can be broken down by export country, applicant company and product type. As will be discussed later, however, FAA's data on foreign approvals has some limitations. According to FAA staff in two ACOs, each field office is responsible for setting its own time goals related to processing foreign approvals. Officials in three field offices told us that their goal is for each foreign approval package to be

[43]As previously mentioned, U.S. companies seeking to export products to countries with whom FAA has negotiated BASAs should submit foreign approval applications for transmittal through FAA. For U.S. companies exporting products to countries without a BASA, FAA encourages companies to submit such applications through the FAA process, but there are no related requirements for the company to do so. Thus, some companies seeking approvals from foreign countries without a BASA may submit applications directly to respective FCAAs; FAA's data would not capture those applications.

[44]In 2013, FAA issued an Advisory Circular that provided guidance on obtaining design acceptance of U.S. products by FCAAs.

forwarded to the FCAA within 30 days of receipt by FAA. FAA also collects other information about foreign approvals in an effort to assess its bilateral relationships and the overall effectiveness of its process. For example, for some foreign approval projects, FAA field staff must complete a Bilateral Relationship Management (BRM) form to provide feedback on the interaction with a FCAA, which is submitted to FAA headquarters. As we will further discuss later, however, FAA officials acknowledged some issues with the BRM process which they plan to address.

Although FAA seeks to provide an efficient process, companies we interviewed reported challenges that they faced related to FAA's role in the foreign approval process. FAA-related challenges cited by the companies we interviewed fell into three main categories:

- *Process for facilitating foreign approvals.* Most of the U.S. companies in our selection (twelve out of fifteen) reported challenges related to FAA's process for handling foreign approvals. These included concerns about foreign approvals not being a high enough priority for FAA staff, a lack of performance measures for evaluating BASAs, and an insufficient use of FAA's potential feedback mechanisms. For example, representatives of three companies told us that sometimes FAA is delayed in submitting application packets to FCAAs because other work takes priority; one of these companies indicated that sometimes FAA takes several months to submit packets to FCAAs. In another example, representatives of four companies cited concerns that BASAs do not include any performance measures, such as any expectations for the amount of time that it will take for a company's foreign approval to be finalized. With regard to FAA using feedback mechanisms to improve its process for supporting foreign approvals, representatives of one company told us that applicant companies are not currently asked for post-approval feedback by FAA even though it would be helpful in identifying common issues occurring with foreign approvals.
- *Available resources.* Most of the U.S. companies in our selection (10 out of 15) reported challenges related to the availability of FAA staff and other resources. These include limited FAA travel funds and limited FAA staff availability to process foreign approval applications. According to FAA officials, FAA is responsible for defending the original type certification and, more broadly, for handling any disputes

that arise with FCAAs during the foreign approval process.[45] In doing so, FAA is also responsible for working with a FCAA in an authority-to-authority capacity, and communications should flow through FAA to the applicant company. However, representatives of five companies noted that due to a lack of FAA travel funds, FAA staff is generally not able to attend key meetings between U.S. companies and FCAAs conducted at the beginning of the foreign approval process. These representatives noted that this can complicate the process for companies, which then have to take on a larger role in defending the original type certificate issued for a product. Representatives of two companies also noted that when there is limited FAA staff availability at the time a foreign approval application is received that it contributes to delays in obtaining their approvals. Industry stakeholders have continued to suggest that FAA should more thoroughly utilize its delegation authority in several areas to better utilize available FAA resources.[46] In fact, the Certification Process Committee made recommendations to encourage FAA to include the expansion of delegation in its efforts for improving the efficiency of its certification process. FAA's initiatives related to expanding the use of delegation appear to be moving in the right direction, but FAA's efforts has been slower than industry would like and has expected.

- *Staff expertise.* Some of the U.S. companies in our selection (7 out of 15) reported issues related to FAA staff expertise. These cited issues included limited experience on the part of FAA staff in dispute resolution as well as limited expertise related to intellectual property and export control laws. For example, representatives of three companies told us that FAA staff sometimes lack technical knowledge due to having little to no experience with some aviation products, while a representative of another company argued that increased training for FAA staff in dispute resolution could be very helpful, especially for disputes involving different cultural norms. In another example, representatives of two companies described situations in which FAA staff was ready to share information with a FCAA that the

[45]According to FAA guidance, the implementing procedures for BASAs are signed between the authorities (FAA and the respective FCAA), and therefore the applicant should work through the FAA if disputes occur with the FCAA during the foreign approval process.

[46]FAA delegates authority to organizations under the organization designation authorization program to carry out certain functions on behalf of the agency. See GAO-14-728T.

applicant company considered proprietary until the company objected and other solutions were found.

FAA Initiatives to Address Challenges

FAA has initiatives under way aimed at improving its process for supporting foreign approvals that may help address some of the challenges raised by the U.S. companies in our review. Specifically, FAA's current efforts to increase the efficiency of its foreign approval process could help address reported challenges related to FAA's process and its limited staff and financial resources. For example, FAA is planning to address its resource limitations by focusing on improving the efficiency of its process with such actions as increasing international activities to support U.S. interests in global aviation, and by implementing its 2018 strategic plan, which includes the possibility of allocating more resources to strengthening international relationships.

FAA has also initiated efforts to improve the robustness of its data on foreign approvals, to in turn further improve the efficiency of its process for supporting these approvals. With more complete data, FAA aims to track performance metrics such as average timeframes for foreign approvals and to better evaluate FAA's relationships with bilateral partners. As previously mentioned, in 2012, FAA started tracking data on foreign approval packages received and processed. In addition, according to FAA officials, FAA currently tracks the time needed from initial receipt of a foreign approval application by an ACO to the date the application is forwarded to the FCAA. However, currently, there is no formal written requirement for FAA field staff to enter foreign approval application information into the central tracking system, so not all applications are captured. FAA officials told us in December 2014 that the agency is developing formal requirements for field staff to enter data into this system, in order to ensure the integrity of data within its control, but they did not provide an expected time frame for completion. According to FAA staff in one field office, Aircraft Certification's International Policy Office—which manages the central data system—recently updated this system with additional data fields to capture more data on the number of foreign approval projects in process and data for tracking performance metrics.

As previously mentioned, FAA collects Bilateral Relationship Management (BRM) forms as a method for field staff to relay information on specific foreign approval projects—both positive and negative experiences—to headquarters. Based on discussions with us regarding policies related to BRM submissions, FAA officials told us that they plan to clarify BRM submission criteria and response policies for field and headquarters staff to enhance information gathered through this process.

According to FAA, collecting, sharing, and taking appropriate action on information in BRM forms is necessary for FAA to recognize and resolve issues. Initially, FAA officials indicated that field staff is required to submit BRM forms whenever an employee meets with an official from a FCAA or foreign company, but that other issues can trigger the submission of BRM forms, such as when the FCAA is not adhering to the BASA, or is not actively engaged in certification activities.[47] FAA officials also said that designated headquarters officials are required to respond to all BRM forms received within 48 hours.

However, FAA officials at four ACOs we interviewed told us that field staff does not consistently submit BRM forms, and that when staff does submit BRM forms, field staff generally does not receive feedback from FAA headquarters about the information received in the form. For example, one ACO official indicated that his office's staff is only likely to submit the BRM form when there is a significant issue regarding an ongoing foreign approval package, and not to report any positive outcomes or circumstances. Further, the official said that the Aircraft Certification's International Policy Office does not provide feedback on issues raised in these forms. Two officials from a different ACO indicated that the submission of BRM forms varies greatly by project manager, with some managers submitting these routinely whereas others do not submit them at all; these officials also indicated that their staff do not typically receive feedback from headquarters on submitted forms. After hearing about these concerns about the BRM process raised by field staff, FAA headquarters officials indicated that they plan to clarify to field staff when BRM forms should be submitted and also clarify to designated headquarters staff that each BRM form requires feedback to the submitting field staff, but they did not provide an expected time frame for completion. These planned efforts should help improve the robustness and completeness of data shared in BRM forms.

Some current FAA efforts to collect additional data on foreign approvals are aimed at improving FAA's ability to evaluate its relationships with its bilateral partners; such efforts could help to address domestic challenges raised by companies about FAA not having performance metrics to assess how well BASAs are working. For example, according to FAA

[47]According to FAA officials, BRMs should be submitted by field staff at any time when there is non-administrative contact between FAA and a FCAA.

officials, in November 2013, Aircraft Certification formally expanded its process for evaluating international partners to include risk-based evaluation methods.[48] Officials noted that this evaluation process includes gathering quantitative and qualitative information about the effectiveness of bilateral partnerships. Officials explained that FAA uses a structured process to evaluate and to establish a risk factor for each foreign bilateral partner, based on information in the BRM forms, the number of foreign approval projects the respective authority has within FAA's system, and the authority's most recent ICAO airworthiness score,[49] among other factors. FAA officials said that this evaluation system will continue to expand as FAA identifies new data sources.

In conclusion, to its credit, FAA has made some progress in addressing the Certification Process and Regulatory Consistency Committees' recommendations, as well as in taking steps to address challenges faced by U.S. aviation companies in obtaining foreign approvals of their products. It will be critically important for FAA to follow through with its current and planned initiatives to increase the efficiency and consistency of its certification processes, and its efforts to address identified challenges faced by U.S. companies in obtaining foreign approvals. Given the importance of U.S. aviation exports to the overall U.S. economy, forecasts for continued growth of aviation exports, and the expected increase in FAA's workload over the next decade, it is essential that FAA undertake these initiatives to ensure it can meet industry's future needs. To demonstrate that it is making progress on these important initiatives, it is also important that FAA continue to develop and refine its outcome-based performance measures to determine what is actually being achieved through the current and future initiatives, and also through improvements to its data tracking for monitoring the effectiveness of its bilateral agreements and partnerships. Such outcome-based metrics will make it easier for FAA to determine the overall outcomes of its actions and relationships, hold field and headquarters staff accountable for the

[48]Specifically, Aircraft Certification's "Bilateral Relationship Assurance and Standardization System" was designed to provide a forward-looking, data driven system for evaluating the health of U.S. bilateral aviation safety partnerships.

[49]Airworthiness is one of the eight core areas evaluated in ICAO's periodic audits of member countries' aviation safety oversight system. The effective implementation score is rated from 0 percent (not Implemented) to 100 percent (fully Implemented). The score represents the percentage of satisfactory airworthiness regulations in place for each member country.

results, and demonstrate to industry stakeholders, congressional stakeholders, and others that progress is being made.

Going forward, we will continue to monitor FAA's progress, highlight the key challenges that remain, and the steps FAA and industry can take to find a way forward on the issues covered in this statement as well as other issues facing the industry. As we noted in our October 2013 statement, however, some improvements to the certification processes will likely take years to implement and, therefore, will require a sustained commitment as well as congressional oversight.[50] We are hopeful that our findings related to previous and ongoing work in these areas will continue to assist this Committee and its Subcommittee on Aviation as they develop the framework for the next FAA reauthorization act.

Chairman Shuster, Ranking Member DeFazio, and Members of the Committee, this completes my prepared statement. I would be pleased to respond to questions at this time.

GAO Contact and Staff Acknowledgements

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[50] GAO-14-142T

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GAO U.S. GOVERNMENT ACCOUNTABILITY OFFICE

February 20, 2015

The Honorable Bill Shuster
Chairman
The Honorable Peter A. DeFazio
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

Subject: Response to questions for the record from the FAA reauthorization hearing on January 21, 2015.

On January 21, 2015, the Committee on Transportation and Infrastructure held a hearing entitled "FAA Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Processes." The attachment contains my response to the questions for the record following my testimony at this hearing. If you have any questions regarding these responses please contact me at (202) 512-4803 or dillinghamg@gao.gov.

Signed,

Gerald Dillingham

Gerald L. Dillingham, Ph.D.

