

FAA REAUTHORIZATION: CERTIFICATION AND U.S. AVIATION MANUFACTURING COMPETITIVENESS

HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION OPERATIONS,
SAFETY, AND SECURITY

OF THE

COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

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ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

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CONTENTS

Hearing held on April 21, 2015	Page 1
Statement of Senator Ayotte	1
Statement of Senator Cantwell	2
Statement of Senator Moran	34
Statement of Senator Daines	36
Statement of Senator Udall	38
Statement of Senator Klobuchar	39
Statement of Senator Sullivan	41

WITNESSES

Dorenda Baker, Director, Aircraft Certification Service, Federal Aviation Administration (FAA)	3
Prepared statement	5
Gerald L. Dillingham, Ph.D., Director, Physical Infrastructure Issues, U.S. Government Accountability Office	9
Prepared statement	11
Peter J. Bunce, President and CEO, General Aviation Manufacturers Association	21
Prepared statement	23

APPENDIX

Response to written questions submitted to Dorenda Baker by:	
Hon. Dean Heller	47
Hon. Cory Gardner	47

FAA REAUTHORIZATION: CERTIFICATION AND U.S. AVIATION MANUFACTURING COMPETITIVENESS

TUESDAY, APRIL 21, 2015

U.S. SENATE,
SUBCOMMITTEE ON AVIATION OPERATIONS, SAFETY, AND
SECURITY,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:30 p.m. in room SR-253, Russell Senate Office Building, Hon. Kelly Ayotte, Chairman of the Subcommittee, presiding.

Present: Senators Ayotte [presiding], Cantwell, Wicker, Moran, Sullivan, Gardner, Daines, Klobuchar, Udall, and Peters.

OPENING STATEMENT OF HON. KELLY AYOTTE, U.S. SENATOR FROM NEW HAMPSHIRE

Senator AYOTTE. Good afternoon and welcome. Today's hearing is one of several we are holding in preparation for this year's Federal Aviation Administration's Reauthorization effort.

Last week, the full committee heard from the FAA Administrator Huerta on a number of issues in relation to the FAA Reauthorization effort including some testimony on the certification process. Today, we will have the opportunity to discuss the certification process in more detail and explore any additional steps that need to be taken in order to best support and enhance the safety of our National Aerospace System and our nation's manufacturing competitiveness.

The United States is uniquely situated as a leader in the global aerospace arena, and that is due to our innovative and forward-thinking aerospace industry. We must encourage and enable innovation so that we remain competitive. The government should not be a roadblock either real or perceived to a safer more efficient aerospace industry.

Civil aviation has been and remains a critical sector to our Nation's economy. In fact, in Fiscal Year 2012, the FAA reports that the aviation industry supported 11.8 million American jobs and contributed \$1.5 trillion in economic activity to our GDP. In addition, civil aircraft manufacturing continues to be the top net exporter in the United States and has an estimated \$53.4 billion in positive impact on the trade balance for our country.

The United States National Airspace System remains one of the safest in the world largely due to safety parameters required by the

FAA and the certification of aircraft designs in reproduction. The certification process, however, remains subject to criticisms of inefficiency and inconsistency that can result in costly delays and ultimately reduce competitiveness.

While safety is and must be the top priority, we need to find ways to make the process more efficient, more consistent, and more encouraging of new designs and products. New technology can often mean safer technology. We must find a way to encourage and enable the deployment of innovation and new technology for the safety and benefit of civil aviation customers and businesses.

Several areas remain problematic including the issue of foreign civil aviation authority validation of FAA certificates and the underutilization of the Organization Design Authorization, or ODA, mechanism. In addition, inconsistent regulatory interpretations remain an issue. For example, different interpretations of regulations by different FAA offices has, unsurprisingly, resulted in costly time delays for new design approvals. I think this is something we can fix and we must fix.

Today, we will hear from three witnesses and we very much appreciate your being here today. Ms. Dorenda Baker, Director of the Aircraft Certification Service at the FAA; Dr. Gerald Dillingham, Director of Civil Aviation Issues at the Government Accountability office—thank you, Doctor; and Mr. Pete Bunce, President of General Aviation Manufacturers Association.

Thank you, Mr. Bunce.

Thank you for being here and I look forward to your testimony. I'd like to now turn it over to my Ranking Member, Senator Cantwell, who I know has also been keenly interested in these issues.

Thank you, Senator Cantwell.

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

Senator CANTWELL. Thank you, Madam Chair, and thanks for holding this important hearing. And thank you to the witnesses for testifying today. This hearing will cover a topic of critical importance to American manufacturing and certainly to the people in my state.

Our nation's economy depends on civil aviation, which connects businesses and consumers around the globe. Here, in the United States, civil aviation supports 11.8 million jobs that account for \$1.5 trillion in total economic activity. In my home state, Washington, the aerospace manufacturing industry, alone, supports 265,000 jobs, more than \$69 billion in gross revenues.

So aviation manufacturing is important to my state, but it's also vitally important to our Nation's economy. The world-class equipment and technology that is developed and manufactured in this country continues to set the global standard for safety and performance. We have become world leaders in aviation manufacturing through innovation, investment, a highly skilled workforce, an adaptable supply chain, and a multifaceted export strategy.

Civil aircraft manufacturing is the number one U.S. net exporter contributing \$54 billion to our trade balance. Access to foreign markets has allowed U.S. manufacturers to thrive. In order to preserve this access to foreign markets, manufacturers, suppliers, and their

customers need predictability and certainty in the Export-Import Bank. I hope, while not within the jurisdiction of this committee, that we get the Export-Import Bank reauthorized. This bank's charter is set to expire on June 30 of this year, and we must ensure that it is extended without interruption.

Foreign aviation manufacturers have access to their own export credit agencies, and we should not put our manufacturers at a disadvantage and take away tools that they need. The government plays a critical role in support of manufacturers. In order to keep our manufacturers competitive, we must ensure that we have a regulatory regime that fosters innovation while instilling global confidence in the safety and quality of our products. This role also requires the FAA to actively engage regulatory bodies and other nations in order to make sure that the FAA certification will be accepted with minimal delays and to make sure that we continue to focus on markets outside of the U.S.

The FAA certification process evaluates the design, production, and air-worthiness of all aircraft and aircraft components, everything from engines to seatbelts. In that way, the FAA serves as a regulator. It must ensure that every single part of an aircraft satisfies the strict safety standards before it enters the marketplace and national airspace. As the FAA performs that important safety function, it must also facilitate aviation design and manufacturing in the U.S. through a certification process that is predictable and efficient for business.

The FAA has faced a backlog of certification requests over recent years, and, as a result, manufacturers have faced costly delays. With an increasing number of new products expected to be introduced over the next several years, the amount of certification work before the FAA will greatly increase. In the FAA Modernization Reform Act of 2012, we directed the FAA to work with aviation stakeholders to review the current process and to identify ways to increase efficiency and reduce cost. I understand that the FAA has received recommendations from industry and has set out to implement them.

So Dr. Dillingham, your report about how we are doing on that will be very timely to this discussion this morning.

So I look forward to hearing about the FAA's progress in reforming its certification process, improving its ability to work with manufacturing, and, above all, continuing our safety record. So I look forward to everyone's testimony today.

Again, Madam Chair, thanks for holding this important hearing. Senator AYOTTE. Thank you, Senator Cantwell.

And now, we will hear from our witnesses. First, from Ms. Dorenda Baker, Director of Aircraft Certification Service at the FAA.

Ms. Baker?

**STATEMENT OF DORENDA BAKER, DIRECTOR,
AIRCRAFT CERTIFICATION SERVICE,
FEDERAL AVIATION ADMINISTRATION (FAA)**

Ms. BAKER. Thank you.

Chairman Ayotte, Ranking Member Cantwell, members of the Subcommittee, thank you for the opportunity to speak with you today.

As the Director of the FAA's Aircraft Certification Service, it is my responsibility to oversee the 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 products and technologies is a challenge but one that we recognize is vital to ensuring U.S. economic growth.

As such, we continuously strive to improve the certification process. Limited resources, advances in technology, new entrants into the marketplace, and the expanding globalization of aviation are all challenges that are 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 focus our FAA resources. Today, 90 percent of our certification activity is leveraged through delegation and we are working to streamline the remainder. For example, we are developing a policy to take advantage of the requirement for applicants to provide a statement certifying their product is compliant with Federal Aviation Regulations. This will allow us to further minimize FAA involvement in the applicant's critical path to certification and delivery of their products.

As for FAA's implementation of the initiatives responsive to Section 312 of the FAA Modernization and Reform Act of 2012, we have completed ten of the 14 initiatives and have made significant progress on the remaining four. During implementation of the Section 312 initiatives, it became clear that not all of industry's concerns can be addressed at the national level. Therefore, the FAA initiated additional certification reform activities 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 ten years ago to improve cooperation and communication. Each company works with their local office to define operating norms, develop an issue resolution process, and identify individualized certification priorities. Utilizing the same philosophy, the FAA will work with individual companies to establish short and long-term goals to help them to reach their vision for full utilization of the Organization Designation Authorization, or ODA. The FAA also collaborated with industry to create an ODA scorecard to collect qualitative and quantitative data related to safety, FAA involvement, and ODA holder compliance.

On a local level, the purpose of the scorecard is to support constructive dialogue between FAA management and the ODA holders about compliance, timeliness, and performance. At a national level, the rollup 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. We are kicking off a pilot program for the ODA scorecard with select companies in the coming months.

Internationally, the FAA is a respected leader in aviation safety. The aviation industry is made up of an international web of networks and complex business arrangements that are challenging our traditional regulatory model. Therefore, we are working with our global partners to leverage our bilateral agreements to facilitate the ever-changing needs of industry.

I just returned from Hong Kong where I met with certification directors from ten aviation authorities in the Asia Pacific region. We discussed common issues such as limited resources and the velocity of change. We agreed that it is imperative to continue to work together and use safety management principles to support the global aviation industry.

Next week, I have a bilateral meeting with my counterpart at the European Aviation Safety Agency. We are working toward mutually recognizing each other's Technical Standard Orders. This will allow for the sale of U.S. manufactured TSO articles in Europe without further approval by EASA. We are also moving to accept each other's classification and approval of low-risk Supplemental Type Certificates. We expect to finalize the agreement on both of these improvements by the end of this year. Eliminating duplicative processes will reduce cost and create time savings for both industry and the FAA.

In conclusion, the FAA has made progress on implementing the requirements of Section 312; we are tracking the progress of implementing initiatives, performance outcomes, and global return on investment for the FAA and industry. We are conscious of the fact that certification reform is essential for economic growth of the United States, and we will continue our efforts to use meaningful metrics in a data-driven approach to continuously improve and streamline aircraft certification without sacrificing safety.

This concludes my statement and I am happy to answer any questions you have.

[The prepared statement of Ms. Baker follows:]

PREPARED STATEMENT OF DORENDA BAKER, DIRECTOR, AIRCRAFT CERTIFICATION SERVICE, FEDERAL AVIATION ADMINISTRATION (FAA)

Senator Ayotte, Senator Cantwell, Members of the Subcommittee:

Thank you for the opportunity to speak with you today about the Federal Aviation Administration's (FAA) role in the aircraft certification process. As Director of the FAA's Aircraft Certification Service (AIR), I am responsible for overseeing the design, production, and continued operational safety of aircraft, engines, propellers, and articles. Efficiently and effectively managing the safe oversight of the largest fleet of aircraft in the world, while continuing to support the innovation of new and novel 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 and effectiveness of the certification process without compromising safety. 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 the

FAA’s vision on reforming the certification process, what we have been doing in response to the 2012 FAA reauthorization, 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 make our processes as efficient and effective as possible, while also maintaining high standards of safety. The future vision of AIR, or AIR:2018, aligns with the FAA’s Strategic Initiatives and shows where we want to go and the type of work environment we want to create. Our vision is built around four key focus areas: safety, people, organizational excellence, and globalization. Certification reform is a key component of this vision. It includes initiatives in response to the requirements set forth in section 312 of the Federal Aviation Administration Modernization and Reform Act of 2012 (the Act), and internally driven activities to improve several components of the current certification process.

As an organization, we are confronted with new challenges every day: limited finite number of resources, new technologies, new entrants to the marketplace, and the expanding globalization of aviation. In order to address these challenges and the expectations of our stakeholders and the general public, we are applying safety management principles and using risk-based decision making to leverage our partnerships and designees to make better decisions about where to focus FAA resources. As a result, we are creating an agile, collaborative organization that embraces technology and is a leader in developing the future of aerospace.

Section 312 Implementation

Section 312 of the Act required the FAA to work with industry to develop consensus recommendations on ways to improve efficiency and reduce costs through streamlining and reengineering the certification process without compromising safety. In response to this direction, the FAA formed the Aircraft Certification Process and Review Aviation Rulemaking Committee (ARC), which developed six recommendations that resulted in 14 initiatives. To date, the FAA has successfully completed 10 of the 14 initiatives and is making significant progress on the remaining four initiatives. Many of the initiatives are directly related to FAA’s efforts to expand the use of delegated authority and implement a risk-based systems approach to the oversight of that delegation system.

For example, as part of the FAA’s ongoing commitment to improve responsiveness to industry as it certifies new products, the FAA replaced project sequencing with a new “project prioritization” process in September 2014. 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 are able to initiate projects without delay. If an applicant is an Organization Designation Authorization (ODA) holder or is using an FAA-approved individual delegated representative, they can immediately move forward with much of the work required to certify the product.

The FAA plans to develop and track the metrics related to implementing the 14 recommended initiatives in three phases: measuring (1) the progress of implementing the initiatives throughout FAA, (2) the outcomes of each initiative, and (3) the return on investment for the FAA and industry resulting from implementing the initiatives as a whole. The metrics for phase one have been developed and are contained in the latest revision of the Section 312 Implementation Plan posted on the FAA website.¹ Transparency and accountability in FAA’s relationship with industry and a data-driven approach will make the agency more effective and efficient, and drive certification reform.

The initiatives recommended by the Section 312 ARC are helping us to identify and address national certification issues; however, we recognize that these steps may not solve the problems experienced by individual companies. Therefore, the FAA is reexamining how it conducts business and implementing internally driven initiatives at the local, national, and international levels.

Local Efforts

ODAs and individual designees play a vital role in the effort to streamline the certification process. AIR currently oversees 71 ODAs and more than 2,900 indi-

¹The Section 312 Implementation Plan is updated every 6 months and can be accessed at http://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/committee/browse/committeeID/137.

vidual designees. 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 facilitate constructive dialogue between FAA management and ODA holders about compliance, timeliness, and any performance improvement enhancements that may be needed. Once individual goals are established through the reinvigoration of the safety plans, AIR will monitor how ODAs are progressing towards individual company goals. A national rollup of the scorecard data will also track progress by measuring the overall efficiency and effectiveness of all ODAs.

