
Office of Inspector General

Audit Report

THERE ARE SIGNIFICANT DIFFERENCES BETWEEN FAA AND FOREIGN COUNTRIES' PROCESSES FOR OPERATING AIR NAVIGATION SYSTEMS

Federal Aviation Administration

Report Number: AV-2015-084
Date Issued: September 2, 2015





Memorandum

U.S. Department of
Transportation

Office of the Secretary
of Transportation
Office of Inspector General

Subject: **ACTION:** There Are Significant Differences
Between FAA and Foreign Countries' Processes
for Operating Air Navigation Systems
Federal Aviation Administration
Report No. AV-2015-084

Date: September 2, 2015

From: Matthew E. Hampton
Assistant Inspector General
for Aviation Audits

Charles A. Noland
for

Reply to
Attn. of: JA-10

To: Federal Aviation Administrator

The Federal Aviation Administration (FAA) oversees all aspects of civil aviation in the United States, including operating the air traffic control system, regulating safety, improving and maintaining infrastructure, administering airport grants, and conducting research and development activities. Outside the United States, many nations have commercialized¹ their air traffic operations and infrastructure via independent air navigation service providers (ANSP). These ANSPs operate with varying degrees of government ownership, but each runs like a business, generating their own revenue streams and making their own decisions regarding operating the air traffic system and modernizing equipment.

The Chairman of the U.S. House of Representatives Committee on Transportation and Infrastructure, as well as the Chairman and Ranking Member of the Subcommittee on Aviation requested that we assess FAA's organizational structure, including whether the structural and organizational reforms implemented by the Agency over the past 2 decades have improved its operational, technological, and cost effectiveness.² They also requested that we examine how FAA's organizational and financing structure compares with other

¹ According to the International Civil Aviation Organization, "commercialization" is the ability of an organization to operate like a commercial business. In discussions about air navigation services, the term is often used interchangeably with other terms, including restructuring, privatization, outsourcing, and corporatization.

² On November 18, 2014, we testified before the House Transportation and Infrastructure Committee on our ongoing work on FAA's progress in achieving productivity efficiencies, cost savings, and improving delivery of modernization projects as a result of its reform efforts. See *Status of FAA's Efforts to Operate and Modernize the National Airspace System* (OIG Project ID CC-2015-001), Nov. 18, 2014. OIG reports are available on our Web site at <http://www.oig.dot.gov/>.

nations' structures. Based on this request, the objective of our audit was to compare the processes used by different countries to deliver air traffic services and implement new technologies. We also identified several factors that the Administration, Congress, and other stakeholders may wish to take into account if considering making future changes to FAA's organizational and financing structures.³

We conducted this review in accordance with generally accepted Government auditing standards. Exhibit A details our scope and methodology.

RESULTS IN BRIEF

The four countries we examined—Canada, the United Kingdom, Germany, and France—have separated their air traffic control functions from their safety oversight and regulatory functions. While safety and regulatory functions remain government-controlled, each nation has commercialized its air traffic control function into an ANSP using various organizational structures. The ANSPs are financially self-supporting and finance their operations primarily through user fees, but also have borrowing authority for modernization and infrastructure projects. The ANSPs also do not embark on large-modernization efforts or conduct extensive aviation research and development. Rather, they implement new technologies incrementally, using a variety of methods, such as purchasing commercial-off-the-shelf technologies. As the Administration, Congress, and other stakeholders examine possible changes to FAA's organizational and financing structures, there are several differences between the U.S. aviation system and other countries' systems to consider, including the size and complexity of the U.S. system and differences in airport funding. Despite these differences, there are several lessons that can be learned from examining other nations' experiences in separating their aviation functions, including issues related to maintaining safety oversight and transitioning to the new organization.

Since the objective of this audit was to do a comparison of the organizations and operations of these countries, we are not making any recommendations.

BACKGROUND

Since 1958, FAA has overseen the safe operation of the busiest and most complex air traffic system in the world. FAA is responsible for overseeing all aspects of civil aviation in the United States, including operating the air traffic control system and regulating safety. FAA's \$16 billion annual budget, which is approved

³ On March 24, 2015, we testified before the House Aviation Subcommittee on how other nations operate, modernize, and finance their air navigation services and infrastructure and to compare these structures to FAA's. See *Foreign Countries' Processes for Operating Air Transportation Systems* (OIG Project ID CC-2015-006), March 24, 2015.

by Congress, is funded by two revenue sources: excise taxes paid by users of the National Airspace System through the Airport and Airway Trust Fund, and the General Fund.