Director, Physical Infrastructure Issues

Enclosure

cc: Holly Woodruff Lyons
Simone Perez
Rachel Carr
Sean Snyder
Tom Borck

Enclosure

Question from Chairman Shuster for Dr. Dillingham

1. **As the Committee begins work on the next Federal Aviation Administration (FAA) reauthorization, what does the Government Accountability Office (GAO) recommend the Committee include in legislation that would improve and streamline the FAA's current aircraft certification and flight standards processes?**

This is a difficult question for GAO to respond to since we have not made any official recommendations to FAA related to improving and streamlining FAA's current Aircraft Certification and Flight Standards processes. However, based on the previous work that we have conducted for this Committee and its Subcommittee on Aviation, below are some suggestions for the Committee to consider in its decision-making process in the areas of domestic certification and foreign approval.

Domestic Certification:

- Require FAA to engage in continuous consultation and involvement of industry stakeholders in planning and decision-making as its goes forward with its implementation efforts for FAA Modernization and Reform Act of 2012 section 312 and section 313 initiatives.[1]

- Require FAA to adhere to the Regulatory Consistency ARC's recommendation for Aircraft Certification and Flight Standards to review all guidance documents and interpretations to ensure all outdated material is identified and cancelled, and all materials are cross-referenced (electronically linked) to applicable rules. Further, require FAA to develop the Master Source Guidance System to link all internal policy orders and guidance materials and related documents to its corresponding rules and regulations.

[1]Pub. L. No. 112-95, 126 Stat. 11 (2012). Section 312 pertains to aircraft certification process review and reform and section 313 pertains to consistency of regulatory interpretation.

- Require FAA not only to develop (1) interim progress measures that go beyond a status of "complete" or not and (2) expectations for how the initiatives will achieve outcomes to address each of the recommendations, but also to report this information directly to the Congress.

- Require FAA to implement the recommendations in the Department of Transportation's (DOT) Office of Inspector General's (OIG) report, *Weak Processes Have Led to a Backlog of Flight Standards Certification Applications*, AV-2014-056, June 12, 2014.

Foreign Approval:

- Require FAA to develop and implement comprehensive metrics to assess the effectiveness of each of its bilateral aviation safety agreements (BASA), i.e., those that include implementation procedures for airworthiness.

- Require FAA to develop and implement a comprehensive assessment and feedback process for foreign approvals of U.S.-manufactured aviation products to identify lessons learned, best practices, challenges, and resource gaps.

Questions from Representative Lipinski for Dr. Dillingham

2. **What can the FAA and Department of State do to reduce the fees charged by FCAAs for parts and aircraft that have already undergone the FAA's certification processes?**
   - Fees charged by foreign civil aviation authorities (FCAA) for approving U.S. aviation products are solely the purview of each FCAA. Whereas FAA receives federal appropriations, many FCAAs are funded through the fees they charge to provide their services. Therefore, it may be difficult for FCAAs to significantly reduce their fees. The European Aviation Safety Agency (EASA) is an example of an FCAA financed through annual and one-time fees. FAA, in light of well-publicized instances of and industry feedback about high fees, has initiated discussions with EASA officials about significant reductions in the fees charged to U.S. companies. However, given that EASA depends on these fees to finance its operations, in our view, it may be difficult for FAA to negotiate a significant reduction. In this instance, FAA may have more success with indirect fee reductions achieved through efforts at streamlining approvals of U.S. products.

   - The Department of State (State) has a very limited role in this area. State assists in developing relationships with other countries. State may participate in BASA negotiations and may also assist individual companies that are having diplomacy-related issues with other countries, depending on the type of company and the issues involved. However, responsibility for assisting with foreign approvals of U.S. products falls to FAA because FAA is responsible for defending its original certification of the products.

3. **How can existing bilateral aviation safety agreements (BASAs) be improved to streamline the time and costs incurred by U.S. companies seeking to export their products?**
   - Each BASA is a unique agreement between the United States and the other country. Therefore, options for streamlining the foreign approval of U.S. products would differ according to each agreement, factors unique to each country, and geopolitical and economic factors. However, as we noted in our written statement (p. 22), FAA has taken action to improve some BASAs to better streamline the approval process that those countries apply to imported U.S. aviation products. FAA meets regularly with bilateral

partners to address approval process issues and is working with these partners on developing a common set of approval principles, and is adding specific dispute resolution procedures to additional BASAs. FAA is also working with longstanding bilateral partners—such as Brazil, Canada, and the European Union—to identify areas where mutual acceptance of approvals is possible.

- Also see response to question #2 above.

4. **What options are there under existing BASAs to streamline the certification process and reduce the fees levied by FCAAs?**
   - See responses to questions #2 and #3 above.

5. **What efforts are the FAA and Department of State taking to ensure that FCAAs are adhering to existing BASAs and other agreements? What more can they do under existing agreements?**
   - FAA assists companies when a FCAA appears to be not adhering to existing BASAs by clarifying data and information requests and, when necessary, informing FCAAs that their requests fall outside the boundaries of the agreement.

   - In addition, as noted in our written statement (p. 22), FAA is working toward adding specific dispute resolution procedures as contained in the agreement with the European Union. FAA aims to complete negotiations to add a dispute resolution clause to the BASA with China in fiscal year 2015. Current dispute resolution clauses generally state that "any disagreement regarding the interpretation or application of this agreement or its implementation procedures shall be resolved by consultation between the contracting parties or civil aviation authorities, respectively."

   - As indicated in our response to question #2 above, each BASA is a unique agreement between the United States and the other country. Therefore, options for ensuring adherence to the BASA would differ according to each agreement, factors unique to each country, and geopolitical and economic factors.

- State has no role in ensuring adherence to BASAs. (See response to question #2 above.)

6. How can the FAA improve its certification processes and foreign outreach efforts in order to fully leverage its status as the gold standard and expedite the export and foreign certification processes that U.S. manufacturers undergo?

Domestic Certification:

- Engage in continuous consultation and involvement of industry stakeholders in planning and decision-making as its goes forward with its implementation efforts for Section 312 and Section 313 initiatives.

- Implement the recommendations in the DOT OIG's report, *Weak Processes Have Led to a Backlog of Flight Standards Certification Applications*, AV-2014-056, June 12, 2014.

Foreign Approval:

- Develop and implement comprehensive metrics to assess the effectiveness of each of its BASAs that include implementation procedures for airworthiness.

- Develop and implement a comprehensive assessment and feedback process for foreign approvals of U.S.-manufactured aviation products to identify lessons learned, best practices, challenges, and resource gaps.

Question from Representative Hanna for Dr. Dillingham

7. **Given your assessments of the FAA's certification processes and the challenges faced by a surging number of UAS applications, do you think it would be advantageous for the FAA's six designated UAS test sites to be granted the authority to play a greater role in assisting with UAS certification?**

    - **For example, do you think the FAA would benefit from a system that allowed UAS companies to receive expedited certification for specific commercial operations based on a history of their proven safe performance operating in partnership with one of the UAS test sites?**

FAA could benefit from providing greater flexibilities to the test sites. We have ongoing work addressing these issues and our findings are preliminary at this point. However, during our ongoing work test site operators have told us there needs to be incentives to encourage greater unmanned aerial system (UAS) operations at the test sites. FAA is working on providing additional flexibility to the test sites to encourage greater use by industry. Specifically, FAA is willing to train designated airworthiness representatives for each test site. These individuals could then approve UASs for a special airworthiness certificate in the experimental category for operation at the specific test site.

According to FAA and some test site operators, another flexibility they are working on is a broad area Certificate of Waiver or Authorization (COA) that would allow easier access to the test site's airspace for research and development.[2] Such a COA would allow the test sites to conduct the airworthiness certification, typically performed by FAA, and then allow access to the test site's airspace. Test site operators told us that industry has been reluctant to operate at the test sites under the current COA process because a UAS operator must lease its UAS to the test site, thus potentially exposing proprietary technology. With a special airworthiness certificate in the experimental category, the UAS operator would not have to lease their UAS to the test site, therefore protecting any proprietary technology.

[2]A COA is an authorization generally for up to two years issued by the FAA to a public operator for a specific UAS activity. As of December 4, 2014, FAA had approved 526 COAs of 723 applications received in for the year.

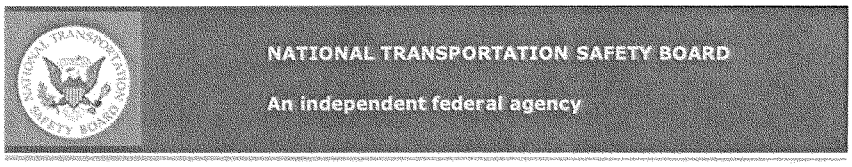
Finally, another flexibility some test sites stated is a desire to support the FAA Modernization and Reform Act of 2012 section 333 review process regarding special rules for certain UAS. According to FAA, the section 333 review process is labor intensive for its headquarters staff. Other types of certifications typically occur in FAA field offices that have process in place for reviewing and granting certifications. However, according to FAA, since exemptions under section 333 are exceptions to existing regulations, this type of review typically occurs at headquarters. Test sites may be able to play a role in the process to ease the burden on FAA. We plan to more fully discuss these issues in our report, scheduled to be issued in May 2015.

Question from Representative Rokita for Dr. Dillingham

8. **Mr. Dillingham, you mentioned that the FAA has "insufficient staff resources and expertise." Can you provide a source or further clarify what leads you to make such a statement? In light of the agency's annual budget being in excess of $15 billion, does leadership and management play a role in these deficiencies?**

To better clarify and qualify my statement, the relative priority of FAA's overall workload affects the availability of staff resources and specific expertise devoted to process domestic certifications, as well as to process foreign approval applications. According to FAA, its highest priority is overseeing the continued operational safety of the people and products already operating within the national airspace system, but the same staff who provide this oversight are also tasked with the lower-priority tasks of processing new certifications—with its lowest priority being the processing of foreign approval applications. Top leadership is expected to set the direction and overarching priorities for the agency to achieve its mission, and management plays a role in the distribution of its available resources to accomplish its varying levels of priorities within the agency oversight purview.

Most of the U.S. companies we interviewed for our testimony statement reported challenges related to the availability of FAA staff and other resources. These included limited FAA travel funds and limited FAA staff availability to process foreign approval applications. According to FAA officials, FAA is responsible for defending the original type certification and, more broadly, for handling any disputes that arise with FCAAs during the foreign approval process. Many of these representatives noted that due to a lack of FAA travel funds, FAA staff is generally not able to attend key meetings between U.S. companies and FCAAs conducted at the beginning of the foreign approval process. These representatives noted that this can complicate the process for companies, which then have to take on a larger role in defending the original type certificate issued for a product. Representatives of two companies also noted that when there is limited FAA staff availability at the time a foreign approval application is received that it contributes to delays in obtaining their approvals.



The Honorable Christopher A. Hart
Acting Chairman

Before the
Committee on Transportation and Infrastructure
United States House of Representatives

Hearing on
FAA Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Processes

Washington, DC
January 21, 2015

Good morning Chairman Shuster, Ranking Member DeFazio, and Members of the Committee. Thank you for the opportunity to address you today concerning the National Transportation Safety Board's (NTSB) perspective on the Federal Aviation Administration's (FAA) certification programs and processes. Our views on this important subject are based primarily on the lessons learned from our aviation accident and incident investigations over more than four decades.

Introduction

The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating every civil aviation accident and significant incidents in the United States and significant accidents and incidents in other modes of transportation – railroad, highway, marine and pipeline. The NTSB determines the probable cause of accidents and other transportation events and issues safety recommendations aimed at preventing future accidents. In addition, the NTSB carries out special studies concerning transportation safety and coordinates the resources of the Federal Government and other organizations to provide assistance to victims and their family members impacted by major transportation disasters.