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) is an ISO 9000 registered organization and requires a quarterly review of Quality Management System (QMS) measures to gauge the overall health of AVS. The QMS measures also 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.

The FAA is committed to continuous improvement, applying safety management systems principles and using risk-based decision making to determine the level of rigor necessary in each certification. For example, in support of the FAA's NextGen implementation goals, the agency issued a policy memo in March allowing ODA holders to conduct certain certification projects without notifying the FAA in advance. The policy contains criteria that, when met, alleviates the need for a Project Notification Letter (PNL). Relieving industry from the PNL requirement will result in time and cost savings to their design, manufacturing, and production processes.

AIR also 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.

International Efforts

The FAA is a global leader in safety and efficiency. The global transportation network is changing, however, and the growth of the U.S aviation 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 a consistent level of safety across geopolitical borders and facilitates the export of U.S. products and articles.

We are also working with our global partners to leverage our bilateral agreements. This year we are working with the European Aviation Safety Agency (EASA) toward mutual recognition of European Technical Standard Order Authorizations (TSOA) and FAA TSOAs, and to accept classification of basic Supplemental Type Certificates without further review. This will allow manufacturers of TSOA articles to sell their products in Europe without further approval by EASA. The agreement is expected to be finalized at the end of this year and will eliminate duplicative processes, reducing costs through time savings for both industry and the FAA.

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 align rulemaking requirements.

The FAA is working to enhance global manufacturing by working with our global partners to provide reciprocal assistance in overseeing manufacturing facilities. For example, the FAA and the Mexican Dirección General de Aeronáutica Civil (DGAC) are finalizing a Special Arrangement to allow the Mexican DGAC to perform certain types of certificate management activities on behalf of the FAA. A successful Special Arrangement is already in place in Brazil. The FAA will continue to leverage these arrangements as globalization of the aviation industry creates more complex business partnerships.

Section 313 Implementation

The FAA is also making progress in response to section 313 of the Act, which focused on the consistency and standardization of regulatory interpretation. In an effort to remain transparent with our stakeholders, the FAA posted an implementation plan for section 313 on the FAA website.² We have taken several steps to implement the recommendations and we have closed two of the six initiatives in the plan with the support of industry.

The highest priority initiative is to develop a single master source for guidance organized by regulation. We are making progress in reviewing our existing databases to assure the information is up to date. In January, I participated in a demonstration of the proof of concept for a tool that will link documents from multiple sources. I was impressed with the system's capabilities; it will link the regulatory material not only by regulation as requested by industry, but also by concept in case the user does not know the regulatory citation.

Unmanned Aircraft Systems

The FAA is also working tirelessly to safely integrate Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS). The 2012 Act established the framework for this effort and tasked the FAA with safely integrating civil UAS into the system by September 2015. We have worked together with government partners and industry stakeholders to complete milestones put forward by the Act. This includes long-term planning for the future integration, collaborative research and development with interagency partners and industry, and the establishment of test sites and airspace for UAS research and development and testing. As of April 9, the FAA has issued 137 exemptions under section 333 of the Act and is working to decrease processing time for future exemptions.

In February, the FAA issued a Notice of Proposed Rulemaking that would allow routine use of certain small UAS in the NAS. The proposed rule would cover many potential small UAS operations and would offer a flexible framework for the safe use of small unmanned aircraft, while accommodating future innovation in the industry. Under the new authority provided in section 333, it contains operational limitations that will allow the entire category of small UAS to avoid airworthiness certification and be subject to the least burdensome level of regulation that is necessary to protect the safety and security of the NAS. As proposed, the United States would have one of the most flexible UAS regulatory frameworks in the world.

The FAA has successfully issued four UAS type certificates using existing FAA certification processes and is currently working with five other companies to type certificate their UAS using the FAA certification process available for Special Class aircraft. This process has sufficient flexibility to evaluate designs of aircraft of various size, speed, intended use, and area of operation. The same process is utilized for the certification of airships, gliders, and very light aircraft, and enables the FAA and applicants to collaborate together on appropriate certification requirements. It utilizes a risk-based classification and certification approach to identify the expected level of safety to determine FAA involvement and oversight. The FAA is currently developing advisory material to assist applicants, industry stakeholders, and the general public in understanding this process. As the FAA gains experience in certificating UAS products, it will continue to mature its policies and procedures to balance the needs of our applicants and UAS owners and operators with its responsibility to maintain safety in the NAS.

²The Section 313 Implementation Plan can be accessed at http://www.faa.gov/regulations_policies/rulemaking/committees/documents/index.cfm/committee/browse/committeeID/239.

Conclusion

The FAA has made significant progress in implementing the requirements in section 312 of the Act and the initiatives recommended by the ARC to expand the use of delegated authority and establish a risk-based, systems approach to safety oversight. The FAA shares the Subcommittee's desire to streamline aircraft certification and will continue to implement internally driven reform activities at the local, national, and international levels.

To become more effective and efficient while maintaining and improving aviation safety, the FAA must collaborate with industry and improve transparency with stakeholders. When it comes to working together with industry, we need to respect each other's goals. For the FAA, the goal is a product that is compliant with the regulations. Industry wants to find ways to get new and safer products to market efficiently. For both of us, the safety of the aviation system is paramount. We are working 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, and will develop means to measure the performance outcomes and the global return on investment for the FAA and industry as a whole. 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.

This concludes my statement. I will be happy to answer your questions at this time.

Senator AYOTTE. Thank you, Ms. Baker.

We will now hear from Dr. Gerald Dillingham, Director of Civil Aviation Issues at the Government Accountability Office.

Thank you, Dr. Dillingham.

STATEMENT OF GERALD L. DILLINGHAM, PH.D., DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Dr. DILLINGHAM. Thank you, Madam Chair, Ranking Member Cantwell, distinguished members of the Subcommittee.

My statement today focuses on two areas. First, FAA's reported progress in addressing congressional and industry concerns about the certification process and the varying interpretations of its own regulations. And second, the challenges that U.S. companies face in obtaining foreign approvals of their products and FAA's efforts to help address these challenges.

As you are aware, in response to Sections 312 and 313 of the 2012 FAA Reauthorization, FAA chartered two rulemaking committees. One to address issues with the aircraft certification process and another to address regulatory consistency. Each committee produced six recommendations to assist FAA in address the long-standing concerns in both cases.

Regarding the certification process recommendations. As Ms. Baker has just testified, our review found that most of the 14 initiatives that FAA established to address the certification process recommendations have been completed or are on track to be completed within the next three years. The notable exception to this progress is the initiative that is aimed at reorganizing the regulation for certifying small aircraft. FAA plans to issue a final rule in September 2017. This will be about 2 years later than the original mandate.

And further, although FAA has established performance metrics for all 14 initiatives, the agency has not developed metrics to measure the overall effectiveness of its collective efforts. These individual and overall metrics are essential in helping the FAA and the

industry determine whether these initiatives are leading to improvements.

Turning to the regulatory consistency recommendations, FAA recently published a detailed implementation plan for addressing the six recommendations. According to the plan, FAA closed two of the recommendations and plans to complete the remaining four by July 2016. And although FAA has made progress in this area, it is too soon to determine whether FAA's planned actions adequately address the recommendations.

One of the longstanding challenges in this area has been industry's concern about a lack of adequate communication and involvement of stakeholders. However, more recently, FAA officials told us that they plan to regularly brief the stakeholders on their progress addressing the four remaining recommendations.

Turning to the foreign approval of FAA certified aviation products, the U.S. has historically been viewed as the gold standard for approval of aviation products, with some countries accepting FAA's approval as sufficient evidence that the product is safe for use in their country. Some other countries, however, do not accept FAA's certification, and these countries are increasingly applying their own processes for approving U.S. products.

Stakeholders told us that this practice often creates uncertainty and costly delays for U.S. aviation companies in delivering their products to foreign markets. Stakeholders also pointed out that some of FAA's processes also contributed to delays and increased costs in getting their products to foreign markets. For example, stakeholders said they didn't think that FAA gave high enough priority to assist in foreign approvals and FAA sometimes lacks adequate resources and staff expertise to effectively facilitate approvals unique to export approvals, such as intellectual property concerns or export control laws. Although FAA has several initiatives aimed at addressing these and other challenges related to foreign approvals, FAA must operate with due regard for national sovereignty and its own resource limitations.

In summary: Although we can say that progress is being made, some of the desired improvements to both the certification and foreign approval processes will likely take years to implement and requires sustained FAA and industry commitment as well as continued congressional direction and oversight.

Thank you, Madam Chair.

[The prepared statement of Dr. Dillingham follows:]

April 21, 2015

GAO HIGHLIGHTS

Aviation Certification

Issues Related to Domestic 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 has previously reviewed 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 aviation rulemaking committees in April 2012—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 reported progress in implementing the aviation rulemaking committees' 2012 recommendations regarding its certification process and the consistency of its regulatory interpretations and (2) the challenges 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. It is based on GAO products issued from 2010 to 2015, selectively updated in April 2015 based on FAA documents and information from FAA officials and selected industry stakeholders.

What GAO Found

The Federal Aviation Administration (FAA) has made progress in addressing the Certification Process and the Regulatory Consistency Committees' recommendations, but as GAO reported in January 2015, challenges remain that could affect successful implementation of FAA's planned actions.

- FAA is implementing 14 initiatives for addressing 6 *certification process* recommendations. According to an April 2015 FAA update, 13 initiatives have been completed or are on track to be completed, and 1 will not meet planned milestones.
- In January 2015, FAA published a detailed implementation plan for addressing six *regulatory consistency* recommendations. According to the plan, FAA closed two recommendations—one as not implemented and one as implemented in 2013—and plans to complete the remaining four 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 indicated concerns regarding FAA's efforts, including concerns about a lack of communication with and involvement of stakeholders as FAA implements the two committees' recommendations. Since GAO reported in January 2015, FAA has been addressing these concerns.

In January 2015, GAO also reported that representatives of 15 selected U.S. aviation companies that 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 is limited, FAA has been addressing many of them. For example, FAA 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 has initiated efforts to improve the robustness of its approvals-related data to better evaluate its relationships with bilateral partners, *i.e.*, countries for which FAA has a BASA in place. FAA is also addressing its resource limitations by taking actions to improve the efficiency of its process.

PREPARED STATEMENT OF GERALD L. DILLINGHAM, PH.D., DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Chairwoman Ayotte, Ranking Member Cantwell, and Members of the Subcommittee:

I am pleased to be here today to testify on the status of the Federal Aviation Administration's (FAA) efforts to improve its processes for certifying new aviation

products for domestic use, and the challenges faced by U.S. aviation companies seeking product approvals in foreign countries. The 2012 FAA Modernization and Reform Act required FAA to work with industry to resolve issues related to the efficiency of FAA's certification processes and varying interpretations and applications of its regulations in making compliance decisions during certification.¹ In response to the mandated provisions in the 2012 FAA Modernization and Reform Act, 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 improvements in 2012. FAA also assists U.S. aviation companies in getting their U.S.-certificated products approved for sale and export to foreign countries. However, some U.S. industry stakeholders have raised concerns that some countries do not accept the FAA certification and conduct their own approval processes for U.S. products, which can be lengthy and provide no additional safety benefit.

My statement today discusses (1) FAA's reported progress in implementing the aviation rulemaking committees' 2012 recommendations regarding its certification process and the consistency of its regulatory interpretations and (2) the challenges 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. This testimony is based on several GAO products issued since 2010,² and selected updates of this work on FAA's progress in implementing the committees' recommendations and addressing foreign approval challenges, based on FAA documents and information from FAA officials and selected industry stakeholders. Each of these products contains detailed information on our objectives, scope, and methodology for performing this work. The work on which this statement is based was performed 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.

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

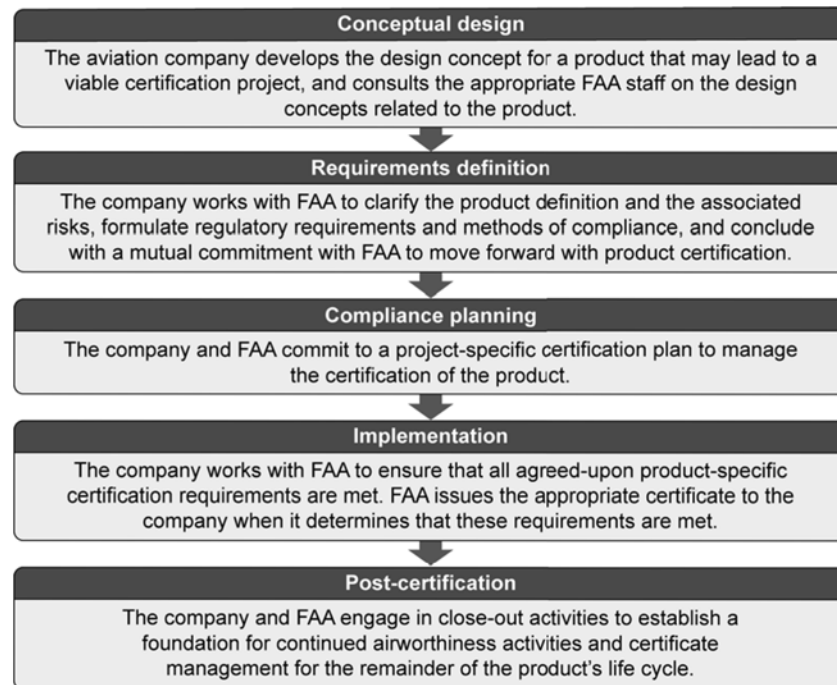
As you know, among its responsibilities for aviation safety, FAA's Aircraft Certification Service (Aircraft Certification) grants approvals (called type certificates) for new aircraft, engines, and propellers. Certification projects, which involve the activities to determine compliance of a new product 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).³ Figure 1 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.

¹ Pub. L. No. 112–95, §§ 312 and 313, 126 Stat. 11, 66, 67 (2012).

² GAO, *Aviation Safety: Issues Related to Domestic Certification and Foreign Approval of U.S. Aviation Products*, GAO–15–327T (Washington, D.C.: Jan. 21, 2015); *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); *Aviation Safety: Status of Recommendations to Improve FAA's Certification and Approval Processes*, GAO–14–142T (Washington, D.C.: Oct. 30, 2013); *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).

³ Aircraft Certification has local offices that serve geographic areas across the United States for aircraft certification-related activities: 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: 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-15-550T

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.