The Agency has gone through several reorganizations, most notably when President Clinton signed an executive order in 2000 ordering the establishment of the Air Traffic Organization (ATO). Beginning operations in 2004, the ATO is still part of FAA and reports to the FAA Administrator but is separate from the Agency's safety, regulatory, and enforcement groups. It is led by a Chief Operating Officer who is responsible for overseeing the day-to-day operation of the National Airspace System, maintaining equipment and facilities, and implementing the Next Generation Air Transportation System (NextGen) and other new technologies.

THERE ARE SIGNIFICANT DIFFERENCES WHEN COMPARING FAA TO OTHER NATIONS' AIR TRANSPORTATION SYSTEMS

There are significant differences between FAA and the foreign ANSPs we reviewed, including their operational and financing structures, as well as their approaches to modernization efforts. Regardless, when examining possible changes to FAA's organizational structure, several factors should be considered, including size and complexity, aviation research and development, and financing.

Foreign Nations' Air Transportation Systems Have Common Operational and Financing Characteristics

The four countries we examined—Canada, the United Kingdom, Germany, and France—have separated their air traffic control functions from their safety oversight and regulatory functions, and commercialized their ANSPs using a range of organizational structures. These structures include a private, not-for-profit, non-share corporation in Canada; a for-profit, public-private partnership in the United Kingdom; a government-owned limited liability company in Germany; and a government agency in France.⁴ (See table 1 below for characteristics of these organizations). While operations have been commercialized, the safety oversight and regulatory functions remain under the control of the respective governments and are separate from the ANSPs.⁵

⁴ For more information on the ANSPs, see exhibit C.

⁵ Under guidelines from the International Civil Aviation Organization, it is the responsibility of individual countries to ensure the safety of their aviation systems.

Table 1. Characteristics of Air Navigation Service Providers

	United States	Canada	United Kingdom	Germany	France
ANSP	ATO	Nav Canada	National Air Traffic Services Ltd. (NATS)	Deutsche Flugsicherung GmbH (DFS)	Direction des Services de la Navigation Aérienne (DSNA)
Type of Ownership	Government Function	Private Non- Share Not-For-Profit Corp.	Public/Private Partnership	Government-Owned Corp.	Government Function
Began Operations	2004	1996	1996 ⁶	1993	2005
Safety Regulator	FAA	Transport Canada	EASA & Civil Aviation Authority (CAA)	EASA & Federal Ministry of Transport and Digital Infrastructure (BMVI)	EASA & Civil Aviation Authority (DGAC)
Financing Structure	Excise Taxes & Appropriations	Air Navigation Charges & Borrowing Authority	Air Navigation Charges & Borrowing Authority	Air Navigation Charges & Borrowing Authority	Air Navigation Charges, Borrowing Authority & Passenger/Freight Tax

Source: OIG analysis

According to officials we spoke to, these countries commercialized their air traffic control functions to address issues such as rising national deficits, operational and cost inefficiencies, the governments' inability to modernize their air transportation systems, and stagnant wage growth for government employees.

While operations have been commercialized, the safety oversight and regulatory functions remain under the control of the respective governments and are separate from the ANSPs.⁷ In Europe, the European Aviation Safety Administration (EASA) regulates and oversees all aspects of aviation safety, and European governments must ensure that operators in their respective countries comply with EASA regulations.

All of the ANSPs we examined are financially self-sustaining and do not receive funding from their governments. With the exception of France, which is subject to spending policies set by the government, similar to FAA, the ANSPs in Canada, the United Kingdom, and Germany have financial autonomy and are free to operate and make financial decisions separate from their governments.

Each of the four countries finances its ANSP primarily through user fees. Users are charged fees for services such as navigation and surveillance activities in high-altitude and terminal airspace environments, communications, and aeronautical

⁶ NATS was originally organized as a government-owned company but transitioned to a public-private partnership in 2001.