Just last week, the NTSB released its Most Wanted List for 2015.[1] It identifies our top 10 areas for transportation safety improvements. Each year, we develop our Most Wanted List based on safety issues we identify as a result of our accident investigations. This year our priority areas include 3 multimodal items that affect aviation safety as well as aviation-specific issues --

- Ending Substance Impairment in Transportation
- Disconnecting from Deadly Distractions
- Requiring Medical Fitness for Duty
- Preventing Loss of Control in Flight in General Aviation
- Strengthening Crewmembers' Procedural Compliance
- Enhancing Public Helicopter Safety

Each of these Most Wanted List issues emphasizes the need for critical actions by the aviation safety regulator – the FAA. The NTSB readily acknowledges the impressive work and oversight performed by the FAA, and its track record in ensuring that this country's aviation system is the safest in the world. The effectiveness of the aircraft certification process is an important factor in achieving and maintaining these successes. Yet, there will always be room for improvement, and the accidents and incidents that the NTSB investigates attest to the fact that safety improvements are still necessary to prevent future accidents.

As discussed in this statement, the NTSB has, on numerous occasions, examined FAA certification processes, pointed out short comings, and issued recommendations to address needed improvements in the these processes. In our investigative work, we have examined the roles of the FAA's Aircraft Certification Service and the Flight Standards Service. Although both of these offices are part of the Aviation Safety Office, the former is responsible, among other

[1] See www.ntsb.gov/mostwanted for more details.

things, for administering safety standards governing the design, production, and airworthiness of civil aeronautical products and overseeing design, production, and airworthiness certification programs to ensure compliance with prescribed safety standards. The latter is responsible, among other things, for setting the standards for certification and oversight of airmen, air operators, air agencies, and designees. and inspecting, investigating, and enforcing the Federal Aviation Regulations (FAR) and other FAA requirements.

Aircraft Certification

History

The FAAwas first given authority for aircraft certification by the Air Commerce Act of 1926. Section 3(b) of the Act required the Secretary of Commerce to

> [p]rovide for the rating of aircraft of the United States as to their airworthiness ... and may require for any aircraft first applying therefor... full particulars of the design and of the calculations upon which the design is based and of the materials and methods used in the construction.

The Act also authorized the Secretary of Commerce to

> accept in whole or in part the reports of properly qualified persons employed by the manufacturer or owners of aircraft.

The Civil Aeronautics Act of 1938 created the Civil Aeronautics Authority, the precursor to the FAA, and authorized the Authority to issue type certificates for aircraft, aircraft engines, propellers, or appliances, as well as production certificates, airworthiness certificates, and air carrier operating certificates. (The 1938 Act also established the predecessor agency to the NTSB -- the Air Safety Board, which was authorized to investigate aviation accidents and report to the Authority the facts, circumstances, probable cause of each accident and recommendations to prevent similar accidents in the future.) The Federal Aviation Act of 1958 created the Federal Aviation Agency (which under the terms of the Department of Transportation (DOT) Act of 1966, was renamed as the Federal Aviation Administration and subsumed as an operating administration in the new DOT), provided greater specificity concerning the agency's authority to certify aircraft and aircraft operations, and authorized the Administrator to

> delegate to any properly qualified private person or to any employee or employees under the supervision of such person, any work, business, or function respecting ... the examination, inspection, and testing necessary to the issuance of certificates ... in accordance with standards set by him.

In many major respects, although FAA certification processes have changed over time, the underlying program continues to rely heavily on the assistance of private persons to manage aviation safety. A major 1984 U.S. Supreme Court decision that held the U.S. Government was not liable for delegating certification responsibilities to manufacturers and allegedly failing to

inspect certain design work -- United Sates v. Varig Airlines[2] -- succinctly described the FAA compliance review process as follows:

> FAA certification process is founded upon a relatively simple notion: the duty to ensure that an aircraft conforms to FAA safety regulations lies with the manufacturer and operator, while the FAA retains the responsibility for policing compliance. Thus, the manufacturer is required to develop the plans and specifications and perform the inspections and tests necessary to establish that an aircraft design comports with the applicable regulations; the FAA then reviews the data for conformity purposes by conducting a "spot check" of the manufacturer's work.[3]

The FAA's Organization Designation Authorization (ODA) Program

Since the 1940s, the FAA's predecessor agencies have used established programs to appoint designees to perform certain tasks for certification approvals and airworthiness approvals. In 2005, the FAA published a final rule establishing its current ODA program in order to standardize its oversight of organizational designees. In its final rule the FAA pointed out that the ODA program

> improves the FAA's ability to respond to [its] increasing workload by expanding the scope of authorized functions of FAA organizational designees [and] reduce[s] the time and cost for ... certification activities.[4]

NTSB Activities and Actions Related to the FAA's Certification Processes

Boeing 787-8 Auxiliary Power Unit Battery Fire

The NTSB's most recent in-depth review of the FAA's certification processes occurred as a result of its investigation of a fire that originated on January 7, 2013, in an auxiliary power unit (APU) battery in the aft cabin of a Japan Airlines 787-8 that was parked at a gate at Logan International Airport in Boston, Massachusetts. Our investigation looked into the introduction of new lithium ion battery technology into transport aircraft design. When Boeing applied for an FAA type certificate for its new Boeing Model 787-8 passenger airplane in March 2003, the 787 design included the planned use of large, permanently installed, high-capacity rechargeable lithium-ion batteries. Because these batteries were a novel and unusual design feature in transport category airplanes, the applicable FAA airworthiness regulations at that time did not contain adequate or appropriate safety standards for these design features. As a result, the FAA prescribed a number of special conditions that the FAA considered necessary to establish a level of safety equivalent to that established by the existing design standards. Similarly, as further advances in aviation technology become available at a quickening pace, the NTSB's report on the Boeing battery fire pointed to the continuing challenges in ensuring the safe introduction of

[2] 467 U.S. 797 (1984).
[3] Id. at 816-817.
[4] 70 *Federal Register* 59932, 59933 (October 13, 2005).

these new technologies into aircraft designs. Among these challenges was the need for the FAA to work with neutral, independent experts from government, test standards organizations, and the private sector in certifying the safety of new technology to be used on new or existing aircraft and the need for FAA personnel to have adequate training. Additionally, the NTSB's report recognizes the need for the FAA to more thoroughly consider a system's safety requirements and assumptions when approving the methods and data used in the certification of designs incorporating new technology.

After an extensive investigation, including an investigative hearing in April 2013, the NTSB adopted its report concerning this incident last November.[5] The NTSB determined that the probable cause of this event was an internal short circuit within one of the eight cells in the APU lithium-ion battery. As a result of the short circuit, the cell experienced an uncontrollable increase in temperature and pressure (known as a thermal runaway) that cascaded to adjacent cells, resulting in the release of smoke and fire outside the battery case. This type of failure was not anticipated based on the testing and analysis of the APU battery system that Boeing performed as part of the 787 certification program. The incident resulted from Boeing's failure to incorporate design requirements to mitigate the most severe effects of an internal short circuit within an APU battery cell and the FAA's failure to identify this design deficiency during the type design certification process.

During the NTSB's April 2013 investigative hearing, Boeing and FAA representatives testified that only those failure conditions resulting in cell venting with smoke and fire were considered relevant to special condition 2.[6] The Boeing and FAA representatives also testified that, at the time of the 787 certification, they believed that thermal runaway of the battery could only occur if a cell or a battery was overcharged. The NTSB's investigation did not find any evidence indicating the Boston incident battery was overcharged, yet thermal runaway of the battery occurred.

Also during the investigative hearing, an FAA witness, in responding to an NTSB Board Member's question concerning the importance of the ODA system, indicated

> It would be virtually be impossible to keep up with industry, because there's no way that we'd be able to staff to a level to keep up with the work that's coming into our office.[7]

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[5] NTSB/AIR-14/01.

[6] Special condition 2 states:

> Design of the lithium ion batteries must preclude the occurrence of self-sustaining, uncontrolled increases in temperature or pressure.

72 *Federal Register* 57844 (October 11, 2007).

[7] Transcript of Hearing in the Matter of: Investigation Of Japan Airlines, JA829J, Boeing 787-8 Battery Fire, Boston, Massachusetts, January 7, 2013, DCA13IA037, p. 364.

It is clear to the NTSB that as the FAA's dependence on designees continues to increase, the FAA must ensure it has trained certification engineers on its staff and designees to enable it to provide effective certification services.

Prior to issuing its November 2014 final report, the NSTB issued a number of safety recommendations to the FAA concerning the certification process for rechargeable lithium-ion batteries and, more generally, the process for certifying the safety of new technology to be used on new or existing aircraft. In addressing the introduction of new technology into aircraft, the NTSB's May 22, 2014, safety recommendation letter recognized that new, first-of-a-kind technology can offer substantial improvements in operational efficiency, capabilities, and/or safety, and its safe introduction into the aviation system is a key objective of the aircraft certification process. The letter also stated

> The nature of the aircraft certification process requires manufacturers to "lock down" designs early in the program because of the multiyear timeframe needed to complete the testing and evaluation required to demonstrate regulatory compliance. As a result, it is difficult for manufacturers to incorporate new information into the aircraft design as the certification program progresses. Incorporating new information becomes even more difficult once the aircraft design goes into service because design changes can require extensive recertification activity. As a result, the involvement of outside experts as early as possible in a certification program could be the most efficient way to help ensure the operational safety of a new technology.
>
> The NTSB concludes that technical knowledge imparted by independent and neutral experts outside of the FAA and an aircraft manufacturer could provide the agency with valuable insights about best practices and test protocols for validating system and equipment safety performance during certification when new technology is incorporated. As a result, the NTSB recommends that the FAA develop a policy to establish, when practicable, a panel of independent technical experts to advise on methods of compliance and best practices for certifying the safety of new technology to be used on new or existing aircraft. The panel should be established as early as possible in the certification program to ensure that the most current research and information related to the technology could be incorporated during the program.

In its response to our recommendation to develop a policy to establish a panel of technical experts to provide advice in certifying the safety of new technology, the FAA indicated its agreement with the intent of this safety recommendation and that it was setting up meetings with internal FAA stakeholders on how to best implement this recommendation.

The NTSB final report further addressed ways for the FAA and its ODA Holders to better improve the certification process for designs incorporating new technology. Specifically, our report pointed to the need to validate assumptions related to failure conditions that impact safety and emphasized that the validation process must employ a level of rigor that is consistent with the potential hazard to the aircraft in case an

assumption is incorrect. In addition, we cautioned that Boeing should have taken a more conservative approach in its safety analyses by including the possibility and worst case effects of cell to cell propagation of thermal runaway resulting from an internal short circuit within a single cell. If this approach had been taken, FAA certification engineers and Boeing designees reviewing the analyses would likely have required more extensive data or the incorporation of enhanced design features to more confidently demonstrate that the safety risks had been effectively mitigated. The NTSB concluded that written guidance and training for FAA certification engineers would help ensure that key assumptions, data sources, and analytical techniques are properly incorporated in applicants' safety assessments and challenged where necessary for designs incorporating new technologies. We also recommended that during its annual recurrent training for engineering designees, the FAA discuss the need for applicants to identify, validate, and justify key assumptions and supporting engineering rationale used in safety assessments addressing new technology.

FAA Oversight of Part 125 and Part 135 Carriers and Part 145 Repair Stations

Also this past November, the NTSB issued an accident report following its investigation of the March 15, 2012, crash of a cargo flight into a lagoon east of Luis Muñoz Marin International Airport, San Juan, Puerto Rico. The flight was operated under Part 125 of the FAR (14 CFR part 125).[8] As a result of its investigation, the NTSB identified numerous basic gaps in oversight of the operator by multiple FAA inspectors related to cargo loading, pilot currency, company recordkeeping, and pilot evaluation practices. The NTSB concluded that these oversight failures were possibly due to inspectors' belief that Part 125 operations merit less scrutiny than Part 121 and 135 operations, despite the fact that cargo airplanes fly within the national airspace system over populated areas. We recommended that the FAA evaluate the effectiveness of its Part 125 oversight program and ensure that Part 125 operations are conducted at the same level of safety as that of Parts 121 and 135. We also recommended that the FAA require all its principal operations inspectors of Part 125 certificate holders to conduct at least one en route inspection annually on each airplane type operated by the certificate holder. This recommendation was just issued on December 2, 2014, and the FAA has not yet replied.