Studies published since 1980,⁴ our prior work,⁵ 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 compliance decisions during certification. Over time, FAA has implemented efforts to address these issues, but as we reported in July 2014,⁶ they persist as FAA faces greater industry demand and its overall workload has increased. In 2013, FAA published a detailed implementation plan for addressing the six certification process recommendations, and, in January 2015, published a detailed implementation plan for addressing the six regulatory consistency recommendations.

As of April 2015, FAA has made progress in addressing the Certification Process Committee's recommendations, but as we reported in January 2015, challenges remain that could affect successful implementation of the recommendations. FAA is implementing its plan for addressing the 6 certification process recommendations,

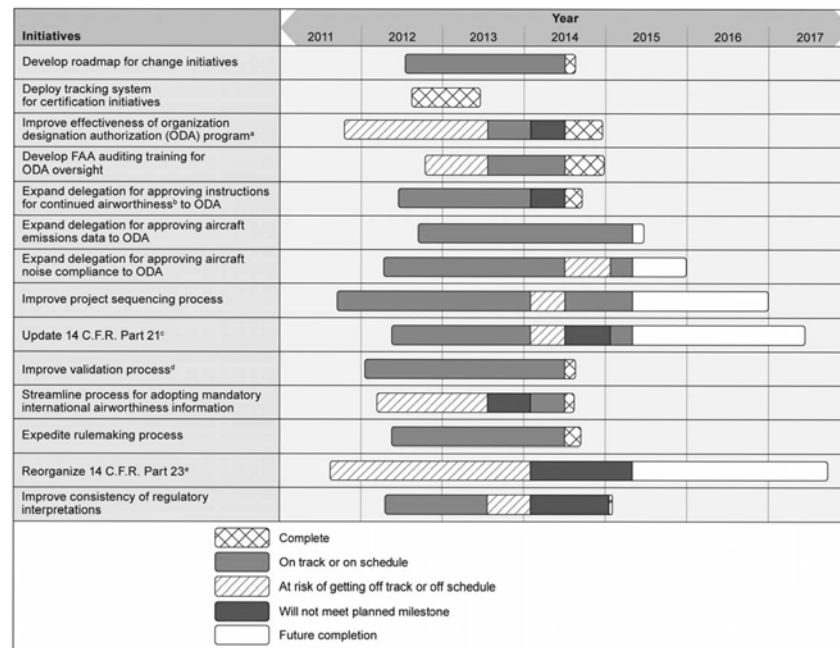
⁴ See National Academy of Sciences, *Improving Aircraft Safety: FAA Certification of Commercial Passenger Aircraft*, National Research Council, Committee on FAA Airworthiness Certification Procedures (Washington, D.C.: June 1980); Booz Allen & Hamilton, *Challenge 1000: Recommendations for Future Aviation 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).

⁵ GAO-11-14 and GAO, *Aircraft Certification: New FAA Approach Needed to Meet Challenges of Advanced Technology*, GAO/RCED-93-155 (Washington, D.C.: Sept. 1993).

⁶ GAO-14-829T and GAO-14-728T.

which involves completing 14 initiatives. According to an April 2015 update that FAA provided to us, 13 initiatives were completed or were on track to be completed, and one will not meet planned milestones.⁷ Figure 2 illustrates the evolving status of the 14 initiatives based on the update reported by FAA.

Figure 2: Federal Aviation Administration's Reported Status Updates of its Initiatives to Address the Certification Process Committee's Recommendations, as of April 2015



Source: GAO presentation of FAA information. GAO-15-550T

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

^aFAA 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.

^bInstructions for continued airworthiness include such things as maintenance manuals and inspection programs for maintaining operational safety of aviation products.

^cAircraft products and parts are certificated under 14 C.F.R. Part 21.

^dThe approval (*i.e.*, validation) process is a form of certification to establish compliance for aviation products designed outside the country for which the products are being developed in order to issue a type certificate for these products.

^eSmall airplanes are certificated under 14 C.F.R. Part 23.

As figure 2 above indicates, 5 of the 14 certification process initiatives are related to improving FAA's organization designation authorization (ODA) program.⁸ As of April 2015, FAA had completed three of the five ODA-related certification process initiatives, while the remaining two are expected to be completed by the end of 2015. In January 2015, we noted that industry stakeholders had emphasized the need for FAA to expand its use of the ODA program to better leverage its available resources in other needed areas (*e.g.*, staff and other resources for processing foreign approval applications—which will be discussed later in this statement). For example, one aircraft manufacturer told us it is a practical necessity for FAA to expand its ODA program to (1) better utilize private sector expertise to keep pace with the growing aviation industry, (2) allow more aerospace products to reach the market

⁷The one initiative that will not meet planned milestones is reorganizing the regulations for certificating small airplanes, 14 C.F.R. Part 23. FAA plans to issue the final rule by September 2017.

⁸FAA's ODA process is used to authorize organizations (designees) to act on behalf of FAA in conducting some safety certification work.

sooner, and (3) increase the efficiency of the agency's scarce resources. According to the General Aviation Manufacturers Association (GAMA),⁹ the key strength of ODA is FAA's ability to delegate, at its discretion, certain certification activities and test data reviews to qualified individuals or specific manufacturers' employees. In doing so, FAA can leverage its resources by delegating more of the lower priority work during the certification process, thereby enabling FAA to better concentrate its limited staff resources on the most pressing aspects of certification projects. Another manufacturer noted that without expanded use of the program by FAA, the additional cost associated with maintaining an ODA has begun to outweigh the benefits of having the authorization.

As we found in July 2014, industry union representatives we spoke to also reported concerns about the lack of FAA resources to effectively expand the program.¹⁰ While one labor union agreed with the concept of ODA, representatives had concerns related to expanding the program in other areas because they contended that oversight of the program required significant FAA resources. Furthermore, the representatives told us that due to staffing shortages and increased workload, FAA did not have enough inspectors and engineers to provide the proper surveillance of the designees who had already been granted this authority. However, as we reported in January 2015, it is too soon for us to determine whether FAA's initiatives adequately address the recommendations as intended, and in this case, specifically for expanding the use of the ODA program.

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

According to the January 2015 regulatory consistency implementation 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. Table 1 provides a summary of the recommendations and FAA's plans for addressing them.

Table 1.—Summary of the Federal Aviation Administration's Planned Actions to Address the Regulatory Consistency Committee's Recommendations, as of January 2015

Recommendation	Planned FAA action(s)	Estimated completion
(1) <i>Master Source Guidance System</i> 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) <i>Instructional Tools for FAA Personnel for Applying Policy and Guidance</i> 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

⁹GAMA represents leading global manufacturers of general aviation airplanes and rotorcraft, engines, avionics, and components.

¹⁰GAO-14-829T and GAO-14-728T.

Table 1.—Summary of the Federal Aviation Administration's Planned Actions to Address the Regulatory Consistency Committee's Recommendations, as of January 2015—Continued

Recommendation	Planned FAA action(s)	Estimated completion
(3) <i>FAA and Industry Training Priorities and Curriculums</i> 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
(4) <i>Regulatory Consistency Communications Board (RCCB) and</i> (5) <i>Regulatory Operations Communication Center</i> 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) <i>Clarity in Final Rules</i> 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-15-550T

As we found in January 2015, while FAA has made some progress, it is too soon for us to determine whether FAA's planned actions adequately address the recommendations.¹¹ However, in that report, we also found that challenges remain that could affect the successful implementation of FAA's planned actions. Industry representatives 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. However, FAA 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. We also reported in January 2015 that several industry rep-

¹¹ GAO-15-327T.

representatives told us that FAA had 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 did 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 reported meeting 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.

Since we reported in January 2015, FAA officials met with stakeholders of the Regulatory Consistency Committee in March 2015 to brief them and further clarify the plan to implement the regulatory consistency recommendations. According to FAA, they are planning to conduct quarterly briefings with the Committee stakeholders, starting in June 2015, to provide updates on the progress for addressing the four remaining recommendations. FAA officials also noted that while the implementation plan lists a completion date of March 2016 for the recommendation for developing the Master Source Guidance System—which FAA calls the Dynamic Regulatory System—this completion date is specifically for FAA's efforts to determine the feasibility of including Office of Chief Counsel letters in the system.¹² In terms of completing the development of the system, the officials told us they are currently ahead of the schedule outlined in the implementation plan and are working on finalizing the design concept for the new system. Once this process is completed, they would be able to provide a more accurate completion date for deployment of the system. According to one Committee stakeholder, it is important that FAA remain committed to creating the Master Source Guidance System, which was the Committee's primary recommendation.

Selected U.S. Companies Reported Challenges in Obtaining Foreign Approvals, Which FAA Has Taken Steps to Address within Sovereignty Constraints

In January 2015, we reported that, according to GAMA, the U.S. has historically been viewed as setting the global standard for the approval of aviation products internationally. 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.¹³ 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. 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 some 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. FAA has taken steps to address these concerns, but FAA's authority to address some of the challenges is limited because each country retains control of its basic regulatory framework for approving aviation products and ensuring the safety of those products for use in their countries—effectively a recognition of the sovereignty of each country.

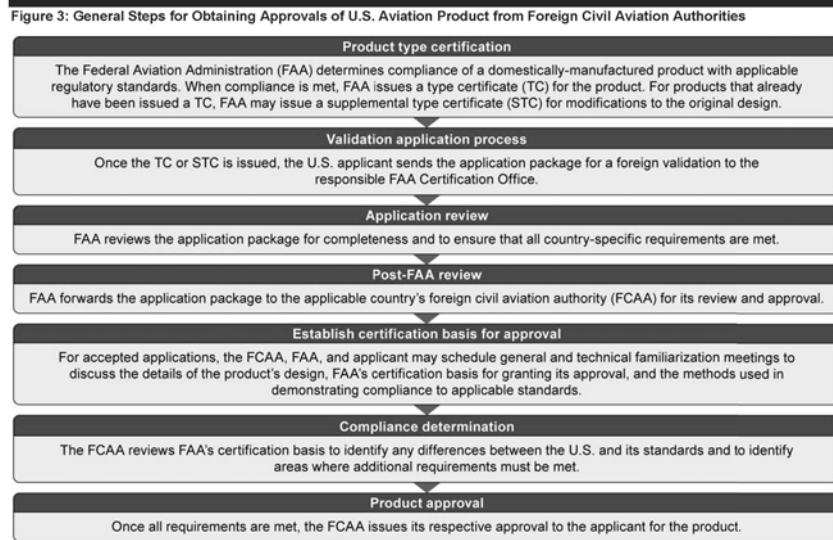
As counterparts to FAA, other countries' civil aviation authorities—which we will refer to as foreign civil aviation authorities (FCAA)—approve domestically-manufactured aviation products for use in their respective countries. FCAAs also approve U.S. aviation products for use in their respective countries. These approvals are typically conducted within the parameters of bilateral aviation safety agreements (BASA), which are negotiated between FAA and other FCAAs.¹⁴ BASAs represent bilateral partnership agreements that provide a framework for the reciprocal approval of aviation products imported and exported between the U.S. and other coun-

¹² FAA plans to develop a master source guidance system with the capability to consolidate information from Aircraft Certification's and Flight Standards' electronic guidance libraries as well as legal interpretations from the Office of Chief Counsel into a master guidance system to allow FAA and industry users access. Specifically, the Regulatory Consistency Committee recommended that this system be searchable so that FAA and industry users can easily access relevant rules and find the relevant guidance for the rule.

¹³ 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.

¹⁴ According to FAA, it has 21 BASAs that affect 47 countries, including one BASA with the European Aviation Safety Agency that covers the European Union (EU) member nations.

tries.¹⁵ Figure 3 outlines the general steps for obtaining approvals of U.S. aviation products from FCAAs.



Source: GAO presentation of FAA information. GAO-15-550T

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.

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 15 selected U.S. aviation companies we interviewed for our January 2015 statement reported that their companies faced challenges related to process, communications, and cost in obtaining approvals from FCAAs. The processes involved included FCAAs' individual approval processes as well as the processes spelled out in the relevant BASAs. In our January 2015 statement, we identified some efforts FAA is making to address these challenges, such as holding regular meetings with some bilateral partners—*i.e.*, countries for which FAA has a BASA in place—and setting up forums in anticipation of issues arising.

- *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. FAA has taken actions aimed at alleviating current and heading off future challenges related to foreign approval processes. For example, 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

¹⁵It is important to note that a BASA with another country may not include a technical agreement that would allow for the reciprocal approval, or acceptance, of an aviation product between the two countries. Thus, a BASA without a technical agreement would mean that an FCAA would likely have to conduct its own certification of a new U.S. product to approve it for use in that country. For more information, see GAO-15-327T.

for obtaining approvals and to identify key FCAA approval needs and ensure adequate FAA support.¹⁶

- *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 and to add specific dispute resolution procedures in the agreements with some countries. 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 12 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 representatives as consultants in China to help them better engage the Civil Aviation Administration of China (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. 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 12 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—the EU's counterpart to FAA—and the Federal Aviation Authority of Russia. For example, they noted that EASA's fees are very high (up to 95 percent of the cost of a domestic EASA certification)¹⁷—especially relative to the amount levied by other FCAAs¹⁸—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 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

¹⁶ 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.

¹⁷ EASA's March 2014 proposal to amend the Agreement between the U.S. and the EU on co-operation 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.

¹⁸ 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.

its costs.¹⁹ 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. However, recently, FAA indicated that it is more important to work with EASA to ensure its fees are commensurate with the actual costs of the services being provided and those incurred by EASA.²⁰

U.S. Companies Also Reported FAA-Related Challenges, Which FAA Is Taking Actions to Address

As mentioned previously, FAA provides assistance to U.S. companies by facilitating the application process for foreign approvals of aviation products. Although FAA seeks to provide an efficient process, companies we interviewed for our January 2015 statement reported challenges that they faced related to FAA's role in this process. FAA-related challenges cited by the companies we interviewed fell into three main categories: process, resources, and staff expertise.

- *Process for facilitating foreign approvals.* Most of the U.S. companies in our selection (12 of 15) 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 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.²¹ In doing so, FAA is also responsible for working with an 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 are 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, it contributes to delays in obtaining their approvals. 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. As previously discussed, FAA does have initiatives under way related to expanding the use of delegation, but concerns continue to exist about the lack of FAA resources to effectively do so.
- *Staff expertise.* Some of the U.S. companies in our selection (7 of 15) reported issues related to FAA staff expertise. These issues cited included limited experi-

¹⁹ 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.

²⁰ According to FAA, this change in approach is based on Article 14 of the EU–U.S. BASA that states, in part, that each party shall try to ensure that fees imposed by their “technical agents” on applicants and regulated entities for certification and approval related services under the agreement are just, reasonable, and commensurate with the services.