On June 4, 2007, a Cessna Citation 550, N550BP, impacted Lake Michigan shortly after departure from General Mitchell International Airport, Milwaukee, Wisconsin. The two pilots and four passengers were killed, and the airplane was destroyed. The airplane was being operated under the provisions of 14 CFR Part 135. The NTSB determined that the probable cause of this accident was the pilots' mismanagement of an abnormal flight control situation through improper actions, including failing to control airspeed and to prioritize control of the airplane, and lack of crew coordination. Contributing to the accident was the FAA's failure to detect and correct those deficiencies, which placed a pilot who inadequately emphasized safety in the position of company chief pilot and designated check airman and placed an ill-prepared pilot in the first officer's seat. The principal operations inspector at the FAA Flight Standards District Office (FSDO) assigned to the company's airworthiness certificate acknowledged that he was supposed

[8] NTSB/IR-14/04.

to observe all checkmen under his surveillance perform their duties once every two years but had not provided this level of oversight.[9]

The NTSB also investigated a Part 135 cargo flight that crashed into a department store garden center shortly after takeoff from Manchester-Boston Regional Airport, Manchester, New Hampshire in 2005. The airplane was destroyed, and the certificated airline transport pilot was seriously injured. Our review of the operator's maintenance records revealed numerous deficiencies in its preventive maintenance program that appear to have gone undetected by the local FSDO. We issued several safety recommendations to the FAA, including one that the agency evaluate the effectiveness of the local FSDO's surveillance of maintenance programs and implement necessary changes so that inadequate maintenance programs are identified and improved.[10]

In investigating an accident that occurred on January 23, 2003, when a Beech 95 lost control after takeoff from an airport in Upland, California, and crashed into a residence after a blade section separated from the propeller, the NTSB found all four propeller blades were improperly overhauled. The owner of the repair station had previously been employed as the chief inspector at another repair station that had its part 145 certificate revoked for performing improper maintenance and overhauls on aircraft propellers. We were concerned that the FAA lacked a mechanism for preventing individuals associated with a previously revoked repair station from continuing to operate through a new repair station. Although the FAR authorized the FAA to deny an application for a Part 121 or Part 135 air carrier or operating certificate if the applicant held a certificate that was previously revoked or held a key management position or exercised control over a new operator, there was no similar regulation applicable to Part 145 repair stations. As a result, we recommended that the FAA issue a regulation that applies to applicants for a Part 145 repair station certificate, so the FAA can prevent individuals who have been associated with a repair station whose Part 145 certificate had been revoked from continuing to operate through a new repair station.[11] In response to the recommendation, the FAA published a notice of proposed rulemaking on May 21, 2012, but as of yet – nearly 11 years after we issued our recommendation -- the agency has not issued a final rule.

NTSB Safety Report on the FAA's Evaluation of Safety-Critical Systems in Transport Aircraft

As stated previously, the NTSB has paid close attention to FAA safety certification issues for several decades. As the result of lessons learned from our investigations of four air carrier accidents that occurred between 1994 and 2001, we issued a safety report in 2006 that examined in detail the FAA's certification process for safety-critical systems in transport-category airplanes.[12] These four accidents resulted in 715 fatalities and accounted for 60 percent of the air

[9] NTSB/AAR-09/06.

[10] NTSB Letter to FAA Administrator dated October 1, 2009 (Safety Recommendations A-09-108 through A-09-111).

[11] NTSB Letter to FAA Administrator dated February 9, 2004 (Safety Recommendations A-04-01 and A-04-02).

[12] NTSB/SR-06/02. Appendix A to the Safety report provides an extensive description of the FAA type certification process.

carrier fatalities that occurred within this timeframe. The safety report highlighted these four accidents and pointed to FAA certification issues we previously raised in the Board Accident Reports we issued for each of these accidents. In summary, in1999, we expressed concern about the adequacy of the 737 rudder system design after our investigation of the uncontrolled descent and collision with terrain by USAir flight 427 near Aliquippa, Pennsylvania, on September 8, 1994.[13] In 2000, we suggested the need for a directed examination of the certification process in the investigation of the center wing fuel tank in TWA flight 800.[14] Subsequent investigations of the horizontal stabilizer jackscrew in Alaska Airlines flight 261[15] and the rudder system in American Airlines flight 587[16] also raised questions about the certification process used by the FAA to determine compliance with airworthiness standards.

Our concerns about certification that we discussed in the 2006 Safety Report and previously raised in each of the four accident reports and focused on two areas. The first area concerned the ways in which hazards to safety of flight are identified, assessed, and documented during the type certification process. Our analysis of the FAA certification process considered how compliance with the FAR is demonstrated and how the FAA documented safety assessment efforts. Of particular concern were assessments of safety-critical systems that evaluated structural failures but did not adequately consider system safety risks, and did not consider human/system interaction failures. The second area focused on the ongoing assessment of safety-critical systems throughout the life of the airplane. The FAA uses the safety assessment process to identify and evaluate safety-critical functions in systems based on criteria set forth in guidance material it developed for identifying and evaluating failure conditions classified as major or catastrophic. Through the safety assessment process, FAA considers a system as critical if its failure would prevent the continued safe flight and landing of the airplane, or its failure would reduce the capability of the airplane or the ability of the crew to cope with adverse operating conditions. The NTSB concluded that a program must be in place, once the type certification process is completed, to ensure the ongoing assessment of risks to safety-critical systems. Such a program must recognize that ongoing decisions about design, operations, maintenance, and continued airworthiness must be done in light of operational data, service history, lessons learned, and new knowledge, for designs that are derivatives of previously certificated airplanes.

The Report found that the FAA's certification process is sound and produces a high level of safety. We did, however, issue several safety recommendations for improving the process. These recommendations dealt with documenting the identification of safety-critical systems, ensuring that the identification process includes evaluation of structural failures and human/airplane system interaction failures, and assessing safety-critical systems throughout the life of the aircraft.

With regard to compiling a list of safety-critical systems derived from the safety assessment process for each type certification project, the FAA replied in May 2011 that it planned to issue a Key Safety Information (KSI) advisory circular (AC) coordinated with the

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[13] NTSB/AAR-99/01.
[14] NTSB/AAR-00/03.
[15] NTSB/AAR-02/01.
[16] NTSB/AAR-04/04.

findings of the Commercial Aviation Safety Team Safety Enhancement 172 (Gap Analysis of Existing Airplane Maintenance Process). Last month, we expressed our concern in a letter to the FAA with its lack of progress in fully implementing this recommendation, which is now 8 1/2 years old.

The 2006 Safety Report also recommended that the FAA amend its advisory materials associated with 14 *Code of Federal Regulations* 25.1302 (Installed Systems and Equipment for Use by the Flight Crew) to include consideration of structural failures and human/airplane system interaction failures in the assessment of safety-critical systems. The FAA published a final rule in May 2013 to amend FAR section 25.1302. Related to that, in May 2010, the FAA released for public comment a draft policy memorandum specifying that structural failures must be included in the system safety analysis. Last month we expressed our concern with the FAA's failure to issue the policy in the 4 1/2 years since this draft policy was published.

FAA Lax Oversight of a Part 121 Operator

One of the four accidents analyzed in the 2006 safety report involved the loss of control and impact with the Pacific Ocean about 2.7 miles north of Anacapa Island, California, by Alaska Airlines flight 261 on January 31, 2000.[17] The 2 pilots, 3 cabin crewmembers, and 83 passengers on board were killed, and the airplane was destroyed by impact forces.

The NTSB determined that the probable cause of the accident was a loss of airplane pitch control resulting from the in-flight failure of the horizontal stabilizer trim system jackscrew assembly's acme nut threads. The thread failure was caused by excessive wear resulting from Alaska Airlines' insufficient lubrication of the jackscrew assembly. Contributing to the accident were Alaska Airlines' extended lubrication interval and the FAA's approval of that extension, which increased the likelihood that a missed or inadequate lubrication would result in excessive wear of the acme nut threads, and Alaska Airlines' extended end play check interval and the FAA's approval of that extension, which allowed the excessive wear of the acme nut threads to progress to failure without the opportunity for detection. Also contributing to the accident was the absence on the McDonnell Douglas MD-80 of a fail-safe mechanism to prevent the catastrophic effects of total acme nut thread loss.

As a result of the flight 261 accident, the FAA conducted a special inspection of Alaska Airlines from April 3 to April 19, 2000, to determine its compliance with the FAR. In addition, in a December 2001, report on FAA oversight of continuing analysis and surveillance programs, the U.S. DOT Office of the Inspector General stated that the findings of the FAA's postaccident inspection of Alaska Airlines "raised questions as to why the FAA's routine surveillance had not identified the deficiencies in Alaska Airlines' [continuing analysis and surveillance program] and ensured that they were corrected." The DOT report stated that the FAA "needs to place greater emphasis on [continuing analysis and surveillance program] oversight" and must "ensure [that program] deficiencies identified through its oversight inspections are corrected."[18]

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[17] NTSB/AAR-02/01, supra.

[18] Report on FAA Oversight of Aircraft Maintenance, Continuing Analysis and Surveillance Systems, Report No. AV-2002-066.

The NTSB concluded that the FAA did not fulfill its responsibility to properly oversee the maintenance operations at Alaska Airlines and that at the time of the Alaska Airlines flight 261 accident, FAA surveillance of Alaska Airlines had been deficient for at least several years. It also questioned the depth and effectiveness of the carrier's corrective actions and expressed concern about the overall adequacy of Alaska Airlines' maintenance program at that time.

Aircraft Certification Standards for in-Flight Icing Conditions

On October 31, 1994, American Eagle flight 4184, an ATR 72-212, crashed during a rapid descent after an uncommanded roll excursion that occurred near Roselawn, Indiana. The captain, first officer, 2 flight attendants and 64 passengers were killed. In our report on this accident, we determined that contributing to the cause of this accident was the FAA's failure to ensure that aircraft icing certification requirements, operational requirements for flight into icing conditions, and FAA published aircraft icing information, adequately accounted for the hazards that can result from flight in freezing rain and other icing conditions not specified in Part 25, Appendix C. On August 15, 1996, the NTSB issued recommendations to the FAA to revise the appropriate icing certification requirements.

On January 9, 1997, an Empresa Brasileira de Aeronautica, S/A (Embraer) EMB-120RT, N265CA, operated by Comair Airlines, Inc., as flight 3272, crashed during a rapid descent after an uncommanded roll excursion near Monroe, Michigan. Comair flight 3272 was being operated under the provisions of 14 CFR Part 135 as a scheduled, domestic passenger flight from the Cincinnati/Northern Kentucky International Airport Covington, Kentucky, to Detroit Metropolitan/Wayne County Airport, Detroit, Michigan. The flight included two flightcrew members, one flight attendant, and 26 passengers on board. There were no survivors. The airplane was destroyed by ground impact forces and a postaccident fire.

We determined that the probable cause of this accident was the FAA's failure to establish adequate aircraft certification standards for flight in icing conditions, the FAA's failure to ensure that a CentroTecnico Aeroespacial/FAA-approved procedure for the accident airplane's deice system operation was implemented by U.S.-based air carriers, and the FAA's failure to require the establishment of adequate minimum airspeeds for icing conditions, which led to the loss of control when the airplane accumulated a thin, rough accretion of ice on its lifting surfaces. The NTSB also determined that the icing certification process had been inadequate because it had not required manufacturers to demonstrate the airplane's flight handling and stall characteristics under a sufficiently realistic range of adverse ice accretion/flight handling conditions. We were also critical of FAA policies at the time that allowed carriers to elect not to adopt the manufacturer's changes to the airplane flight manual.[19]

The NTSB also noted that the EMB-120 exhibited a history of icing-related upsets/losses of control before being involved in a related fatal accident. At the time of the Comair accident, six icing-related EMB-120 events had been documented. In issuing safety recommendations to the FAA, the NTSB

[19] NTSB/AAR-98-04.

> that has been learned in the most recent, postaccident wind tunnel tests and analyses that could not have been learned before this Comair accident.[19]

On November 4, 2014, 20 years after the American Eagle flight 4184 accident, and almost 18 years after the COMAIR flight 3272 accident, the FAA published a final rule, titled "Airplane and Engine Certification Requirements in Supercooled Large Drop, Mixed Phase, and Ice Crystal Icing Conditions," that revised sections of Part 25 to provide the aircraft design certification standards related to performance in icing conditions that we identified as necessary in this accident.

Conclusion

One cannot dispute the overall safety of our aviation system in this country and the hard work of thousands of dedicated and skilled FAA professionals. However, as the NTSB has concluded in the course of numerous aviation accident/incident investigations, including the ones summarized in this statement, there are still lessons to be learned and opportunities for improvement in the FAA's management and oversight of its certification processes. The NTSB looks forward to continuing to work with this Committee, the FAA, and other stakeholders to address the issues raised during this hearing.

Mr. Chairman, this completes my statement, and I will be happy to respond to any questions you may have.

[19] NTSB Letter to FAA Administrator dated November 30, 1988 (Safety Recommendations A-98-88 through A-98-106.

Rep. Daniel Lipinski, a Representative in Congress from the State of Illinois,
Question for the Record to Hon. Christopher A. Hart, Acting Chairman, National Transportation Safety Board

I noticed that helicopter safety is also on your most wanted list. Do you believe an effort or review to make the certification process more effective in terms of delivering new safety technology to helicopters would be worthwhile and responsive to your concerns?

Although our MWL item for this year is focused on public helicopter safety, the NTSB has long supported the timely incorporation of new safety technologies in helicopters operated by public and civilian entities alike.

When the FAA issues new safety standards they generally apply to new designs that the FAA approves, not to newly manufactured helicopters. A design may continue in production utilizing the older, less effective safety standards for many years. A current NTSB investigation is examining improved crash resistant fuel system design requirements that the FAA implemented in 1994. However, 20 years later, few helicopters have the crash-resistant fuel systems as part of their design because the rule only required that newly-certificated helicopters have crash-resistant fuel systems. Those helicopters that are manufactured today but had the design certificated before 1994 do not have to meet the requirements. Our investigation is examining how effective the 1994 rule was on reducing postcrash fires given the low number of helicopters in the fleet that meet these requirements. The NTSB may issue recommendations addressing this issue later this year when we complete our investigation.

In this regard, timely incorporation of the safer fuel system into newly manufactured helicopters may be hampered by the current certification process, which adds to the direct costs of redesigning the original fuel system to meet the new standards. For example, obtaining FAA approval of changes to a helicopter type design that incorporates a fuel system redesigned to meet the new standard would likely require that the manufacturer perform new tests, analyses, and inspections in addition to the tasks required to make the actual design change itself (e.g. revising engineering drawings, revising manufacturing process documentation, retraining manufacturing personnel, revising aircraft flight manuals, etc.). Any improvements in the effectiveness of the certification process that make it more cost effective for manufacturers to change previously certificated type designs still in production would likely incentivize earlier incorporation of design enhancements for safety even when not explicitly required by the FAA. This could reduce the time it takes to get safer products to market. As a result, the Board believes that improvements to the effectiveness of the FAA's certification process would better enable more timely, cost-effective delivery of new safety technology to helicopters.

STATEMENT OF DORENDA BAKER, DIRECTOR OF THE AIRCRAFT CERTIFICATION SERVICE, FEDERAL AVIATION ADMINISTRATION, BEFORE THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE ON FAA REAUTHORIZATION: REFORMING AND STREAMLINING THE FAA'S REGULATORY CERTIFICATION PROCESS, JANUARY 21, 2015.

Chairman Shuster, Congressman DeFazio, Members of the Committee:

I appreciate the opportunity to speak with you today. As Director of the Federal Aviation Administration's (FAA) Aircraft Certification Service (AIR), I am responsible for oversight of the design and production of aircraft, engines, propellers, and articles. AIR monitors the production and continued operational safety of all the products it certifies for the life of those products. In that respect, we are responsible for an ever expanding range of products. Effectively managing the safe oversight of the largest fleet of aircraft in the world, while continuing to support the innovation of new products and technologies is a challenge, but one that we recognize is vital to the economic growth of our country. The U.S. aviation manufacturing industry provides the livelihood for millions of Americans and is a dynamic and innovative industry that we are proud to oversee.

FAA certification is vital to the production of aircraft and aircraft components both domestically and internationally. Our certification means that the product was thoroughly reviewed, tested, and analyzed, and has been deemed to meet the stringent safety standards we require. Certification is a dynamic process with both industry and the FAA having important roles and responsibilities critical to success. We are constantly working to improve the process. Both in response to Congressional direction, and on our own initiative, the FAA is working closely with industry to understand and respond to their concerns in order to improve the efficiency of the process without compromising the safety of the product. Central to the success of this effort is

transparency. All parties need to know what we are doing and why, as well as what is working and what is not. I would like to share what we have been doing in response to the reauthorization Congress passed in 2012, and our efforts to drive certification reform at the local, national, and international level.

Certification Reform Vision

In order to support the safest, largest, most complex aviation system in the world, the FAA must continue to strive to make our processes as efficient and effective as possible, while also maintaining high standards of safety. Certification reform includes responding to requirements in Section 312 of The Federal Aviation Administration Modernization and Reform Act of 2012 (the Act), addressing the recommendations from the Aircraft Certification Process Review and Reform Advisory Rulemaking Committee (ARC), and reviewing the FAA's activities to improve several components of the current certification process.

Numerous external forces are affecting our existing certification process: the globalization of aviation, advances in technology, a high velocity of change, and heightened expectations from our stakeholders and the general public. In order to address these issues and expectations, we are applying safety management principles and using risk-based decision making to leverage our partnerships and make better decisions about where we need to focus FAA resources.

Section 312 Implementation

Section 312 of the Act required the FAA to work with industry to develop consensus recommendations on ways to reduce the time and cost of certification without compromising safety. In response to this direction, the FAA formed the ARC, which developed six recommendations that resulted in 14 specific FAA initiatives. To date, FAA has completed 10 of

the 14 initiatives, many of which are directly related to FAA's efforts to expand the use of delegated authority and to implement a risk-based systems approach to the oversight of that delegation system.

For example, as part of the FAA's ongoing efforts to improve its responsiveness to industry as it certificates new products, in September 2014, the FAA replaced project sequencing with a new "project prioritization" process. The new system prioritizes projects based on their safety benefits and complexity, and allows more efficient allocation of FAA's resources. In contrast to sequencing, project prioritization offers applicants a commitment to a response time for the review of compliance data based on the priority of the certification project. Now, applicants will be able to initiate projects without delay. If they have an Organization Designation Authorization (ODA) or are using an FAA-approved individual delegated engineering representative, they can immediately move forward with much of the work required to certify the product.

The FAA is working diligently to address the initiatives recommended by the Section 312 ARC. These initiatives are helping us to identify and address national certification issues; however, we recognize that may not solve the problems experienced by individual companies. To reform certification, the FAA must also implement activities that address issues and expectations at each level. Therefore, the FAA is reexamining how it conducts business and implementing internally driven initiatives at three levels.

Local Efforts

The FAA is working with individual companies to establish short and long-term goals to help them reach their vision of full utilization of ODA by reinvigorating the Partnership for Safety

Plans. These safety plans outline operating norms, define a process for issue resolution, and identify certification priorities; they are our foundation for setting common expectations when working with a company and ensure that both sides are held accountable. Revitalizing the safety plans will be a catalyst to drive positive change, reinforce expectations for the highest levels of regulatory performance, and reestablish the spirit of partnership for our mutual long-term success.

In collaboration with the Aerospace Industries Association and the General Aviation Manufacturers Association, we are also creating an ODA scorecard that will collect qualitative and quantitative data related to safety, FAA involvement, and ODA holder compliance. The scorecard will support constructive dialogue between FAA management and ODA holders about compliance, timeliness, and any performance improvement enhancements that may be needed. Once a baseline and individual goals are established through the reinvigoration of the safety plans, AIR will monitor how ODAs are progressing towards individual company goals. The national rollup of the scorecard will also track progress by monitoring the effectiveness and efficiency of all ODAs, help differentiate between national and local issues, and point to areas where policy improvement may be needed.

National Efforts

As the commercial aviation safety rate indicates, FAA continually strives to improve its performance in all areas, including certification. The Office of Aviation Safety (AVS) requires a quarterly review of Quality Management System (QMS) measures that measure the overall health of AVS. In addition, the QMS measures monitor the efficiency and effectiveness of the certification process. Our goal is to efficiently certify products that meet the safety requirements

that the world recognizes as a gold standard. QMS measures are designed to quantify our efforts to maximize efficiency and minimize risk areas associated with the issuance of domestic Type Certificates, Supplemental Type Certificates, and Production Certificates.

Supplementing the QMS data, my office is also working to track improvements to the time it takes to bring products to market, a fundamental goal of industry. Determining success in this area must also take into account the increasing complexity of the products being certified and industry's accountability to a compliance culture.

In addition, a new policy is in development that will help define the projected level of FAA's involvement in the process and clarify what companies can do to reduce that involvement. This safety management system approach uses risk-based decision making to determine the level of rigor necessary in each certification. Risk-based decision making proactively addresses emerging safety risks by using consistent, data-informed approaches to make informed, system-level decisions. We expect to complete this policy in spring of this year.

ODA holders will play a vital role in any effort to streamline the certification process. There are currently 81 ODAs, with more than 4,700 individual designees. In addition to the efforts noted above, I have personally held nine teleconferences with AIR managers to ensure that all offices receive a consistent and timely message on the importance of certification reform to the future vision of aviation certification. AIR updated its training curriculum to improve training for personnel assigned to oversee ODAs in October 2014. The enhanced training includes an emphasis on auditing the ODAs to ensure they are compliant with their agreed upon procedures. While expanding the number of ODA holders is critical to the industry's view of how to

streamline certification, in order for FAA's staff to expand delegation, the agency must be able to show that industry is compliant with its regulatory responsibilities.

The FAA also understands industry's desire for timely certification. Consequently, we are working collaboratively to develop performance metrics and goals for streamlining certification while simultaneously ensuring compliance with safety regulations. The data gathered from these metrics will begin to capture the larger picture of certification reform, defining the global return on investment for FAA and industry. We have made progress and will continue to work to build consensus with industry on these performance metrics.

International Efforts

The FAA has been the leading model for safety and efficiency around the world. However, the global transportation network is changing and the growth of the U.S. industry is expanding to global suppliers. We recognize the importance of working across geopolitical boundaries and have adapted our international efforts to maintain and enhance our leadership position.

In FY 2014, the FAA launched the Asia Pacific training initiative at the Singapore Aviation Academy to deliver targeted training to the regional civil aviation authorities and industry with the delivery of two courses – Cabin Safety Workshop and Changed Product Rule. This regional training initiative is an efficient way of using the FAA's resources while promoting the FAA's policies and procedures globally. The training initiative helps achieve uniformity and facilitates the seamless transfer of U.S. industry products overseas.

We are also working with our global partners to leverage our bilateral agreements this year. We committed to work with the European Aviation Safety Agency (EASA) towards mutual acceptance of European Technical Standard Order Authorizations and FAA Technical Standard

Order Authorizations, and to accept classifications of basic or non-basic Supplemental Type Certificates without further review during initial validation. This will allow our manufacturers of TSOA articles to sell their product in Europe without further approval by EASA. This mutual acceptance model will result in a time savings for both industry and the FAA, and industry will realize cost savings as a result of eliminating duplicative processes. We also committed to implement a post-validation audit program to ensure that the process is providing the expected result.