²¹ According to FAA guidance, the implementing procedures for BASAs are signed by the authorities (FAA and the respective FCAA), and therefore the applicant should work through FAA if disputes occur with the FCAA during the foreign approval process.

ence 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 or 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 were ready to share information with an FCAA that the applicant company considered proprietary, until the company objected and other solutions were found.

In January 2015, we found that 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 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 its relationships with bilateral partners.

As we concluded in January 2015, 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.²² 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. It is also important that FAA continue to demonstrate that it is making progress on these important initiatives, as well as enhance its data tracking for monitoring the effectiveness of its bilateral agreements and partnerships.

Going forward, we will monitor FAA's progress, highlight the key challenges that remain, and identify potential steps that 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.²³ We are hopeful that our findings in these areas will assist this Subcommittee as it develops the framework for the next FAA reauthorization act.

Chairwoman Ayotte, Ranking Member Cantwell, and Members of the Subcommittee, this concludes my prepared remarks. I would be happy to answer any questions you or other members of the Subcommittee may have.

Senator AYOTTE. Thank you, Dr. Dillingham.

We will now hear testimony from Mr. Pete Bunce, President of the General Aviation Manufacturers Association.

Mr. Bunce?

**STATEMENT OF PETER J. BUNCE, PRESIDENT AND CEO,
GENERAL AVIATION MANUFACTURERS ASSOCIATION**

Mr. BUNCE. Chairman Ayotte, Ranking Member Cantwell, and other members of the Committee, thank you for the opportunity to be able to come and testify before you today.

²² GAO-15-327T.

²³ GAO-14-142T.

The General Aviation Manufacturers Association represents 88 global manufacturers of general aviation products, all the way from the original equipment manufacturers for the aircraft itself; engines; avionics; as well as down to third-tier suppliers. In addition, the major repair, maintenance, and overhaul facilities, globally, are members of GAMA.

We just recently commissioned PriceWaterhouseCoopers along with several of our other general aviation's sister associations to be able to do a study reading into this reauthorization year of just what economic impact general aviation has to the U.S. economy. And the recent numbers come in are very telling: 1.1 million jobs and \$219 billion annual economic contribution here. So it is significant.

And as you both pointed out in your opening statements, 50 percent of the marketplace is overseas. Exports are huge to this industry, and we want to keep that going. And your interest in a lot of the export issues are very vital to us.

There is great challenges for us to be able to get through the regulatory structure. As you know, we are one of the most heavily regulated industries within the country, and that's why we are so appreciative to be able to leadoff this hearing cycle with being able to talk about certification because it is very important. The process needs to be effective.

When the FAA worked with industries several years ago to set up this Organization Designation Authorization (ODA), the promise was if industry invested in it than we would get a return in being able to apply a risk-based approach to be able to do the standard routine things that manufacturers have done for years in building aircraft; and then we could free up resources to focus on the new and novel technologies out there. To date, we have not fully realized the advantages of this ODA and that is why your focus on this, both in the last reauthorization bill and here at this hearing today, are vitally important to us.

Now, to Ms. Baker's credit, her staff—and I know that the senior leadership at the FAA is very much committed to driving this change within the bureaucracy. But cultural change is difficult. And, when you've got this ship and you've got to start to steer it another way, this focus by this committee on certification really, I think, gives the tools to Ms. Baker and her leadership team at the FAA to tell the workforce we have got to do business differently. Because, resources and additional dollars are not going to keep flowing to the agency so we've got to apply a risk-based approach and do business in a different manner. And that gets to Dr. Dillingham's comments about the Small Aircraft Revitalization Act.

In 2012, unanimous passage from the United States Congress, not a single dissenting vote. Now, as Dr. Dillingham said, 2017, it is too long a time to get this rulemaking through the cycle. The rulemaking process has broken down; it's not working efficiently. Just two weeks ago, EASA, the European equivalent, rough equivalent, of the FAA, announced their Advance Notice of Proposed Amendment. So they're ready to move forward. And so, we are behind on being able to realize the ability to get safety-enhancing technology into light general aviation products.

To help with the certification process, there are a lot of things that we can do within this reauthorization. We can drive the effective use of ODA; we can provide workforce with the ability to strengthen their career path. If they're systems engineering managers and they can look at overall safety systems, we can help with training and ensure that the workforce is effectively overseeing our products through safety management oversight. We can have a constructive feedback mechanism to this committee and other members of the Congress from industry and from the FAA; being able to say, "How's industry doing on strengthening and streamlining the certification process? How is the FAA doing?"

And I think, also, as we look toward the international realm, as both Ms. Baker and Dr. Dillingham mentioned, getting through the validation process, whether it's the FAA validating other goods that are coming in here or other authorities being able to validate our products, the system is not working the way it should, especially when we have bilateral agreements.

And finally, I truly appreciate the leadership that both the Chairman and the Ranking Member have paid toward Ex-Im Bank reauthorization. A lot of people look at Ex-Im Bank and they think, right away, they think Boeing and the tremendous thousands of suppliers out there. But it affects everyone that is producing general aviation products.

In Olney, Texas, there is this small company named Air Tractor. They are the major employer in that town. Last year, seven out of the eight aircraft they were producing for crop dusting were all Ex-Im Bank financed, and I know Senator Moran knows, the only place that two of the major aviation companies in Kansas could make it in the last economic downturn is to get financing for their products was Ex-Im Bank. So this is vitally important to us.

So thank you very much for your support in that effort.

[The prepared statement of Mr. Bunce follows:]

PREPARED STATEMENT OF PETER J. BUNCE, PRESIDENT AND CEO,
GENERAL AVIATION MANUFACTURERS ASSOCIATION

Introduction

Chairman Ayotte, Ranking Member Cantwell, distinguished members of the Subcommittee; my name is Pete Bunce and I am the President and CEO of the General Aviation Manufacturers Association (GAMA). Thank you for allowing me to testify on behalf of GAMA and its member companies today. GAMA represents over 85 companies that are the world's leading manufacturers of general aviation (GA) airplanes, rotorcraft, engines, avionics, and components and businesses that manage maintenance repair stations, pilot training, and fixed-based operations facilities worldwide. I applaud the leadership of the Subcommittee, as well as the Commerce, Science and Transportation Committee, for focusing on the importance of aircraft certification activities. I look forward to sharing with you our perspective on the current regulatory environment, including ways that it can be strengthened to improve safety and enhance efficiency in a globally competitive marketplace. With the collective leadership of this Committee as well as the Federal Aviation Administration (FAA) and industry, I strongly believe that we can sustain and grow valued GA manufacturing jobs that I'm so proud to represent here today.

Why the GA Marketplace Matters

General aviation is vital to the fabric of our economy and plays an important role in the Nation's transportation network and commerce. To highlight the industry's total impact on the U.S. and individual state economies, GAMA and seven other GA associations hired renowned auditing firm PricewaterhouseCoopers to determine the overall contributions of GA to the United States economy. The study found that GA

provides 1.1 million in jobs (direct, indirect, induced, and enabled impacts) in the U.S. and \$219 billion in total economic output in the U.S. annually.¹

Much of this information, as well as illustrative stories of what this means in communities of all sizes across the U.S., are provided in “The Wide Wings and Rotors of General Aviation,” which I’ve included with my testimony. The narrative that accompanies the study shows firsthand the many ways that GA is an integral part of our national transportation system and its important role in our Nation’s commerce. But GA also provides an important lifeline for communities of all sizes and scope in terms of lifesaving emergency medical flights, providing connectivity to areas that are only accessible by air, fulfilling humanitarian roles that are often crucial in nature, and economic development.

General aviation manufacturing is a significant contributor to this narrative. However, the marketplace for general aviation products is a very competitive one globally, and certification and regulatory processes and decisions can impact sales, revenue, and jobs. We need to ensure that the wide wings and rotors of general aviation remain broad.

The Complex, Complicated Regulatory Environment We Face

As members of this Subcommittee know well, manufacturers cannot bring any new aviation products to market without FAA certification approval. FAA has previously stated it expects continuing challenges associated with staffing, management of programs, and infrastructure investment while at the same time manufacturers continue to invest in the development of new aviation products and technologies. This reality is exacerbated by recent fiscal pressures, including the 2013 government shutdown and the continued impact of budget sequestration. Yet FAA and its employees have been slow to fully implement FAA- and industry-endorsed recommendations. When fully implemented, these process improvements will use FAA certification resources more effectively and enhance industry’s ability to complete certification of their products in a more timely and predictable fashion. I’d like to provide you with some tangible examples of how this can collectively impact the ability of companies of all sizes and scope in bringing their products to the marketplace.

While FAA management is fully committed to the development and implementation of Organization Designation Authorization (ODA), which strengthens and expands the effectiveness of the delegation program, key benefits have been slow to be fully realized by many in industry and the FAA. Manufacturers and the FAA have invested significant resources in establishing and qualifying ODA organizations, including the personnel, training, approved procedures manuals, and oversight system. However, the practical implementation and use of ODA authorizations have been inconsistent from one region to another and even from project to project for the same manufacturer. Our members regularly experience situations where their companies have obtained full FAA ODA authorization to conduct specific technical compliance activities but, on a project-by-project basis, the FAA engineers and specialists choose to be directly involved and retain these activities themselves and not utilize the available FAA-authorized ODA resources. This inefficiency adds significant delay and cost to certification programs—not only for those manufacturers that have an ODA, but also for other standard certification projects that are waiting for FAA support that rely on these same FAA resources. One of our companies has calculated that a delay on a major aircraft certification project costs it approximately \$10 million each month.

Another issue is the ability to efficiently deliver FAA-certified and U.S.-manufactured products to the international marketplace. This is crucial given GA manufacturing exports have grown to as much as 50 percent of deliveries in any given year.² The process by which foreign aviation authorities issue validations of FAA Type Certificates has become increasingly important, yet can be equally complex. Many of our member companies have said that getting a validation in time to meet an aircraft sale or fleet order is a white-knuckle experience that is costly and impacts the ability of U.S. businesses to compete in the global marketplace. Our member companies often pay a fee and in some cases will spend tens of thousands of dollars satisfying a foreign authority’s review of the FAA approval. One manufacturer has shared that of over 300 different projects that have needed foreign authority approval, the average time for a validation has been 21 weeks where the FAA’s original certification took less than a year.

¹ *Contributions of General Aviation to the U.S. Economy in 2013*, PricewaterhouseCoopers, February 11, 2015

² *2014 General Aviation Statistical Databook and Industry Outlook*, GAMA, 2015

Given this track record, there should be an opportunity for FAA to work with foreign authorities to reduce validation times substantially. In addition, the effectiveness of bilateral agreements also varies widely. For instance, one company experienced a range of 6 to 40 weeks for validations with bilateral countries. These countries have the same basic agreement with the FAA, but one takes almost seven times longer to do the same job as another. At 40 weeks, that is sometimes longer than it took for this company to develop and certify its product with the FAA.

These examples are meant to provide illustration of the complex, complicated global regulatory environment that GA manufacturers face in getting their products to the marketplace. And they provide a tangible example of why it is critical to the economic health of our country to understand, address, and improve the current certification process.

The Current Flight Plan

As this Committee knows, the type certification process is basically a verification review of thousands of individual discrete compliance activities the manufacturer is required to undertake to show that the design meets the safety standards established by the FAA. To leverage its limited resources, and supplement them with the best expertise available, the FAA can appoint and oversee industry individuals or organizations authorized by the FAA as qualified to support the FAA's verification review and issuance of product design certificates and approvals.

One of the leading FAA initiatives, the ODA program, builds on experience with past delegation activities that have been in place since the FAA's beginning in the 1950s. FAA established ODA in 2005 to improve the safety, quality, and effectiveness of delegation programs and expand the use of organizational delegation to all type-certificated products. This has the potential to significantly reduce the FAA's administrative workload by appointing organizations with the required qualification, experience, and management systems to supervise the day-to-day activities of expert individuals authorized to perform certification compliance verification activities. By shifting to a systems safety oversight approach of these organizations, the certification process can be more effective because the same FAA resources can now focus less on routine detailed design reviews and administrative supervision of individual designees and more on effective safety oversight and safety-critical activities. This will also enable the FAA to better support a continuously growing level of aviation industry activity in an efficient and timely manner, reducing delay and cost.

With this Committee's strong and essential support, progress is being made to improve efficiencies and streamline the FAA's certification process. There has been tremendous effort by FAA leadership, industry, and Congress to better focus FAA resources on safety-critical activities and system oversight, and better leverage industry resources to improve the efficiency and effectiveness of the certification process. We greatly appreciate the inclusion of Section 312, entitled Aircraft Certification Process Review and Reform, in the FAA Modernization and Reform Act of 2012 (P.L. 112-95). Even now, over three years after its enactment, this section is helping drive implementation of several recommendations to improve the certification process. We applaud you for your initiative in this area, and the clear and consistent message that has been conveyed to stakeholders about the importance of this reform.

Another example is the Small Airplane Revitalization Act (P.L. 113-53), enacted into law because of the strong leadership of Senators Klobuchar, Ayotte, Cantwell, Murkowski, and other members of this Committee. This law is a critical first step to regulatory reform of general aviation airplane design requirements to further streamline the FAA certification process and enable real-world safety improvements in general aviation. We can have the best research programs and the most innovative technology, but if products cannot get to market, it is of no benefit to manufacturers, users, or the cause of safety. We would not have gotten this far without the support and leadership of the members of this Subcommittee, as well as the leadership of the FAA and other aviation authorities. With your support and continued oversight, we are on the precipice of reforming the standards for certifying Part 23 airplanes throughout the world. Notably, the European Aviation Safety Agency (EASA) recently announced an Advanced Notice of Proposed Amendment, which solicits public input into a rulemaking proposal to achieve this objective. We are hopeful that as we approach reauthorization, similar progress is forthcoming from the FAA in terms of issuing a Notice of Proposed Rulemaking (NPRM) sometime this summer which is harmonized with EASA.

Although these FAA and industry initiatives and activities are progressing, much more needs to be done to meet the necessary goal of improving the overall effectiveness and efficiency of the certification process and enhancing the competitiveness of aviation manufacturing and exports.

The Way to Reach New Heights

As we approach the reauthorization of FAA programs, GAMA and our member companies have worked diligently to identify ways that we can continue to improve certification processes and the regulatory environment and better leverage FAA safety resources. We've also discussed and are currently working with FAA on concepts in these areas. It is our belief that FAA is at a critical tipping point in implementing successful reform of the certification process and this Subcommittee has a crucial role to play in supporting meaningful, constructive change at the agency. We strongly encourage policymakers to work to reauthorize these policies and reforms in an expeditious manner that avoids the extension delays of the past. I'd like to briefly outline our priorities as you begin to reauthorize FAA programs and policies. They include:

Full Utilization of Organizational Designation Authorization (ODA)

Although there continues to be progress, we hear from our membership that they are not consistently experiencing the full benefit or utilization of their ODA which means FAA is also not securing the full benefits. To address this, we encourage policymakers to support initiatives that will enable more effective use of ODA and government resources. Specifically, we believe there needs to be a clearly defined risk-based approach for FAA oversight of both ODA and certification project activities. As stated earlier, companies with an ODA invest time and capital to establish an ODA and obtain FAA approval and authorization. In doing so, they are understandably frustrated when individual FAA employees have complete discretion, without appropriate rationale, to retain compliance activities on a project in an area where the ODA has been granted authorization. This duplicative action costs the company, as well as the government, time and resources that could be better utilized elsewhere. We would support efforts that would limit individual discretion to re-litigate ODA authorizations once those authorizations have been approved by FAA. Simply put, the FAA needs to stand by its approval of the ODA and allow the holder to utilize its authorities to the fullest extent.

In addition, we believe that an improved issues resolution process for significant certification process milestones will enable better outcomes for both industry and FAA by ensuring that they are addressed in a timely manner. This will provide needed predictability and certainty.

As a final point, I want to underscore that full utilization of ODA for individual projects still requires that FAA conduct its system safety oversight of the ODA and its project activities to whatever level the FAA deems appropriate, and to mandate corrective action as necessary. FAA also still retains full discretion to be directly involved in critical safety areas and novel technologies. Additionally, FAA will continue to directly manage certification projects and oversee individual designees for companies that do not establish an ODA due to their size and scope of activities. In fact, ensuring ODAs are fully utilized enables the FAA to devote resources and management to key safety issues and the significant majority of applicants and companies that do not hold an ODA. More effective use of these resources will ensure better outcomes for both large companies that hold an ODA and smaller companies in their need to get products to the marketplace in a timely and predictable manner.

Supporting the Workforce

To successfully implement certification reforms, there will need to be some changes to the skills mix of the FAA workforce. FAA has a committed and capable workforce, but changes in training and job opportunities are critical. We believe a focus in this area would help facilitate this transition, provide the right incentives for employees, and offer clear guidance and direction.

In this regard, we encourage the Committee to consider initiatives that promote a more successful workforce by preparing FAA employees for new and evolving roles and responsibilities in a systems safety approach to certification and oversight. Job descriptions, training, and performance objectives should be better aligned to support those employees who conduct ODA oversight audits or participate in organizational management teams. Additionally, we believe the development within FAA of a systems engineering discipline with appropriate training, compensation, grade level, and emphasis in auditing will enhance the overall certification process by promoting a system oversight area of emphasis within the workforce and the agency.

In this regard, we look forward to working with FAA, Congress, and labor to ensure that appropriate training for new and existing workforce is provided and that it meets the regulatory and fiscal challenges of the future. We also believe that Congress should encourage FAA and industry to develop knowledge-sharing exchanges and other opportunities.

Recognizing Good Performance

Building on workforce initiatives, industry has supported the idea of creating metrics to assess FAA and industry certification project performance and ODA utilization, and provide feedback that could benefit all stakeholders. When implemented, FAA could periodically report to Congress on the data generated from these metrics. This would enable FAA, and industry, to evaluate progress and meet improvement goals and targets. Industry has also promoted the concept of a survey of all certification project applicants that would provide objective feedback on the overall performance and success of FAA certification activities, including the use of available delegation and the timelines and efficiency of the certification process. This will allow both industry and the FAA to gain constructive, objective feedback in areas where both parties are succeeding and also areas that need improvement.

International Engagement

Another priority for our membership is facilitating acceptance of U.S.-manufactured and FAA-certified aircraft abroad. As mentioned at the outset, increasingly countries are challenging the FAA certification of aircraft and delaying the ability of manufacturers to deliver their products by conducting redundant evaluations to verify the safety of the design, even in cases where the U.S. has a bilateral safety agreement. This can be a significant problem as we work to grow exports because it causes further delays in the ability to deliver products. FAA must actively engage internationally with other aviation authorities to facilitate global acceptance of U.S. products type-certificated by the FAA, which will significantly reduce industry and regulator costs. We believe Congress can facilitate this objective by encouraging FAA to exert strong, aggressive leadership in educating and defending its certification policies and processes in the international marketplace. In doing so, it will facilitate the acceptance of U.S. products in the international marketplace.

Piston Aviation Fuels Initiative

Another critical certification challenge is transitioning the piston aviation fleet operating today from leaded to an unleaded aviation fuel. The general aviation community collectively recognizes this is necessary to ensure aviation safety and the utility of the significant U.S. fleet of general aviation aircraft, as well as address the environmental challenges of lead emissions. With the support of this Committee, as well as congressional appropriators, the FAA, and the Administration, the collaborative government/industry Piston Aviation Fuels Initiative (PAFI) is making great progress in assessing and qualifying candidate replacement unleaded fuels. Critical to this transition is developing a pathway to certify the use of a replacement fuel by the existing piston fleet in an effective and innovative manner, and we look forward to working with the Committee on this important initiative in FAA reauthorization.

Inconsistent Interpretation of Regulations

As a final point, our membership continues to experience problems with the inconsistent interpretation of FAA regulations. For example, in the flight standards arena one of our companies worked with the FAA for more than two years to address an issue that resulted from the reinterpretation of a long-held FAA policy. While trying to implement the change, the company received inconsistent messages from the FAA field personnel working to authorize, support, and oversee this new requirement. After two years of frustration and inefficiency for this company, FAA decided to return to the original policy that was initially proposed for change.

GAMA also believes there are tremendous redundancies that must be addressed. In the repair stations arena, companies receive multiple paper and on-site audits on an annual basis. A company can receive four or five paper audits a week from customers and then be visited by FAA and other international authorities multiple times during the year. FAA has taken recent steps at International Civil Aviation Organization to raise the profile of these redundant and wasteful oversight activities, but more must be done.

Notably, inconsistent regulatory interpretation was an area of focus during the last reauthorization, as evidenced by Section 313 of the FAA Modernization and Reform Act of 2012 (P.L. 112-95), but only recently has it become clear that progress on this issue may be possible with additional Congressional direction. We encourage policymakers to focus on two main areas, both of which were included in the Section 313 Aviation Rulemaking Committee (ARC) recommendations.³ The first is estab-

³FAA Section 313 ARC Report—http://www.faa.gov/about/plans_reports/modernization/media/Sec.313.pdf

lishment of a Regulatory Consistency Communications Board to promote constructive dialogue between the FAA and applicants for the timely resolution of issues. As noted previously, finding ways to mitigate and resolve issues is something we believe would be beneficial and moreover promote safety. Second, we believe that establishment of a Master Electronic Database Resource to provide FAA and stakeholders searchable access to all relevant rules and related policy and guidance would alleviate a lot of the inconsistencies in interpretation found today and provide a basis for more timely resolution of issues.

Too often, FAA and industry resources are wasted because of a breakdown in communications. These two initiatives will help address this, and we are pleased that FAA recently indicated that it was beginning to move toward implementation in these areas, as well as others identified in the Section 313 ARC. In the context of the FAA reauthorization, we want to ensure these objectives are fulfilled in a comprehensive and timely manner.

Global Leadership for the Next Century

The aforementioned priorities are meant to outline ways we can move forward to improve safety, better leverage resources, and increase competitiveness in a complicated global marketplace. Maintaining global competitiveness and leadership of both the FAA and industry is critical for our Nation's aviation system and continued contribution to economic strength.

Aviation safety, National Airspace System (NAS) efficiency, and environmental progress depend on the success of aviation manufacturers and aircraft operators. As manufacturers try to take advantage of more markets, issues like trade and policy become even more important. It is critical for the U.S. government and industry to advocate for policies that will help underpin aviation growth in the global environment.

Growing international exports have helped sustain the GA industry through the past five or six years. A decade ago, the U.S. typically accounted for four out of five airplane sales, but in 2014 the market was split: half of the U.S.-manufactured airplanes produced by GAMA's members went to North American customers, and the other half went to customers in other parts of the world.⁴ While Europe was our lead market outside North America in 2014 at 16.4 percent of total unit deliveries, the Asia-Pacific region is a close second at 13.7 percent.⁵ We have also seen the Latin American market grow strongly; it now accounts for over 10.8 percent of the world's airplane sales.⁶ The helicopter market is leveraged even more outside the U.S., with customer demand over the next five years accounting in Europe for 24 percent of projected deliveries, Latin America 19 percent, and the Asia-Pacific region 14 percent, according to Honeywell.⁷

Given the obvious importance and interest in the international marketplace, GAMA strongly supports the reauthorization of the Export-Import Bank of the United States (the Bank), which expires June 30, 2015. Failure to reauthorize the Bank would harm our companies by taking away a valuable financing tool in the global marketplace. The broad spectrum of GA manufacturing depends on Ex-Im, including agricultural aviation.

The Bank is increasingly important to general aviation manufacturing given that the export of general aviation aircraft has increased significantly in recent years. Since 2012, the Export-Import Bank of the United States has provided at least \$1.9 billion⁸ in financing guarantees for U.S.-based general aviation manufacturers to facilitate the sale of their aircraft. If the Bank is not reauthorized, we believe this will hamper our companies' ability to compete in the international marketplace. While other countries' relevant agencies will continue to finance aircraft sales for manufacturers in their countries, U.S. companies would be without this support, thus creating a competitive disadvantage.

The Bank's work also supports small businesses that are aircraft manufacturers and suppliers. Air Tractor, which is a small, employee-owned company in Olney, Texas, manufactures agricultural and firefighting aircraft and leverages the Bank as part of its export transactions. Air Tractor has been able to increase its exports over the past decade with the help of the Bank, and the company reached record production in 2012.⁹ Its aircraft are delivered to customers in Argentina, Brazil,

⁴2014 General Aviation Statistical Databook and Industry Outlook, GAMA, 2015

⁵*Ibid*

⁶*Ibid*

⁷Honeywell Press Release—Honeywell Forecasts Steady Global Helicopter Demand For Next Five Years—March 1, 2015—<http://honeywell.com/News/Pages/Honeywell-Forecasts-Steady-Global-Helicopter-Demand-For-Next-Five-Years.aspx>

⁸Source: Export-Import Bank

⁹Ickert: Growing small business through exports, David Ickert, *Star-Telegram*, March 20, 2012

China, Australia, and Spain through joint export guarantees between the Bank and the Canadian equivalent, Export Development Canada.

GAMA is open to constructive changes to improve the operation of the Bank, but these changes must recognize the critical role the Bank plays in maintaining domestic manufacturing jobs and decreasing our trade deficit as we expand into emerging markets. To that end, we applaud those on this Committee who have supported legislation that will enable the Bank to continue to support businesses of all sizes and scope that compete in the international marketplace and level the playing field.

Conclusion

Chairman Ayotte and Ranking Member Cantwell, thank you for providing me the opportunity to provide the Subcommittee an overview of the importance of certification reform in maintaining and growing our industry and U.S. competitiveness. GAMA companies are passionate about these reforms because this is an area where, working together, we can improve safety, become more competitive, and expand U.S. manufacturing jobs. I appreciate the opportunity to outline these critical areas and look forward to working with you on these issues in the context of FAA reauthorization. I've been the President and CEO of GAMA for a decade this year. While our focus continues to evolve, at the core we've always worked to promote policies that benefit general aviation manufacturers and their employees by striving to achieve the timeliness and certainty needed to get their products to the marketplace. Collectively, with the leadership of Congress as well as the FAA, we have made significant strides, but there is much work ahead of us to ensure this vital and important part of our economy can be sustained and grow. Ten years later, I believe we are on the cusp of enabling our industry to soar to new heights with the support of policymakers, regulators, and industry.

Thank you. I would be glad to answer any questions that you may have.

Senator AYOTTE. Thank you, Mr. Bunce.

And let me just say, you know, I am glad to cosponsor this effort. I was just at a New Hampshire company, New Hampshire Ball Bearing, recently and, you know, they are a supplier who benefits from Ex-Im Bank financing. And I think this is really important. So hopefully we can have a long-term reauthorization for this important financing mechanism for the industry.

And in my home state of New Hampshire, by the way, you know 36 companies over the last several years that have used it and most of them are small. These are small businesses that are using this kind of financing.

But let me focus on why we are here today, which is——

Ms. Baker, in listening to the testimony about the, from Dr. Dillingham and now Mr. Bunce, on the small business certification process and the fact that it is delayed until 2017 which really is not what we intended in the Congress in terms of the passing with overwhelming support the Small Business Revitalization Act; where is that and why is it going to take so long? And can you tell us how we are going to get that done sooner?

Ms. BAKER. So Part 23 is the part for the smaller planes. That rule is in process. It is very, very important to both the administrator and myself. We have a lot of people that are very anxious to get it out, just as Peter Bunce is and Dr. Dillingham. We have to go through a particular process that is governed by the Administrative Procedures Act and we have to assure that we have a rule that is enforceable. We are going to rewrite the entire regulation, which is really unprecedented and we are going to change from the way that we write the rules today, which are very, very prescriptive to performance-based rules. So our attorneys are working really closely with us to assure that we do this right.

We have to assure that there is not a lot of ambiguity in the rules when we put them into performance-based regulations. So

right now, it is making its way through the process and is expected to go out as a Notice of Proposed Rulemaking at the end of this year. And that schedule is on the significant rulemaking notice on the OST website.

Senator AYOTTE. Well, we hope you guys can move it as fast as you can because 17 seems a long way away given what we hoped and how quickly this would happen.

One of the issues, you know, in hearing from what Mr. Bunce had to say—at our hearing last week, Administrator Huerta indicated that FAA culture may be a barrier to truly moving to a risk-based decisionmaking system. Would you agree and what efforts will you take to change this?

Ms. BAKER. I think culture is a factor in almost any change that you make.

What we are doing is trying to introduce tools so that the employees are comfortable with understanding how you can assess something from a risk perspective and we are having a lot of outreach with training. And I do a telecon with my managers every month and send out electronic mail to everyone in the organization explaining that this is the direction that we are going, that safety management systems are essential to the direction that this government is actually going; and that we can do this and it will be safe. And we'll just continue to work with the employees so that we ensure that they understand why it is we are moving in this direction.

Senator AYOTTE. Can we get a sense on, in terms of ODAs, exactly how, you know, how many companies are actually have ODAs and are you planning to expand that list?