The FAA also signed agreements with Transport Canada Civil Aviation and EASA to promote rulemaking cooperation. The activities between the U.S. and Canada under the Regulatory Cooperation Council encourage the sharing of rulemaking experiences to promote cooperation and aligning of rulemaking requirements.

Conclusion

The FAA has made significant progress in implementing the requirements in Section 312 of the Act and the recommendations in the Aircraft Certification Process Review and Reform ARC to expand the use of delegated authority and establish a risk-based, systems approach to safety oversight. The FAA shares the Committees' desire to streamline aircraft certification, and will also continue to implement internally developed improvement activities at a local, national, and international level to supplement the initiatives of Section 312.

To become more effective and efficient while maintaining and improving aviation safety, the FAA must also improve accountability and transparency with stakeholders. When it comes to working together with industry, we need to respect each other's goals. We both have an interest in maintaining the safety of the aviation system. For the FAA, the goal is a product that is

compliant with the regulations. For industry a major concern is finding ways to get new and safer products to market efficiently. Both of these goals are paramount to safety. We need to find ways to be more sensitive and responsive to industry's schedules without sacrificing compliance.

The FAA is tracking the progress of implementing the initiatives, the performance outcomes, and the global return on investment for the FAA and industry resulting from the initiatives as a whole to increase accountability in the certification reform process. The FAA will continue efforts to develop meaningful metrics and a data-driven approach that promotes open, constructive dialogue, facilitates positive change, and keeps both sides accountable for certification reform.

Mr. Chairman, I am happy to answer any questions you have at this time.

"FAA Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Processes"
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
Wednesday, January 21, 2015, 10 a.m.
2167Rayburn House Office Building
Washington, D.C.

Questions for the Record (QFRs) to Dorenda Baker, Director of the Aircraft Certification Service, Federal Aviation Administration

Questions for the Record from Congressman Todd Rokita:

Question 1: Ms. Baker, the Small Airplane Revitalization Act was signed into law in 2013 and requires the FAA to rewrite and streamline standards for aircraft certification (Part 23) by the end of this calendar year. The FAA said they will miss that deadline. In fact, the FAA said they will not have this work finished until 2017. Why is the FAA unable to complete this work by the deadline included in statute? Does the FAA have the legal authority to delay the completion of the Part 23 rewrite? If so, please cite such authority.

ANSWER: Although the rulemaking effort is not anticipated to meet the Small Airplane Revitalization Act's December 15, 2015, deadline to issue a final rule, the FAA is dedicated to ensuring its intent by performing a complete reorganization of part 23. The new approach will also address the recommendations of the Part 23 Reorganization Aviation Rulemaking Committee (ARC) and the FAA's Modernization and Reform Act of 2012.

The June 2013 ARC recommendations provided the FAA with the fundamental components for the performance-based regulations and consensus among industry and aviation authorities necessary to implement the new regulatory approach. However the recommendations did not provide a comprehensive set of proposed regulations and methods of compliance to complete a turn-key regulatory reorganization of part 23. The FAA is currently focused on evolving the ARC's regulatory proposal to ensure the new regulations and draft methods of compliance can be applied and enforced.

The procedures outlined in the Administrative Procedures Act (APA) provide specific requirements to assure the rulemaking process is deliberative, and the FAA follows the requirements of the Act when developing any rule. The part 23 rewrite is designated as one of the Agency's highest priority rulemaking projects, and the Agency is working at all levels to explore further methods to accelerate the project while meeting our obligations under the APA.

Based on the timeframe for the development of the rule, the ARC recommendations, and the need to provide for comment on the proposal, the FAA formally initiated the rulemaking in 2014 and intends to issue the notice of proposed rulemaking (NPRM) this

year, pending Executive review. FAA expects to issue the final rule within 16 months of the close of the comment period for the NPRM, as required by congressional direction.

Question 2: Ms. Baker, I have been told that the manufacturer, Cessna, revised the service-manual for cantilever-wing Cessna 210-series airplanes in February of 2014. These changes added a new "Airworthiness Limitations" section and were developed in response to stress fractures in the frame related to three aviation accidents in Australia. The new section is "FAA-Approved" and compliance is required by existing regulations. This handbook revision appears to bypass and avert the Airworthiness Directive (AD) process that was specifically promulgated to address these situations through intense study and thorough industry and public comment.

What is your full account of the situation? Why was this service manual revision allowed? Will it happen again? Can you assure me that the FAA will use the AD process, and other ones which were actually designed to research and address aircraft airworthiness issues?

ANSWERS:

Q - What is your full account of the situation?

In May 2012, Cessna issued Service Letter SEL-57-01 for Cessna 210 models as a result of reports of cracks in the wing spar. The FAA evaluated the available data associated with the reports and issued an immediately adopted Airworthiness Directive (AD) 2012-10-04 effective June 5, 2012. The AD required a one-time visual inspection in accordance with the referenced Cessna service letter and required that the inspection results, including relevant aircraft data such as hours of time-in-service and type of use, be reported so that the FAA could determine if follow-on action would be necessary.

Following the issuance of the Cessna Service Letter and the AD, Cessna conducted a more thorough test and analysis of the wing design to determine if additional inspections or life limits should be placed on the wing spar. The assessment resulted in Cessna making changes to the inspection requirements to add recurrent visual and eddy-current inspections (use of special equipment). Cessna deemed these inspections necessary and therefore created a new Airworthiness Limitations Section (ALS) where one had never previously existed for this model. Pursuant to 14 CFR 21.99(b), the applicant submitted the ALS for FAA approval in January 2014. The FAA approved the ALS and Cessna subsequently published the ALS in March 2014.

Based on the FAA's review of over 600 inspection reports submitted as part of AD 2012-10-04 with aircraft ranging in hours of time-in-service from 3,500 to over 26,000, the FAA determined that the available data did not meet the risk threshold to require additional mandatory action in the form of an AD. AD 2012-10-04 remains in effect and the FAA continues to monitor incoming reports to determine if follow-on AD action may

be necessary in the future. However, the FAA will issue a Special Airworthiness Information Bulletin to notify owners and operators of the non-mandatory nature of the ALS change and recommend Cessna's additional inspection requirements.

After Cessna published the ALS, the FAA and Cessna received requests to clarify whether the ALS inspections were required. The FAA maintains that any change in an ALS section of a manufacturer's maintenance manual or Instructions for Continued Airworthiness is not required unless mandated by an AD or other notice and comment rulemaking, or added as part of an operator's FAA-approved aircraft inspection program.

Q - **Why was this service manual revision allowed? Will it happen again?**

The service manual revision was allowed since an applicant is entitled to a change in type design, for future production or modification of a product, pursuant to 14 CFR 21.97, 21.99(b), and 21.101 with submittal of the appropriate substantiating data. The FAA is currently developing guidance for FAA personnel to ensure they are aware that an ALS approval cannot circumvent the Administrative Procedure Act for aircraft that are already in service. That Act requires notice and comment rulemaking procedures for rules of general applicability. This new ALS is part of the type design for any newly-produced Cessna 210 model aircraft, and is not mandatory for owners/operators or maintenance providers of aircraft in the existing fleet. Were Cessna to begin production of this model again, this new ALS would be mandatory for operators and maintainers of those newly-produced airplanes.

Q - Can you assure me that the FAA will use the AD process, and other ones which were actually designed to research and address aircraft airworthiness issues?

The FAA will comply with the Administrative Procedures Act. Compliance would typically come through the use of the AD process. Field personnel are trained to follow FAA orders and policy which reflect regulatory requirements and procedures. When the FAA addresses safety issues, personnel follow the Monitor Safety Analyze Data (MSAD) procedures. The MSAD procedures support the FAA identification and corrective action of safety issues in the in-service aircraft fleets. Pursuant to 14 CFR 39, the FAA can issue an AD only when it finds that an unsafe condition exists in the product, and the condition is likely to exist or develop in other products of the same type design.

T&I Committee Hearing
"FAA Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Process"
Elizabeth H. Esty Question for the Record
January 21, 2015

Question: Thank you, Mr. Chairman, for holding this hearing on the FAA's regulatory certification process, and thank you to the witnesses for your testimony today. The aviation industry is a pillar of our economy in Connecticut—we have more than 250 aerospace companies and 100 repair stations. In meeting with manufacturers and industry leaders across the state, I have seen firsthand the importance of a predictable and streamlined aircraft certification process. Furthermore, my family has been involved in manufacturing for generations, so I appreciate how critical it is to get a product to market quickly without sacrificing safety. Director Baker, you described in your testimony the FAA's efforts to measurably improve the time it takes to certify and bring products to market. You also mentioned a new policy for defining the projected level of FAA's involvement in bringing these products to market. Could you talk more about the FAA's work, and what that new policy might look like?

Response:

The FAA is also developing a new Safety Management System policy that could allow aircraft certification applicants to complete portions of their projects with limited or no FAA involvement. The FAA will use a risk tool, as well as the applicant's previous compliance history, to determine if an applicant's project is high, medium, or low compliance risk. When the applicant has a low compliance risk, the FAA can determine that an applicant can "show" compliance on that portion of the certification project with no FAA involvement or discrete finding. If the risk is high or medium, the FAA can also make a determination for the applicant to show compliance with the aircraft certification regulations without FAA involvement. But, the applicant must show they possess additional quality and performance criteria to make this determination. This new policy allows the FAA to better focus on high and medium compliance risk areas and gives the applicant greater flexibility where compliance risk is low.

Statement for the Record of the
Professional Aviation Safety Specialists, AFL-CIO
1150 17th Street NW, Suite 702, Washington, DC 20036
Phone: 202-293-7277 Fax: 202-293-7727 www.passnational.org
Before the House Committee on Transportation and Infrastructure
On
FAA Reauthorization: Reforming and Streamlining FAA's Regulatory Certification Processes
January 21, 2015

The Professional Aviation Safety Specialists, AFL-CIO (PASS) represents over 3,000 aviation safety inspectors in the Flight Standards and Manufacturing Inspection District Office (MIDO) bargaining units at the Federal Aviation Administration (FAA). These employees are responsible for certification, education, oversight, surveillance and enforcement of the entire aviation system. Among other things, PASS-represented inspectors perform the following tasks: provide continued operational safety support; provide operational suitability determinations; issue airworthiness certificates and production approvals; provide certificate management; conduct enforcement investigations; oversee designees; investigate suspected unapproved parts; and provide information through the Freedom of Information Act (FOIA).

PASS appreciates the opportunity to present our views regarding the FAA's certification process and ways to ensure its safety and efficiency.

Certification: Definition and Overview

The FAA's certification process is a layered system intended to ensure aircraft and equipment meet FAA's airworthiness requirements, which are codified in the Federal Aviation Regulations (FARs). According to the Department of Transportation Inspector General (IG), the FAA's certification process is "an important component of the Agency's mission to ensure safe operations in the NAS [National Airspace System] and support the growth of the aviation industry."[1] The FAA's Aircraft Certification Service (AIR) division is responsible for issuing approvals to designers and manufacturers of aircraft and aircraft components and monitoring certificates for aircraft in order to ensure safety from initial design to retirement. AIR employees include PASS-represented aviation safety inspectors from the manufacturing field. AIR is also responsible for oversight of designees and delegated organizations performing certification work on behalf of the agency. PASS-represented aviation safety inspectors in the FAA's Flight Standards Services division, including Aircraft Evaluation Group (AEG) inspectors, issue certificates and approvals for individuals and entities to operate in the NAS, including commercial air carriers, repair stations, pilots and others.

[1] Department of Transportation Inspector General, *Weak Processes Have Led to a Backlog of Flight Standards Certification Applications*, AV-2014-056 (Washington, D.C.: June 12, 2014), p. 9.