Ms. BAKER. Yes. I was trying to get the actual counts. Around 80 right now. There are a number of Organization Designation Authorizations that aren't overseen by the aircraft certification office because it is broad authority and some of them are headed by the Flight Standards Service. They are working well. There is room for improvement, as Peter said. And we will continue to expand if the applicants that come in for an Organization Designation Authorization are qualified. That means they have to have experience with the regulations and are set up in a manner that they can carry out the duties on our behalf.

Senator AYOTTE. So Dr. Dillingham and Mr. Bunce, what are your thoughts on how we can expand the number of ODAs and move forward?

And, you know, I know that, Dr. Dillingham, for you, this is a little bit like Groundhog Day because we have been talking about certification now for a number of series of hearings. And so, any thoughts you have not only on the expansion of ODAs and how we could better utilize that opportunity and meet the objectives for it but what about just ideas so that we don't have to keep coming back here to really make this a better process?

Dr. DILLINGHAM. Thank you, Madam Chair.

I want to go back to a couple of things that you said and what Ms. Baker said. The idea of, one, going to risk management as opposed to our old system of doing inspections. And what that means is FAA is a risk averse culture and I think we all want that, but there has to be some flexibility in there. But what we are talking

about now is moving from a time when inspectors went out and kicked each tire to a place where they are willing to step back and oversee the industry kicking those tires and make sure those tires are kicked correctly. That is what everyone is talking about as a culture change, and it takes time. But I think, as I listened to everyone's statement this morning, I think we are all saying that we are on that path now, that the things that the Congress has put in place through Sections 312 and 313 are the direction that we need to go.

The fact that we have a certain number of ODAs, the first way to expand their use other than add to the numbers is to allow the ODAs to act. And that has been one of the big drawbacks, is that, although people are designated ODA, FAA in some cases still is doing the kick-the-tire thing and not letting somebody else kick the tire. And not from the top, but more from the middle management. Those who are actually out there kicking the tires rather than the managers here in Washington.

Mr. BUNCE. Madam Chairwoman, I couldn't agree more with Dr. Dillingham and Ms. Baker here. The Holy Grail right now is to be able to make the ODAs work efficiently. And you have to have a certain level of expertise, as Ms. Baker said, to be able to have an ODA. But, once you've done this, you've demonstrated that expertise, you should be able to use it.

So a lot of our industry right now—take for instance fly-by-wire, you're very familiar with how that has been pioneered in military aircraft. We've had it for many years now. Dating back in, actually, to the 1970s with the F-16. As we incorporate that into a rotorcraft and in fixed-wing, that's new and novel to civil aviation. So we needed to free up resources to be able to go and look at things like that. We shouldn't be having a bunch of folks look into basic structure or wing design or how you do the landing gear. Let's focus on the new and novel and make that safe. And that's what ODA does. It frees up resources, FAA resources, to be able to focus on that.

The other big benefit of that too is that, as we make ODAs efficient for the companies that have demonstrated that capability, you free up resources for startup companies. We don't want huge barriers to entry for the next person that has a great idea or if we think about all the unmanned vehicles that are going to be out there and the companies that are going to producing those. We want them to have FAA resources to help them along as they get their manufacturing processes up to speed. So when we have a traditional company that has been doing this for years and years and the FAA says, "You have the competency to do it, let's be able to use that ODA effectively."

Senator AYOTTE. Thank you.

Senator Cantwell?

Senator CANTWELL. Thank you, Madam Chair.

Mr. Bunce, I appreciate your focus on the Ex-Im Bank and the export market in general. I also appreciate your statements about the distribution of these jobs throughout America because they are everywhere. I have a question related to that. I'm seeing the business jet market increase \$3.9 billion from 2012 to 2013 on a worldwide basis. My sense is we are seeing great growth in this market as the rest of the world develops. Is that correct?

Mr. BUNCE. Senator, if you take it in the aggregate, that is what it would appear to be. But a lot of those sales are for a large cab in long-range aircraft because, as the world becomes more interconnected, people in China want to be able to do business in the U.S. or Europe or down in Africa. So that is where the largest margins are; the bigger the airplane the larger the margin is.

We still don't see the full recovery, as Senator Moran well knows in his state, with those in the light to mid-market of business jets and with turbo props. We have got gradual growth there as well as in pistons. We were down last year on rotorcraft. So although we are seeing the growth at the top and it isn't across the board, and that's why certification is so vital to us.

Senator CANTWELL. Well, the point that I was going to make is that this is a great market opportunity. But, if we think we are alone in chasing it, other countries, other companies are going to chase it. So our process here we want it to be right, we want it to be safe, but we should spend as much time to get it right. I don't know anything else that has that many jobs attached to it that we are a lead exporter of those jobs. I mean of those planes. So very important for us to get it right.

Why do you think there are regional differences because of these organizational development authorities? Why do you think there are differences? Is it expertise?

Mr. BUNCE. It is very true. There are differences in regions. I think it is the way our personnel system is set up. I think that having the programs that Ms. Baker is putting in place, again, with the backing of the United States Congress, puts gravitas to trying to implement that change. But, still, we have too many folks up there that have differing opinions on how to administer whether it is an ODA or the importance of the consistency in regulatory interpretation that you put in the last bill, in 313, we're still seeing too much of that.

There's not consolidated guidance so a lot of times it allows people to come up with their own option; this is their own interpretation. And we, in industry, instead of fighting that interpretation, we just say, "Time is money. We got to get this certified." So we just say, "OK, we'll go ahead and do it." Because there is also that fear that if you challenge a regulator on this one, they are going to bite you on the next one. And so, I know Ms. Baker—

Senator CANTWELL. But aren't these the same issues? I mean aren't they issues that each region could come up with the same issues, because you are talking about the same, relatively same, product? Right?

Mr. BUNCE. Exactly. And that is why the plan that we are working on cooperatively with the FAA allows for dispute resolution. So if you have the industry and the regulator deciding they have a difference of opinion, let's be able to kick it up to a headquarters level and say, "OK, here is what the dispute is and there is no punishment or reciprocity in being able to kick it up."

If you have a disagreement, that is acceptable to raise an issue. Also, a central repository of guidance. Right now, if you try to go through all the advisory circulars and the regulations and everything else, it is a mess. And it leads to different interpretations by the workforce. It is not their fault. It is just that there is a million

places to look for things and you don't always have it at your beck-and-call. So, if we are able to get this central repository and be able for all of us, on the certification side but also on the flight standards side, to be able to reference, it helps the regulator and helps—

Senator CANTWELL. How much of this is driven by new technology, new manufacturing techniques, or new product?

Mr. BUNCE. It is driven a lot.

If the FAA doesn't have any more resources, and we know in this environment it's very difficult for them to have more bodies out there, technology is moving so quickly and that's why this educational piece in the FAA reauthorization, if we could get that passed and even to have an ability to have this cooperative internship or sharing, and I know you have talked about that where we've got an apprenticeship-type of opportunity, that becomes very critical. Because we have got to be able to have the regulator, knowing what this latest technology is out there, to be able to regulate us properly.

So technology and the pace of change only exacerbates the problem.

Senator CANTWELL. Yes. I guess I look at this, and I see big market opportunity, lots of jobs, lots of technology integration, big culture to try to change. So you have two big forces pitted against each other. I think we should spend as much time as it takes to get this right.

But, you're right. The regional nature of it should be pretty consistent, so if that is sharing data across ODAs or something of that nature, but we should be able to answer this. I'm a big proponent of bringing in anything we need to from the academic side or other areas to answer these questions because, as we try to keep pace ahead of innovation, we know we have to figure out what are the ways at the FAA. I'm also a big supporter of the centers of excellence, but you are not going to have a center of excellence on every aspect of civil aviation. So we need to figure out a way to help the pressure here of keeping fast pace and yet keeping the FAA up to speed. Thank you.

Mr. BUNCE. Senator, if I just might add, in February Ms. Baker allowed us to come in with many of our CEOs and we are launching a test program, which is basically a scorecard. And it was developed by a lot of her managers and regional directors in the certification process along with industry giving input. And we are actually going to have the FAA and industry score how we are doing. Ms. Baker is launching the pilot program now. And there are some subjective portions where we can each rate how each other is doing but then, there is very objective measurements to be able for us to look at and allow this and then got up to FAA headquarters, and for us to focus on and say, "OK, these ODAs are working, these aren't. What's wrong? What isn't working; and let's address those."

Senator CANTWELL. Thank you.

My time has expired. Thank you.

Thank you, Madam Chair.

Senator AYOTTE. Absolutely. Thank you, Senator Cantwell.

Senator Moran?

**STATEMENT OF HON. JERRY MORAN,
U.S. SENATOR FROM KANSAS**

Senator MORAN. Madam Chairman, thank you very much.

Perhaps a question to all three of you and whoever would like to address it, but I want to highlight the importance of this certification issue, particularly the ODA aspect of it. But certification, in general, is a way that we are able to have the latest technologies, the greatest advancements, and also to compete in the global economy. We see this clearly in the airplane manufacturing sector in Kansas. We are competing in a global economy and we are delayed in getting our latest products to market because certification is so cumbersome and slow.

ODA was created, I think it came into existence about 2005 and it was seen, I think, as the savior, the solution to this problem. I remember we had Secretary LaHood in Wichita; I don't remember what year that was but it has been a number of years ago, and this was the topic. And the Secretary, of course, listened to Kansas manufacturers, American aviation, general aviation industry and said, "We are going to go back and solve this problem."

And it is the same explanation today as it was then when Secretary LaHood was there and in every hearing or conversation I've had with FAA officials, and it's something called "culture" or "mentality."

What is it? I mean what is the mentality? What's the culture? Why can't we solve this problem? And perhaps the question is, is there something in FAA reauthorization that we are supposed to do that eliminates the ability for the culture or mentality to thwart what we, as Congress, believe is a good idea for the advancement of safety as well as innovation, as well as the U.S. economy in the manufacturing of airplanes?

Ms. BAKER. I will start.

I wanted to point out that the past reauthorization actually added a few things that I think will eventually, or I should say will show, some progress because one of the things that we had to do was to change the order that governs Organization Designation Authorizations. And it requires the employees to document why they are retaining items where the company is authorized to do the finding. And with the scorecard, we'll be tracking that and then we'll be able to have a get-well plan, per se. So if an employee is retaining it for a valid reason, then the company and the employee can agree to that and move on. If it is because of a personal preference, it's going to be identified because they are going to have a conversation about it. And, if it's something that we just need to build a performance plan to get well so that we can grant it to the organization, then we can do that too.

So I feel that the reauthorization that asked us to change the order to cause the employee to document why they were retaining, combined with the scorecard and the discussion that we are going to have, is going to effectively move that culture forward.

Senator MORAN. When you use the word "culture," what is it that you are describing?

Ms. BAKER. What I am describing is really a generalization, as you probably guessed. There are people that have bought in. They are ready to move forward. And then there are those that are kind

of living in the past. When I came into the organization, we were literally looking at drawings, and working with the company, we retained pretty much all of the findings. We had individual designees that we would work with. We had personal relations with them and we would delegate to them on an as-needed basis. And so, it is moving the people from the way of doing business in the past to the way we are going to be doing business in the future.

Senator MORAN. This is something more than concern that if we utilize, if we, in a sense, outsource certification, that we have less need for our jobs. It is something more than that?

Ms. BAKER. Well, I think that is an underlying fear, but what we are trying to convey is that there should not be a fear of that. As Peter said, there is so much to be done. And really, the things that our people will be working on, if we delegate to the organizations, they'll be working on the more exciting things anyway. They are going to be working on the new technology; not the mundane test of a galley or, you know, just basic engineering. They'll be looking at the new and novel technology.

Senator MORAN. Anything else, Mr. Bunce or anybody else, about what needs to be included in reauthorization? If anything additional to solve this issue?

Dr. DILLINGHAM. Senator, I'm not sure exactly what may need to be included in the reauthorization, but something that would facilitate, maybe guarantee, that the path that the agency is on now with industry, as Peter subscribed, and FAA working together. I mean we are at a point of being sort of guardedly optimistic, that we are at a tipping point that—we are at the point now where, if what is onboard is in fact implemented, we won't be here the next time in the same position that we are in now.

Senator MORAN. That's encouraging, I guess. After a number of years, it's encouraging.

Mr. BUNCE. And Senator, I would just add that I think we can do some things in reauthorization of looking at career development within the FAA. If you spent your whole life as an engineer and you're this expert on aluminum structures and that, you want to get into the weeds. It's human nature; you want to do that.

What Ms. Baker and what we are trying to do is say, "OK, if you're managing an ODA, you should be a systems engineer." You should be able to look at the broad picture of a company and say, "OK, are they working effectively together?" To be able not only to produce a safe product but is everyone talking to one another? Are we able to provide the right type of oversight there so that that safety is never compromised? But you do that in a systems approach. If that individual has as good or better career this as the traditional engineer out there and we provide the training to all those that are doing this oversight, I think we can make a significant contribution.

Senator MORAN. Chairwoman, thank you very much.

I'd just say that it's encouraging to hear somewhat optimistic unanimity among the three witnesses today, that this is changing and, as Dr. Dillingham says, we won't have this question in the hearing a year from now.

I think that's what you said.

Dr. DILLINGHAM. Yes, sir.

Senator MORAN. All right. Thank you.
 Senator AYOTTE. Senator Daines?

**STATEMENT OF HON. STEVE DAINES,
 U.S. SENATOR FROM MONTANA**

Senator DAINES. Thank you, Madam Chair.

We are proud in Montana to have a Boeing manufacturing facility. We manufacture 737, 747, 767, 787 parts and assemblies there. Great jobs, high-paying jobs. But I want to elevate this discussion for a moment back to global competitiveness and speed.

I understand Boeing right now has a \$440 billion backlog. We are competing directly now with Airbus and others. So this is about American jobs. As someone who came from the private sector, spent 28 years in business, speed is a comparative advantage.

Ms. Baker, first question. How many people report through to you? I mean you have a very big job as Director of Certification. How many people do you have in your organization?

Ms. BAKER. Well, let's see. Right now, we have about 1,319.

Senator DAINES. Plus or minus?

Ms. BAKER. Total authorized. We don't have that many onboard there is—

Senator DAINES. Sure.

Ms. BAKER.—1,290.

Senator DAINES. And so, you are at the top of that—

Ms. BAKER. Yes.

Senator DAINES. 1,319 people.

Ms. BAKER. Yes.

Senator DAINES. So as the head of certification, what two or three metrics do you look at that measure speed of certification?

Ms. BAKER. Well, that is what we are challenged by, as Gerald has said. What we have done is worked with a number of different types of metrics and we've always found that they tend to—

Senator DAINES. But let me just ask you. Do you have one right now? Do you measure speed?

Ms. BAKER. We measure speed by turn, turn times of individual programs and individual cert plans, et cetera, assuring that we are turning it back to the organization that needs the information so that they can move forward. A lot of the program is actually dictated by the speed at which the company can move forward because they have got a lot of work to do too. And they've got flight tests and a lot of things that they have to complete. So we look—

Senator DAINES. So are those measures, are they going down, are they going up, or staying flat?

Ms. BAKER. We are probably about flat. I think Peter may agree with that. The reason being is that things are moving faster but they are getting more complex. So we are getting better at moving some things forward faster, but the problem is is that the complexity of the designs has been increasing every year.

Senator DAINES. So my concern, of course, is that Airbus has a backlog right now, Boeing has a backlog right now. Ultimately, whoever can deliver those orders the fastest will win the business. And I'm more concerned even going forward now over the next three to 5 years, I think we're going to see a good demand out there for these good American jobs.

So what steps are taking to ensure that these new aircraft certifications will be done in a more timely manner?

Ms. BAKER. Back to the scorecard. We are trying to ensure that we delegate as much as we possibly can to the Organization Designation Authorization; give them autonomy. And when we're looking at the statistics, we do give them quite a bit of the work. Much of the work now doesn't even come through the FAA. The more that we can eliminate ourselves from that path-flow, eliminate ourselves from the critical paths, the delivery of the aircraft, the better it will be for industry.

Senator DAINES. So as you look at your 1,319 employees, are they held accountable at the individual performance level for speed and turnaround time?

Ms. BAKER. There are metrics in our—we are a quality management system, we're EASA registered. And yes, they are.

Senator DAINES. But I mean individuals. I mean, if I went to one of your employees and said, "Show me your last performance review." And was one of your key measures there, how quickly you turn around the process on your desk?"

Ms. BAKER. Individually? Probably not as far as, you know, you have to meet this 30 day metric. But of course, we would be taking that into account to assure they are moving the projects forward quickly and their organization or their office is looked at and collected.

Senator DAINES. Yes, and I don't pretend to want to come in and manage your business. But having spent time having to do cultural change in large organizations, I think it comes down to holding individuals accountable; put what's most important and, certainly, it's going to be safety and thoroughness of these certifications. But it's not a trade up, I don't think, between safe and thorough and speedy with the right approaches.

Mr. Bunce, given the response, does this alleviate or address your concerns from the aviation manufacturing industry?

Mr. BUNCE. Well, the proof will be in the pudding. We've got to be able to see these initiatives that Ms. Baker is putting forward that she's been cooperatively working with us to be able to implement.

We had a lot of companies sign up for this to be able to test out the scorecards. So as Ms. Baker said, between 70 and 80 ODAs out there, I think it's about 20 have signed up to be able to look at the test program because they said, "Let's get at this, it can't happen soon enough."

So that's, as Dr. Dillingham said, I hope that we won't have to keep addressing this issue. But I do believe we are at that tipping point. If we're going to drive change, we are at the best place, and support of this committee is critical to make——

Senator DAINES. And if there are one or two recommendations to boil it down and the most important thing that FAA can do now to improve and speed up the certification process in terms of changing this culture, what would they be?

Mr. BUNCE. To be able to go and actualize the ODA, to be able to allow it to function the way it was designed, and then to be able to get this word out through training to the workforce so that they say this is the way the U.S. Congress, this is the way the FAA

leadership, and this is the way industry wants to go; we need to go ahead and make this change and drive that cultural change to happen sooner than later.

Senator DAINES. OK, thank you.

Thanks, Madam Chair.

Senator AYOTTE. Thank you.

Senator Udall?

**STATEMENT OF HON. TOM UDALL,
U.S. SENATOR FROM NEW MEXICO**

Senator UDALL. Thank you very much, Madam Chair. Really appreciate it and good to be here with the panel, and thank you all for being here.

In New Mexico, the aviation industry, like the rest of the economy, is working to recover and is in a struggling phase in many cases. Thankfully, I think they are doing a little bit better today than they were a couple of years ago. We continue to be a mix of big and small business, everything between Aspen Avionics, Eclipse Aerospace, and Honeywell. So you have a real variety there. And my concern when agencies implement new processes is always the change; how that change will impact small business.

Ms. Baker, in working to improve the process, have you looked at the impact of these changes on small business? Do you believe that small business will be able to easily adapt to the changes that you are making?

And I apologize if I'm repeating what others have already asked, but thank you.

Ms. BAKER. That's quite okay.

I think that the changes that we're making are going to benefit small industry. And like Peter said, the thing is is that if we can get a lot of the work delegated to these larger—we'll have more time to spend with the smaller or startup industries.

Senator UDALL. Great.

Colonel Bunce, do you think everything has been covered in terms of your smaller members of your association? Do you feel from her testimony that they are looking out for these smaller members that are out there?

Mr. BUNCE. Well, Senator, I think if you take the two companies you mentioned and the other company that we have in New Mexico, obviously the Small Aircraft Revitalization Act is important to them. And we are frustrated that the process is taking longer than we believe it should. We would very much like to see a Notice of Proposed Rulemaking this summer. We think it's possible.

Just last week, all the technical standards were set up so that an NPRM, a Notice of Proposed Rulemaking, could be published. And this is significant. Take a company like Aspen.

Right now, if we get this right on the small aircraft, the next step is to revitalize rotorcraft and Aspen plays a key role in that. Right now, the way we're regulating the rotorcraft industry is still in that old thought. It's not efficient, and the sooner we get this in place for small aircraft we can then use this new innovative-type of regulatory structure for rotorcraft and then go to transport category aircraft. Because this is the right way to go and it's global

rulemaking. We've got partnerships with all these other authorities and Ms. Baker and her staff have been extremely helpful for us.

So on the technical side, that work is complete. Now, it's getting it through this rulemaking and the lawyers and that, and we hope that through emphasis from this committee that we can go and speed that process.

Senator UDALL. Yes.

Ms. Baker, why can't we move the process along as he has described? What's holding this up there?

Ms. BAKER. Like I said, the actual rulemaking process is a very deliberative process to make sure that it is done right. So we do follow the Administrative Procedures Act, we have to assure that the rule is not only technically accurate but legally enforceable, it doesn't have ambiguity in it, and then we have to do the economic analysis. And then, it goes through a process of review. So like I said, we can get to the technical result relatively quickly, but we do have a process which we have to follow.

Senator UDALL. Thank you.

Dr. Dillingham, you have any comments on this?

Dr. DILLINGHAM. No, sir. Thank you.

Senator UDALL. Thank you.

Thank you, Madam Chair. I really appreciate it.

Senator AYOTTE. Senator Klobuchar?

**STATEMENT OF HON. AMY KLOBUCHAR,
U.S. SENATOR FROM MINNESOTA**

Senator KLOBUCHAR. Well thank you, Madam Chair. Thanks for holding this hearing and to our Ranking Member Cantwell, as well. This is really important. We care a lot about this in my state. We have a hub, and we also make some planes in Minnesota. So it means a lot, and I continue to push, as all of you know, for the timely implementation of the Small Airplane Revitalization Act, which I introduced with Senator Markowski and it was signed into law in 2013. I know Senator Udall and the Chairwoman asked some questions about the FAA's certification process for new and replacement aircrafts and parts. I just want to follow up with one question.

Mr. Bunce, in your testimony you indicated that the European Aviation Safety Agency has published an Advanced Notice of Rulemaking to rewrite the Part 23 regulations for the light end of General Aviation Aircraft. Is Europe getting ahead of the FAA on this initiative? How have the coordination efforts been between these two regulators?

Mr. BUNCE. Senator, again, thank you for your leadership on being able to make the Small Aircraft Revitalization Act work. And also, I appreciate your communications with Secretary of Transportation because, as Ms. Baker said, to be able to get this rule through we got go through DOT and then we got to get it over to OMB and get it out.

Senator KLOBUCHAR. A lot of initials. Sounds kind of scary. OK.

Mr. BUNCE. My impression, because Europe was part of this whole rulemaking structure, that they are more nimble. As Ms. Baker said, our process is a laborious to be able to get a rule through the system, and I believe they are more nimble.

The Administrative Procedures Act, I can understand, restricts the communication between the regulator and industry when they get in this critical time. But one thing we're hearing from the European side is that communication, they called it "going dark on the backside of the moon," that they are isn't communication between the regulators right now because of an interpretation of this act, which we don't think it really makes sense. If we're going to try to do this rulemaking and keep everybody connected in lock, step, and harmonize, that we ought to have the regulators be able to communicate with one another. We expressed that to the Deputy Administrator and that but, so far, as of last week, we hadn't heard that we are joined back up and working this together.

So I think that——

Senator KLOBUCHAR. OK. I guess it's another, as my colleagues have said, it's another reason to push the publication of these proposed rules.

I cut you off though. Did you want to say something?

Mr. BUNCE. No. And so, if you look at it in total, I think Europe is ready to move out and they could do so. We're just hoping that the FAA, if they get the Notice of Proposed Rulemaking out this summer, it brings them back in line and then we have a chance of trying to get the final rule out by the end of 2016 versus the later part of 2017.

Senator KLOBUCHAR. Maybe I'll just continue on with that global competition issue with you, Ms. Baker. What's the FAA doing to ensure that we stay ahead of the game, not will go beyond this rule now in terms of aircraft innovation and manufacturing as well as safety?

Ms. BAKER. Well, I think we're doing a lot of different outreach. And one of the things we're doing is training in Singapore. We set up an academy in Singapore to do training so that we could convey to the authorities in that particular region our rules and how we've developed them so that they will then start to adopt ours.

When we look at new technology, we can work with the authorities around the world and we come together to determine how it is we are going to be regulating things like additive manufacturing. You might have seen that coming. That was a discussion item at our Asia bilateral partners meeting. We talked about UAS. Those are all things that we are talking collectively with the other authorities but taking leadership roles where we can in organizations like ICAO or in groups like RTCA or ASTM, where they are building the standards.

Senator KLOBUCHAR. And is there currently a backlog within the Aircraft Certification Service? Just, again, getting back to some of these innovations and trying to move ahead in America.

Ms. BAKER. There's no backlog in the Aircraft Certification Service's certification applications. One of the things in Section 312 of the FAA Modernization Reform Act was to put in place something other than the sequencing process, which had a queue. We now have a prioritization process, which has no weight. You can start your project immediately as soon as you make application.

Senator KLOBUCHAR. So, yes. So what you mean is you're adjusting the process for reviewing certifications from some kind of—what is it? Sequence prioritization? Is that right?

Ms. BAKER. Well, yes. What we had originally was sequencing. And so, you couldn't start your project until there were resources available to work the project. The change that we made, we realized that there was a lot of different things that can be done in any one project. And really, the only time that you need a specific resource from the FAA, if there's new or novel technology, and there's a particular person with the technical expertise that you need. So now we're prioritizing based on that. So we give a commitment on when we will deliver that resource to the individuals.

Senator KLOBUCHAR. How is that being received across the country?

Ms. BAKER. We're going to have a review of it. It has been in place for about 9 months now, and it appears to be working really well.

Senator KLOBUCHAR. It is just an interesting concept that could maybe be used in other areas as well, not just within the FAA.

All right, well very good. Thank you very much.

Thank you, Madam Chair.

Senator AYOTTE. Thank you.

I think we just have a few follow-up questions here. One is about the—oh. I just saw Senator Sullivan come in. So we'll let him ask his questions.

**STATEMENT OF HON. DAN SULLIVAN,
U.S. SENATOR FROM ALASKA**

Senator SULLIVAN. Thank you, Madam Chair.

I think the panel is familiar with some of the issues that we have in Alaska. Some of our unique issues with regard to different communities that exclusively rely on air travel: 403 general aviation airports; 5,700 general aviation aircraft; 8,000 registered pilots. So I know that many of you are familiar with some of these challenges, opportunities, certainly that we see in Alaska both with regard to aviation.

Mr. Bunce, can you provide an update. I know that you're familiar with the AvGas and the Piston Aviation Fuels Initiative. This is something that, as you can imagine, we have several concerns about with over 10,000 piston engine aircraft registered in Alaska. This is the kind of rule that, you know, has an enormous, enormous impact on particular states like mine when it might not impact other states. I think 96 percent was the last number I had of the Commercial Aircraft Fleet in Alaska is piston-engined, aircraft that burn leaded fuel. Can you give an update on this? This is a really important issue for my state.

Mr. BUNCE. Yes, Senator.

So we have had great support from the United States Congress in this, what we call the "PAFI Initiative," the Pistons Aviation Fuels Initiative. And so, basically, right now there is one distributor of lead in the world. Everybody is relying on that one. And we use lead in the gas to be able to go and make sure there's not, what's called "detonation." Now if you have that in your automobile, the engine block is very robust. And when you hear knocking, that's detonation and that's survivable on the road. And if something catastrophic happened, you'd pull over. In aviation, the

engine blows up. That's a bad thing. So we have to have a very deliberate process and that's what the PAFI is.

And so, we've got support from the FAA. They've gone in each year in the last three budget cycles to be able to fund it. Actually, the Congress has been very generous to be able to go ahead and boost that because we know how important it is. So we're doing a lot of that testing up at the tech center in New Jersey. And right now, it is going well. Industry is providing the fuels to test; also the engines to test them on.

The next step in that process is now to see whether we can produce and in larger and larger quantities. The goal is to be able to have this now unleaded fuel that, as we start to produce it, we can go and commingle it with existing leaded fuel until we get all the lead out of there.

The other good part of this process is the EPA, despite all of the pressures that they get on it from the different groups, has said because of the safety factor, let's let industry and FAA work on this PAFI process, find a solution, and then, when we have this solution, then we can go and implement the regulatory whether it's an endangerment finding or whatever that would be. Then to drive the whole industry to this new fuel. It'll be kind of a, OK, now time is set. We have the solution. Let's move forward.

So I feel very confident with your help that we'll be able to have the solution of an unleaded fuel.

Senator SULLIVAN. So you think that's striking the balance between, again, unique needs of states like Alaska and our economy, the issue of safety that you mentioned, and the environmental issues?

Mr. BUNCE. Absolutely, sir.

And Alaska, as you said, is very unique. I fly up there. When I'm on the ramp, you have these big round radial engines still out there. And still, it is one we always, through this testing program, we want to make sure we take into consideration these large reciprocating engines out there to be able to make sure they test without any problem in no matter what type of temperature regimes, especially cold, to make sure that we don't have any problem with this.

Senator SULLIVAN. Right.

I appreciate your knowledge on that issue and my office will be following up with you for a little bit more detail on those matters. Thank you.

I yield back my time, Madam Chair.