Certification requirements are included in Part 21 of Title 14 of the Code of Federal Regulations (14 CFR), Certification Procedures for Products and Parts. The steps in the design-approval process include the applicant's conceptual design, the application for design approval, definition of the design standards, test plans and analysis to demonstrate the design meets those standards, generation and substantiation of compliance data, determination of compliance, and issuance of the type certificate. The issuance of the type certificate approves the aircraft design; a similar process is in place to approve the production of the parts for the aircraft. The certification process begins with an industry application for a type certificate and the establishment of a certification basis. The applicant must illustrate compliance plans and prove adherence to these engineering test plans. Following issuance of the type certificate, the applicant must meet the production certificate regulations to obtain a production certificate or approval in order to produce the aircraft and parts. They must also demonstrate operational suitability with Flight Standards. When the aircraft enters service, the certificate holder is responsible for monitoring the aircraft fleet for continued airworthiness. As safety issues are uncovered, these must be reported to the FAA and worked with the FAA to correct them.

The FAA issues approvals or certificates for new operators, aircraft, and aircraft parts and equipment based on evaluation of aviation industry submissions, FARs and FAA guidance. In addition, the agency grants approval for changes to existing air operations and equipment. FAA approval indicates that the aircraft, equipment and air operations meet minimum FAA safety standards and are safe for use or flight in the NAS. In FY 2013 alone, AIR issued approximately 3,496 design approvals, 57 production approvals and 536 airworthiness certificates. Flight Standards issued approximately 259 air operator certificates and 159 air agency certificates.[2]

While FAA inspectors are involved in the certification process, individual and organizational designees are often granted authority to verify compliance to specific portions of the regulations in the certification process and make findings of compliance in support of the type and production certificates. For delegated projects, FAA involvement is reduced based on what FAA designations the designee hired by the applicant holds. It is relevant to note that according to the FAA, the transition to delegation oversight does not change the certification process.[3]

In the FAA Modernization and Reform Act of 2012 (P.L.112-95), Congress included provisions relating to certification. Per Sections 312 and 313 of the legislation, Aviation Rulemaking Committees (ARCs) were established to examine streamlining the certification process, including considering methods for enhancing the use of delegation systems, and develop recommendations to improve the consistency of regulatory interpretation.

PASS is in agreement with the IG that "management and oversight weaknesses have hindered the effectiveness and efficiency of FAA's certification processes."[4] The IG points to issues with the FAA's reliance on its delegation programs without adequate oversight as well as

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[2] Government Accountability Office, *Aviation Safety: FAA's Efforts to Implement Recommendations to Improve Certification and Regulatory Consistency Face Some Challenges*, GAO-14-728T (Washington, D.C.: July 23, 2014), p. 6.

[3] Federal Aviation Administration, "FAA Presentation – NTSB Hearing – Panel 4" (April 24, 2013), slide 4.

[4] Department of Transportation Inspector General, *FAA Can Improve the Effectiveness and Efficiency of Its Certification Processes*, CC-2014-003 (Washington, D.C.: October 30, 2013), p. 1.

inefficiencies with the overall certification process. PASS will discuss these areas in greater detail below as well as additional issues we have identified and recommended improvements.

Inspector Delegation Oversight

The ARC report resulting from Section 312 of the FAA reauthorization legislation recommended that the FAA enhance its use of delegation programs in order to improve efficiency of the certification process.[5] As has been PASS's position for years, the union has serious concerns with the current state of the delegation programs and is opposed to further expansion until the FAA proves it can provide effective oversight.

The FAA is relying more on its delegation programs in which a person or organization performs certification tasks on behalf of the FAA. The FAA is responsible for overseeing the work of designees, who, according to the FAA, "act as surrogates for the FAA in examining aircraft designs production quality, and airworthiness" even though they are "paid by the manufacturers."[6] There are several types of designees, including manufacturing and maintenance designated airworthiness representatives (DARs), who perform examinations, inspections and testing services related to the issuance of certificates; designated manufacturing inspection representatives (DMIRs), who issue certificates for aircraft and airworthiness approvals, among other things; and organizational delegations, which are companies who are allowed to serve as designees through the organization designation authorization (ODA) program.

According to the Government Accountability Office (GAO), designees perform more than 90 percent of FAA's certification activities despite serious "concerns that designee oversight is lacking," especially in the use of ODAs.[7] The IG has similar concerns related to the use of ODAs, stating that "with less FAA involvement in the selection process, there is the risk that an ODA company could delegate certification responsibilities to individuals whose qualifications are inadequate or who have a history of poor performance. Therefore, effective oversight is critical to ensure that all ODA organizations are following FAA's established policies and procedures for aircraft certification."[8] Work that once was performed by FAA inspectors but is now primarily delegated includes but is not limited to: performing airworthiness determination of aircraft; performing conformity inspection of a new project; witnessing tests on a new project; performing a type inspection report or supplemental type inspection report; and overseeing the manufacture of amateur, light-sport and experimental aircraft.

PASS-represented inspectors have concerns regarding the use of designees and ODAs. The growth of the ODA program is making oversight increasingly difficult with limited resources for proper oversight. For example, inspectors inform PASS that ODAs often do not fully understand FAA policies and regulations, and often do not meet standards required of an FAA inspector. In

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[5] Aircraft Certification Process Review and Reform Aviation Rulemaking Committee, *Recommendations on the Assessment of the Certification and Approval Process* (Washington, D.C.: May 22, 2012), p. xv.
[6] Federal Aviation Administration, "Delegation and Designee Background," page last modified June 21, 2006, available at http://www.faa.gov/about/history/deldes_background.
[7] Government Accountability Office, *Aviation Safety: FAA Efforts Have Improved Safety, but Challenges Remain in Key Areas*, GAO-13-442T (Washington, D.C.: April 16, 2013), p. 3.
[8] Department of Transportation Inspector General, *FAA Can Improve the Effectiveness and Efficiency of Its Certification Processes*, CC-2014-003 (Washington, D.C.: October 30, 2013), p. 2.

addition, there is a significantly high turnover rate within some ODAs, leading to a revolving door of employees. While audits have been performed on designees and ODAs and noncompliance has been discovered, time and staffing constrains often result in corrective action not being secured. Inspectors also inform PASS that some ODAs are uncooperative with the FAA's oversight role and, in some cases, openly resistive to an inspection. In one example, when an inspector attempted to oversee an avionics manufacturer ODA with several compliance and enforcement cases against it, the ODA accused the inspector of not providing sufficient substantiation for involvement. When the inspector was finally able to review the ODA, he found that 32 forms were not filled out properly, procedures were not being adequately followed and two aircraft data plates did not meet type certificate requirements.

A major concern on the part of the industry is the significant backlog of certification applications. PASS concurs that this is an issue and argues that overuse of the designee and ODA programs is a contributing factor. It was expected that the more the agency delegated the work, inspectors would deal with fewer applications. So far, this has not been the case. The costs involved with establishing or using an ODA is also contributing to the backlog. For instance, many smaller businesses are unable to establish its own ODA or go to another ODA due to the higher costs and are instead filing into the lengthy queue of applicants waiting for certification from the FAA, which is free, or giving up altogether.

Finally, PASS is extremely concerned that the FAA is not only lacking in oversight of its delegation programs but is not able to provide an accurate figure for the number of designees and ODAs it is supposed to be overseeing. This is clearly a considerable problem. In a May announcement, the FAA indicated that Aviation Safety oversaw approximately 10,000 designees.[9] PASS believes this is a gross underestimate and considers any individual permitted to conduct inspections on behalf of the FAA as a designee. In the May announcement, the agency unveiled a new integrated policy for managing designee types in addition to the Designee Management System (DMS), a tool intended to support the policy. Unfortunately, since its unveiling, the DMS is undergoing significant problems and has not been online since December. It should be noted that even when the DMS was functioning, it did not include all designee types, including ODAs. Inspectors inform PASS that, instead of reducing the time needed for appointment and management of the designees they oversee, DMS has actually increased the workload and delayed the overall process.

PASS is recommending that the FAA conduct an internal audit of its ODA and designee programs, including DMS, in order to ensure they are functioning as intended. The audit team should include representatives of the inspector bargaining unit. Without a doubt, the level of work and the oversight needed to ensure proper surveillance of designees and ODAs must be addressed prior to any expansion of the delegation programs.

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[9] Federal Aviation Administration, "Designee & Delegations: Designee Management System (DMS)," page last modified October 20, 2014, available at http://www.faa.gov/other_visit/aviation_industry/designees_delegations/dms/.

Inspector Staffing

Due to the expanding use of delegation programs, PASS's concerns with inadequate inspector staffing become even more significant. In PASS's opinion, the most effective way to improve the certification process is to ensure sufficient inspector staffing. The lack of adequate certification inspectors and engineers has been a complaint of the aviation industry for nearly a decade.[10] There are currently 150 MIDO inspectors in AIR. In addition, in Flight Standards, there are approximately 2,850 field-level safety inspectors, including 78 AEG inspectors. Regarding the Flight Standards inspector staffing, in 2009, the FAA introduced a staffing model but has yet to fully implement it. The FAA has reported the results of the staffing model six times, with every report showing staffing shortages ranging from 389 to 935.[11] Even more concerning is the fact that the FAA is expecting to lose more than 200 aviation safety inspectors a year for the next eight years.[12]

Specifically related to MIDO inspectors, as of data available in July 2014, these 150 employees are responsible for overseeing 1,148 DMIRs, 387 DARs and 135 ODAs in addition to their other work.[13] Unbelievably, the MIDO aviation safety inspector staffing level has not changed noticeably over the past decade despite a steadily increasing level of work and responsibility. This is resulting in less oversight and an over reliance on a risk-based system and designees. For instance, whereas an inspector used to spend at least once a year with a company he or she was responsible for overseeing in order to conduct a complete inspection, with fewer inspectors and more work, some companies only get inspected in person every three years. A staffing model for the MIDO workforce has been in place for two years. Unfortunately, PASS has not seen any data related to the staffing model or been involved in its development or implementation.

Regarding Flight Standards inspectors conducting certification activities at Flight Standards District Offices (FSDOs) and Certificate Management Offices (CMOs) nationwide, the IG released a report in 2014 detailing issues with the Denver FSDO but noting similar problems throughout the country. The IG notes that the FAA "has not provided an objective method or national guidance for determining if and when enough inspectors are available to initiate new certifications" and that, given current methods, "will be unable to adequately schedule its staffing needs."[14] The IG encourages the FAA to "more effectively manage and maximize" inspector resources.[15]

In the General Aviation arena, the agency has developed a waiting list of operators requesting approval on their intent to establish an approved commercial operation. The waiting list referred to as the Certification Services Oversight Process (CSOP) includes FAR Parts 135, 141, 142 and 137 operators. The backlog for these applicants is multiple years, primarily due to a lack of

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[10] Paul Lowe, "OEMs: FAA needs more certification engineers," AINonline, September 18, 2006.
[11] Department of Transportation Inspector General, *FAA Lacks a Reliable Model for Determining the Number of Flight Standards Inspectors It Needs*, AV-2013-099 (Washington, D.C.: June 20, 2013, 2013), pp. 5–6.
[12] Federal Aviation Administration, *Aviation Safety 2013 Workforce Plan* (Washington, D.C.: October 28, 2013), p. 17.
[13] Current data is unavailable since the Designee Management System (DMS) is not functioning.
[14] Department of Transportation Inspector General, *Weak Processes Have Led to a Backlog of Flight Standards Certification Applications*, AV-2014-056 (Washington, D.C.: June 12, 2014), p. 7.
[15] Id., p. 9.

inspectors necessary to fulfill requests. The GA offices are currently handicapped in providing the proper oversight and surveillance of the operators listed above. And, until an operator goes out of business or the office receives new inspectors and staff, the backlog will continue to grow. As of last year, the waiting time was approximately three years.