Senator AYOTTE. Thank you very much.

I just had a couple of follow up questions. One was about, to follow up on Senator Klobuchar question, I've heard from stakeholders that this, the European version, EASA, if I pronounce it correctly, could be actually exceeding our standard in terms of being the gold standard and how quickly and how effectively they're acting. In terms of approaching certification. And so, I just wanted to get a thought.

What's your perspective, Mr. Bunce? Is it easier to deal with the European regulators and are we falling behind overall with this?

Mr. BUNCE. Madam Chairman, I think we work very closely with EASA. And actually, Patrick Ky, who is the Executive Director of

EASA, has exactly the same budget problems that Mr. Huerta has. He's got constraints; the European Parliament is trying to cut his budget. So many of the same issues that we deal with. Their approach is a little bit different, their rulemaking approach is different, and it's not as regimented or inflexible as, I think, what we find here.

One of the things that does concern us as manufacturers is the validation process. And we've talked a lot about certifying product here in the U.S., but one of the other key things is, when we go and now take that process over, let's say to Europe, and you want to have an aircraft registered within the European registry, that aircraft has to be certified by EASA. And so, they basically take the work that the FAA has done and they "validate" it.

Unfortunately, that validation is taking way too long. And in some cases, it's almost as long as it was in the certification process here. And that's unacceptable especially because we have a bilateral agreement that says, basically, we trust each other's competencies. The same thing that if a product is produced in Europe comes over here. The FAA uses resources, but it should be a relatively fast process to be able to go ahead and trust each other there.

And so, that is something that is very concerning to us. I know that Ms. Baker, in fact, this conference that she met at last week, they are trying to address that because it's wasting too many resources. And there are four states of design: Brazil, the U.S., EASA as the group for Europe, and transport Canada. They all have bilaterals with each other. And we need to leverage those better. And that is for commercial aircraft, general aviation, fixed wing, and rotorcraft; and will be for unmanned vehicles as well.

Senator AYOTTE. So it's really on their end. We've already certified and they just need to validate.

Mr. BUNCE. Correct.

Senator AYOTTE. So are they delaying that for competitive reasons?

Mr. BUNCE. I don't believe that it's for competitive reasons. I believe that it is resources constraint but it's also not a focused ability to realize the bilateral. And to say the FAA did the work, our work should be just minor to check if there are differences, let's say, in the regulation. That goes for the FAA as well. If a European product comes this way, they shouldn't be wasting a whole lot of resources to be able to check that because we have an agreement that basically trusts each other's competencies. And that's something that we do hope we were able to put some focus on because it's important.

Senator AYOTTE. Ms. Baker, do you have any thoughts on this?

Ms. BAKER. I think he has covered it well. It's kind of the same problem that we have when our engineers are relying upon an Organization Designation Authorization to do the work. You go to Europe and they have engineers like we do that want to double check what we're doing. So again, that too—

Senator AYOTTE. Engineers checking the engineers?

Ms. BAKER. Engineers checking the engineers, yes. And we all know if you get engineers in the room, you can probably have more questions than answers than you ever imagined.

So what we're doing, though, is through validation and improvement processes, we're setting agreements between the two authorities. And with this certification management team that he's talking about, where Brazil and Canada are working, we're setting up ways to work together so that we can do the similar things as we're doing nationally; is measure how well we're performing, how well we are doing at relying upon the other authority.

As I said, when I was in Asia, we're all recognizing that we're resource-limited. It doesn't make any sense to look at someone else's work when you have a competent authority that's already made the finding. And that's why we're starting out small. With the TSO items, the Technical Standard Orders that I talked about. At the end of this year, we hope to just recognize each other's Technical Standard Order findings. Meaning that we don't even look at them. We just accept it. We don't even have to issue another approval. That'll save time and it'll be really great for those that produce those types of articles.

And then, for this, basically, little low-complexity STCs, we will accept the determination made by the other authority and then we will just sign off the approval without further showing. So those are two really big steps towards this future that we hope will alleviate the burden that he's discussing.

Senator AYOTTE. Good.

And we both, obviously, have a mutual interest in our industries thriving. So hopefully, we can leverage that to get to a place where we're both recognizing each other's work more quickly.

Senator Cantwell?

Senator CANTWELL. Thank you, Madam Chair.

Ms. Baker, in the first round I didn't get your thoughts deep enough on this evolving technology and innovation challenge. What are some of the things that you think we need to do, to try to do, besides the structure that we've already discussed, right now with the ODA? What are some of the other ways that you think the FAA can make investment so that they keep better pace with innovation?

Ms. BAKER. First, we need to focus on the fact that the ultimate responsibility of having a safe product and compliant product is the manufacturers. So we need to work with them to produce the regulations that they will certify the aircraft to. We have a flexible system. We have something called "special conditions" that will allow us to develop rules if they present us something that isn't already reflected in the regulations. And when we do that, it benefits us to go to entities like Volpe or MITRE, work with RTCA or ASTM, communities that have the expertise—

Senator CANTWELL. You're talking, for everybody who may not know, you're talking about standards setting bodies, so to speak, loosely or structurally—

Ms. BAKER. Right.

Senator CANTWELL.—that help set standards for these parts or certifications.

Ms. BAKER. Right.

And they have a community that has the expertise. So what I see us doing is being involved with them so that we get the benefit of the expertise in industry.

We also found, when we were going through the lithium battery issue, that we need to look outside of aviation, because there's a lot of technology that's now coming into aviation that has been in other aspects; other modes of transportation, other IT applications. And we should be able to go to organizations that have that expertise and have them work along side us.

Senator CANTWELL. And so, do we need to do more with those organizations?

Ms. BAKER. I think we do quite a bit already. And I think just continuing to work with them to move forward. One thing that is really important is communication. The industry comes up with good ideas and they all want to keep them pretty much to themselves until they bring them to market because it's going to be a competitive advantage against their competitors. So the earlier we can get involved at setting up the standards that they'll have to comply with, the better. So the more communication that occurs up front, the better off we all are.

Senator CANTWELL. What about that, Mr. Bunce? You mentioned your variety of companies that are part of your association.

Mr. BUNCE. They are very competitive but at the same time, when they meet in our association settings, they all recognize that if they go and work with the authorities, all boats rise at a high tide. So I think that's important.

One of the bottlenecks we're seeing is software. Both sides of the Atlantic, we see that a lot. And the safety improvements we can make with software is tremendous. There were a couple high profile accidents that you're both familiar with last year where people were flying and they go hypoxic up at altitude. They didn't realize that they loss conscientiousness and the airplane just kept going. The fighters intercepted them and they saw folks slumped over.

We have technology now that's able to do—it sends messages to the pilots and if they don't respond, the airplane automatically starts a fly down profile to get down where the oxygen is available to them and hopefully can revive them. It's not major changes, and actually the autopilot system, it's all software driven. Those kinds of things are examples are really safety-enhancing technologies that, if we could get through the system fast, we reduce the price and then somebody can afford to be able to buy this new software upgrade to be able to go and have this new safety feature available. And there are many examples.

And so, we're working with Ms. Baker's office on all of these to be able, across the spectrum of aviation, to have this rapid process where it reduces cost and we can retrofit older aircraft with this technology and then include it in new production.

Senator CANTWELL. And you think there are participants from these organizations in the standard-setting organizations to have that kind of discussion?

Mr. BUNCE. Absolutely.

And the Small Aircraft Revitalization Act is an example of that. They all met last week in Europe and they provided the technical standards. And when we can expand that to rotorcraft and to transport category aircraft, they are able to keep, refreshed, they technology as it comes but it doesn't restrict them from having

something proprietary and go through the old process. And so, they actually have two ways, two avenues to do it but we get world regulators and experts in industry all together on a periodic basis to be able to review these standards.

Senator CANTWELL. Well, there's a little publishing thing called the Internet so you can have a lot of discussion of these issues in real time, which I think is very helpful.

Dr. Dillingham, how do we approach this, you know, some of this as, again, the advent of technological changes happening and then the certification process with another big effort by the FAA of NextGen? So how do we integrate these two things?

Dr. DILLINGHAM. I think the issue that you raise is a key one—how can the U.S. proceed with innovations such as NextGen and UAS integration? Both the NextGen and UAS situations suggests that we move to a risk management approach to technology and innovation so that we are not constrained by old rules and regulations.

And when I say UAS, what comes to mind is Amazon. Amazon, you know, is a bit of a technology leader, as far as UAS. However, because of the way we operate here in the U.S., it forced or pretty much forced Amazon to do some of its research on UAS off-shore. Getting to a risk management approach and looking at things differently is the way we're going to bring innovation such as UAS more quickly into the marketplace. NextGen is the same thing. We have to move to a performance-based approach as opposed to a prescriptive kind of orientation for ATC modernization.

Senator CANTWELL. Well, I think these are big tasks and I think we should, Madam Chair, continue to pay a lot of attention to this because I think, as we were talking earlier, these are big opportunities. Lots of jobs and, yet, our competitiveness is going to depend on us getting this right. We like the advent of these improvements to aviation. We want the improvements but we certainly want the certification process to be thorough but when we can learn from it, implement it across the country in a more unified way. So anyway, I thank the witnesses and I thank the Chair for this important hearing.

Senator AYOTTE. I want to thank all of you. I agree with Senator Cantwell. This is so important to our competitiveness and our ability to innovate going forward. This was a very helpful hearing from all of you as we work on the reauthorization together. So I appreciate your being here today and taking the time to help us with this issue.

The hearing record will remain open for two weeks. During this time, Senators are asked to submit any questions for the record. Upon receipt, the witnesses are requested to submit their written answers to the Committee as soon as possible.

Again, thank you. And this hearing today is adjourned.

[Whereupon, at 3:48 p.m., the hearing was adjourned.]

A P P E N D I X

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. DEAN HELLER TO DOREND A BAKER

Question 1. What ability does the FAA possess in terms of conflict resolution between FAA approved Designated Engineering Representatives (DERs) and applicants?

Answer. A DER acts on behalf of the FAA to find that design data complies with FAA regulations. In a dispute with an applicant, it is the responsibility of the FAA to determine if the DER's decision to not approve a design was made in accordance with FAA policy (reference FAA Order 8110.37E, *Designated Engineering Representative Handbook*, sections 2-2 and 2-3). If the FAA determines the DER's decision is not according to published policy, the FAA may override the DER and approve the design.

Question 2. Are Designated Engineering Representatives required to perform continuing annual proficiency evaluations similar to those continuing evaluations required of pilots and mechanics?

Answer. Unlike pilots and mechanics, where proficiency evaluations are conducted in the form of a practical examination, a DER's performance is evaluated annually on work done over the past year. FAA orders give specific instructions on what the DER must provide to the FAA to verify their activity, and what the FAA must consider during the formal evaluation (reference FAA Order 8100.8D, *Designee Management Handbook*, Section 904). In addition to the annual performance evaluation, the DER's FAA advisor conducts oversight and interacts with the DER throughout the year on a continuing basis. Performance concerns with a DER are often identified by FAA oversight and addressed as they occur. In addition, DER's are required to attend training specific to their discipline every two years.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. CORY GARDNER TO DOREND A BAKER

Question 1. Wait Times—Denver Regional Office:

In June 2014, at the request of my House office, the USDOT Inspector General issued a report surrounding significant issues with the FAA Denver Regional Office's processing of certifications. At that time, the report stated that Denver had one of the longest waitlists in the country with 42 applicants on the waitlist. The report outlines that some applicants have waited three years on the FAA to complete the certification process. The report notes that the Denver office had issued only 6 certifications to new applicants over 4 years.

In conclusion, the Inspector General made four recommendations to the FAA:

- Clarify and disseminate Agency guidance that allows field offices to establish priorities and pass over applicants when specific resources are not available to perform the certification.
- Require the Northwest Mountain Regional Office to evaluate resources across its district offices and determine whether certification services can be shifted to other offices with greater resource availability and assess the extent to which this applies to other offices.
- Develop a tracking number and sequencing system with CSOP to enhance reporting and visibility of certification activities to Flight Standards management.
- Develop a standardized approach for District Offices to continually monitor and evaluate whether resources are adequate to initiate new certifications.

Can you explain why the Denver office has such poor performance compared to some other regional offices?

Answer. The Office of Inspector General (OIG) cited a number of issues in its report regarding the performance of the Denver office in new operator certifications. The office had difficulty in determining how many inspectors it needed to perform certification work and did not request assistance from the regional office. The FAA also lacked a standardized approach to prioritize and track new certificate applications for air operators and repair stations. Instead, the FAA utilized a first come-first served approach to performing certifications, resulting in significant delays for many applicants if more complex certifications were ahead of them in the queue. The OIG also noted the FAA's guidance did not include a process that managers could use to re-evaluate resources and initiate the certification of waitlisted applicants. Finally, competing priorities and frequently changing guidance from FAA headquarters and regional offices regarding the Agency's certification policy resulted in workflow interruptions and delay of new certifications.

Some of these concerns could be attributed to the uncertainty of staffing and budget resources, and a focus on continued operational safety. In addition, Denver has a greater and more diverse concentration of activity compared to many field offices, particularly within the Northwest Mountain Region.

The FAA concurred with the four recommendations proposed in the OIG report. The OIG considered three of the FAA's responses to the issues resolved, pending completion of planned actions. The FAA response to one recommendation resulted in a request for additional information, which the FAA provided. The actions the FAA committed to are now complete.

Question 2. While the report did note that the FAA swiftly acted on some of the recommendations made by the IG, at the time of printing, not all had been addressed. Has the FAA acted on the recommendations laid out in the Inspector General's report?

Answer. FAA's Flight Standards Service has completed action on all four OIG recommendations. FAA sent a description of the actions taken to the OIG for close out.

Standard Operating Procedure (SOP) AFS-002-900-S1, effective April 9, 2015, addresses and provides requirements to field offices and regional offices that comprehensively respond to all of the OIG recommendations. This document is applicable to all regions. Northwest Mountain Region aggressively implemented the requirements of the SOP in addressing the OIG concerns.

The Denver "waitlist" decreased from 42 to 12. Moreover, FAA's Flight Standards Service instituted a reporting system toward certification accomplishment, which all regions report to the Director of Flight Standards weekly.

Question 3. What is the current status of the processing of certifications, wait times and total numbers, at the Denver FAA office?

Answer. Currently there are 12 applicants on the Denver waitlist. The oldest of these has a wait time of approximately 9 months. In addition, there are 3 completed certifications, 7 certifications in progress, 6 certifications pending formal application, and 5 certifications which were transferred to another field office for certification. 18 applications were terminated, either because the applicant failed to successfully meet certification standards or because the applicant no longer wanted to pursue certification.

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