It is essential that the FAA have a trained and robust inspector workforce to effectively manage the entire certification process, including dealing with the increasing level of work being turned over to designees and ODAs. PASS believes that a major contributing factor to the certification backlog is the lack of adequate staffing. This is especially concerning considering that certification of equipment, systems and procedures necessary to fully implement the Next Generation Air Transportation System (NextGen), in addition to establishing certification standards for unmanned aircraft, will be an essential component of the FAA's modernization efforts. For the first time, PASS-represented MIDO inspectors are starting to work on unmanned aircraft. The IG notes that the "FAA's ability to certify complex systems and new technologies is a critical factor in the successful implantation of NextGen and providing benefits to airspace users" and that additional work associated with NextGen "will add to FAA's already extensive certification and approval workload." In PASS's view, without increasing the number of inspectors, the agency is unprepared to deal with the additional work.

Training

Training of the inspector workforce must also be considered. Training is extremely important in order to allow FAA employees to stay current and educated on changing systems and equipment used every day in the aviation system. It is a significant endeavor to train FAA employees, one that currently requires a major time commitment. Aviation safety inspectors must remain current and qualified in a variety of skill sets. As such, regular and recurrent/proficiency training is an essential aspect of maintaining a skilled and able workforce.

Inspectors inform PASS that the agency does not consider that it takes three to five years to fully train an inspector when examining staffing numbers. In some cases, this results in offices that appear staffed on paper but include inspectors unable to perform the required duties due to lack of training. This also results in fully trained inspectors being forced to take on additional work and designee responsibility.

Related specifically to designees and ODAs, inspectors tell PASS that training is insufficient, and that the FAA does not reassess the training in order to determine if it is effective or where it can be improved. In fact, in some cases, inspectors are given oversight responsibility without formalized and specific training. Considering the problems related to the designee and ODA programs, this is obviously a considerable concern. Furthermore, the introduction of new systems often does not include a robust training program. For instance, the DMS program described above was introduced in May. Currently, the course is being updated so new employees have not received training yet and it is unknown when training will occur. Inspectors also tell PASS that more training is being "watered down" to simpler online courses when more thorough virtual or in-person training is required. Inspectors also recommend that a more robust on-the-job training program would assist in making up some of the training deficiencies.

PASS believes the FAA must thoroughly examine its training program and develop a plan for providing systematic and recurrent training for FAA aviation safety inspectors, including increasing the use of virtual and on-the-job training using experienced instructors or associate instructors from the field.

Improving the Certification Process

Recommendations put forth by the Section 312 ARC emphasize the importance of adhering to an approval timeline as included in the FAA and Industry Guide to Product Certification (CPI Guide).[16] As PASS indicated in testimony before the House Aviation Subcommittee in 2013, inspectors have great concern regarding the disconnect between a company's adherence to a timeline versus the agency's. While companies are permitted flexibility with their schedules, this does not translate once the FAA receives the application. In other words, if inspectors are supposed to be given a month to investigate and approve issuance of a certificate and the applicant is late in submitting the completed application, there is no additional time granted to the FAA for review. As such, inspectors are put in a position where they have limited time to perform their tasks. The certificate approval process is highly scrutinized and employees are forced to adhere to the timelines, even if that means other critical work suffers. In no way should a timetable or a rush to complete a task put safety at risk. PASS recommends that guidance in the CPI Guide be reexamined to compensate for the timetable issues.

Another issue related to timelines is the FAA's reliance on a sequencing program designed to prioritize projects in a fair and standardized manner based on safety and company contribution. According to the program, all new applicants for certification and validation that are expected to require more than 40 hours of FAA involvement are entered into the sequencing program, which requires approximately 90 days to determine whether they can be started. It should be noted that the 40-hour threshold does not account for the time it takes MIDO inspectors to support the process, including reviewing the conformity plan, participating in the safety review board, overseeing the work of designees and reviewing the special airworthiness limitations. Furthermore, the sequencing program often results in small business applications not being treated equitably with those of larger applicants. This is a further deterrent to allowing these smaller businesses access to the certification process.

In discussing the sequencing program, the ARC emphasized the importance of adequate inspector staffing and management of workload. "From a strategic perspective, the FAA must proactively manage the effectiveness and efficiency of the certification processes in combination with necessary staffing management to ensure it can provide the safety certification necessary to support the economic growth of the U.S. industry and the development of aviation products and technologies," stated the ARC.[17] As such, PASS believes steps must be taken now to ensure a comprehensive certification process involving an adequate number of trained FAA inspectors.

In addition, the Section 313 ARC recommended methods for addressing inconsistent interpretation of regulations, including the importance of developing a single master electronic

[16] Aircraft Certification Process Review and Reform Aviation Rulemaking Committee, *Recommendations on the Assessment of the Certification and Approval Process* (Washington, D.C.: May 22, 2012), p. 16.
[17] Id., p. 18.

database resource, providing a single source of information for all Aviation Safety personnel and members of the industry. PASS is in support of plans to address inconsistencies but maintains that application of the regulation depends on the specific product to be certified.

Overall, PASS concurs that the certification process is in need of improvement. PASS recognizes the efforts currently underway to streamline the process. We recommend further steps to include consolidating certification standards and policy guidance for various aircraft types, and having one group perform policy development, initial approval or certification/reviews, another group perform the certificate management activities, and another perform designee oversight. PASS also recommends conducting a national review of agency regulations, policies and procedures in order to eliminate those that are inefficient. PASS also supports the development of a database to monitor and track certification process improvements. This will ensure that all levels of the organization are aware of the improvements to the process and have the ability to educate themselves as new changes are introduced.

Conclusion

The FAA's certification process continues to face significant challenges. PASS believes that inspector involvement is critical to ensuring the success of any implementation plan. It has been proven time and time again that stakeholder involvement is critical to successful implementation of new plans or concepts. This will prove greatly beneficial to addressing inefficiencies and assisting in proper implementation. PASS also believes that it is critical to maintain the core competence and capability of its workforce to perform certification functions, in addition to oversight of delegated authorities. This is necessary to ensure adequate oversight of delegated authorities and to support the certification needs of all applicants.

In closing, PASS must emphasize the significance of adequate funding in order to allow the agency to continue performing its important work. During the 2013 government shutdown, no new safety design approvals were addressed, which impacted many companies relying on the FAA; quality system audits and supplier control audits were delayed; investigations were halted; safety data was not evaluated; this list goes on. When a limited number of inspectors were called back during the shutdown, they were directed to focus only on "continued operational safety issues" and stop all FAA certification work on new aviation products. Aircraft manufacturers depend on FAA inspectors being on the job to review and certify new equipment on a timely basis. Inadequate funding or a lapse in government operations has the potential to seriously affect the FAA's ability to continue to issue its thousands of design approvals and type certificates on an annual basis, along with the ability to conduct safety-required surveillance and oversight necessary in such a technologically complex system.

PASS looks forward to continuing to work with this committee and the FAA to make improvements to the certification process in order to ensure a thorough and safe system that benefits the aviation industry now and in the future.

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Statement for the Record

Submitted by the
Aeronautical Repair Station Association

House Transportation & Infrastructure Committee

"FAA Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Processes"

January 21, 2015

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January 21, 2015

The Honorable Bill Shuster
Chairman
House Committee on Transportation & Infrastructure
2167 Rayburn House Office Building
Washington, DC 20515

The Honorable Peter DeFazio
Ranking Member
House Committee on Transportation & Infrastructure
2167 Rayburn House Office Building
Washington, DC 20515

RE: Statement for the Record January 21 Hearing, "FAA Reauthorization: Reforming and Streamlining the FAA's Regulatory Certification Processes"

Dear Chairman Shuster & Ranking Member DeFazio:

The Aeronautical Repair Station Association (ARSA) thanks you for the opportunity to submit a statement for the record about the Federal Aviation Administration's (FAA) certification process.

ARSA is an international trade association with a distinguished record of representing certificated aviation maintenance facilities before Congress, the FAA, the European Aviation Safety Agency (EASA), and other civil aviation authorities (CAAs). ARSA's primary members are companies holding repair station certificates issued by the FAA and other CAAs around the world. These certificates are our industry's "license to do business." They authorize companies to perform maintenance, preventive maintenance and alterations on civil aviation articles, including aircraft, engines, and propellers, and components installed on these products. Repair stations perform this essential work for airlines, the military, and general aviation owners and operators.

ARSA members are routinely plagued by the FAA's inconsistent application of its regulations; the lack of consistency threatens aviation safety, economic growth and job creation. The lack of regulatory standardization particularly impairs small businesses, which are predominant in the civil aviation industry.

ARC 313
In the FAA Modernization & Reform Act of 2012 (P.L. 112-95), Congress mandated that the agency develop plans to streamline its certification process and address regulatory inconsistencies.

Specifically, Sec. 313 required the agency to convene an advisory panel to determine the root causes of inconsistent interpretation of regulations by the FAA Flight Standards Service and Aircraft Certification Service and develop recommendations to standardize the application of its aviation safety rules.

To comply with Sec. 313, the FAA formed the Aviation Rulemaking Committee for the Consistency of Regulatory Interpretation (ARC 313). ARSA was an ARC participant, which was tasked with developing recommendations to:

- Address the findings in the October 2010 report by the Government Accountability Office (GAO) on certification and approval processes (GAO-I 1-14) and other concerns raised by interested parties, including representatives of the aviation industry;

- Improve the consistency of interpreting regulations by the Flight Standards Service and Aircraft Certification Service; and

- Increase communications between the administration's Flight Standards Service and Aircraft Certification Service and applicants, certificate holders, and approval holders for the identification and resolution of potentially adverse issues in an expeditious and fair manner.

On November 30, 2012, ARC 313 submitted its final report, which contained three root causes behind inconsistent regulatory application:

- **Need for Clear Regulatory Requirements**: When a regulation is unclear, its application varies from one inspector to another and compliance differs among certificate holders. Over time, better analytical tools, new technologies and best practices change compliance techniques, creating further ambiguity.

- **Regulatory Application Training**: Training in regulatory development methodology and standard application and resolution protocols have not kept pace with changes either at the FAA or in the stakeholder community.

- **Culture**: General reluctance and/or failure by both industry and the FAA to work issues of inconsistent regulatory application through to a final resolution. Timeliness of decisions and a "fear of retribution" contribute to accepting an inconsistent regulatory application.

After identifying root causes for the inconsistent application of regulations, the ARC developed six recommendations. The primary recommendation was:

> FAA's Flight Standards Service (AFS) and Aircraft Certification Service (AIR) review all guidance documents and interpretations to identify and cancel outdated material and cross-reference (electronically link) material to its applicable rule. Further, the ARC recommends the FAA expand its current Aviation Safety Information Management System (AVSIMS) initiative to consolidate the service organization-level libraries into a single AVS master electronic database resource, organized by rule, to allow agency and industry users access to relevant rules and all active and superseded guidance material and related documents.

Implementation of Recommendation
Despite ARC 313's specific recommendation for a single source of regulatory compliance information that would include not only the regulation and its preamble, but also internal and external guidance (orders, handbooks, advisory circulars, legal interpretations, court decisions, etc.), the FAA continues to delay. The agency states that consolidation of its regulatory compliance information would be problematic due to lack of resources to sort through the existing information and eliminate duplicity and inconsistency. The FAA's wish to "study" methodologies and existing databases to determine which would be most compliant with the recommendation is an example of the agency overcomplicating an ongoing issue rather than seeking an immediate, medium- and long-term solution.

The industry cannot wait for the agency; ARSA has developed a simple excel spreadsheet to test a process of consistent issue resolution. That spreadsheet will be used in conjunction with the FAA's Consistency and Standardization Initiative to refine a regulatory compliance database capable of gathering readily available interpretative material as well as later-discovered information. By constant monitoring and updating, the library will continue to grow while inconsistent, duplicative and incorrect information is identified for change or elimination.

Conclusion
ARSA looks forward to working with Congress and the FAA to achieve consistency in regulatory application through currently available resources. Further agency delay is unacceptable.

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