⁷ Under guidelines from the International Civil Aviation Organization, it is the responsibility of individual countries to ensure the safety of their aviation systems.

and meteorological information. The rates charged by the ANSPs are based on the cost of providing services to users, capital projects, interest on debt instruments, and other costs. Normally, general aviation users in these countries pay user fees for flying in en-route and terminal airspace. However, small general aviation aircraft that do not fly in controlled airspace either do not pay fees or, in the case of Canada, pay a small annual fee for using the system. In addition to user fees, France charges a tax on passengers and freight and mail that leave the country on commercial flights.

The ANSPs in Canada, Germany, and the United Kingdom also earned revenue from developing and selling aviation technology developed in-house, such as air traffic management systems. However, these sales make up only a small percentage of the ANSPs' annual revenue.

The ANSPs also have the ability to finance their infrastructure and modernization efforts by issuing long-term bonds and other debt instruments, which are backed by the revenues earned by the ANSPs. While the ANSPs in Canada, Germany, and the United Kingdom sell their instruments in the marketplace, the French government issues separate debt instruments earmarked for specific DSNA projects.

Modernization Efforts in Other Countries Are Smaller in Size, and the Countries Use Different Methods To Develop and Implement New Technologies

The four foreign ANSPs we reviewed do not embark on large, comprehensive modernization efforts such as NextGen transformational programs or conduct extensive aviation research and development. Rather, they deploy new technologies incrementally and try to install technology that meets their operational needs.⁸ For example, Nav Canada used a phased-in approach in developing and introducing a new system known as Controller/Pilot Data Link Communications (CPDLC).⁹ Also, in lieu of developing large and multi-year modernization systems and software, three of the four ANSPs modify commercial-off-the-shelf products to meet their operational needs. In addition, all four ANSPs form joint ventures and other partnerships with private companies.

⁸ As we have noted in previous reports, FAA has adopted a segmented approach to its major acquisitions, including its NextGen transformational programs. In contrast to the more incremental approach taken by the foreign ANSPs we reviewed, FAA's approach often mixes production and developmental efforts, and projects are more ambitious and span much longer timeframes with unclear end states. For additional details on FAA's segmented approach see our report on "Status of Transformational Programs and Risks to Achieving NextGen Goals" (OIG Report No. AV-2012-094), April 23, 2012.

⁹ CPDLC is used to supplement voice communication between pilots and controllers and provides benefits such as automating routine tasks and improving safety by reducing workload and communication errors.

Three of the four foreign ANSPs we examined have incorporated new technologies and procedures into the day-to-day operations of their respective systems. This includes technologies such as CPDLC, which controllers in Canada and the United Kingdom use for high-altitude operations, and using systems that incorporate electronic flight strips and other automation capabilities to streamline operations and decrease controller workload.












The United Kingdom, Germany, and France have joined other European countries in a large-scale effort to modernize and improve its air navigation system. Starting in 2004, the European Commission started the Single European Sky (SES) project to restructure Europe's airspace in order to increase its capacity and overall efficiency. The associated modernization program—Single European Sky ATM Research, or SESAR—is similar to NextGen and is a public-private partnership intended to define and develop common aviation technologies for use across Europe. SESAR is a public-private partnership funded equally by the European Union, Eurocontrol, and industry stakeholders (ANSPs, airport operators, and aerospace companies).

Additional Factors To Consider When Examining Possible Changes to FAA'S Organizational Structure

As the Administration, Congress, and other stakeholders examine possible changes to FAA's organizational and financing structures, there are several differences between the U.S. aviation system and other countries to consider. These include:

System Size and Complexity: The United States has the largest and most complex air transportation system in the world. ATO controls more than 2.5 times the airspace of the United Kingdom—the largest airspace of the four ANSPs we examined. The United States also has more operations than all of the foreign ANSPs we examined, and has a larger general aviation community. To manage the U.S. airspace, FAA operates more air traffic facilities and employs more controllers than the foreign ANSPs. (See table 2.)

Table 2. Comparison of Air Navigation Service Providers

	ATO (United States)	NATS (United Kingdom)	NAV CANADA (Canada)	DSNA (France)	DFS (Germany)
Total Airspace¹⁰	75,110,000 km ²	29,180,000 km ²	18,000,000 km ²	1,000,000 km ²	394,000 km ²
					
Annual IFR Movements (2011)	15,539,009	2,106,689 ^a	3,855,947	3,009,230	3,061,000
 = 1,000,000 IFR Movements					
Number of General Aviation Aircraft (2012)	209,034	19,939	35,540	32,410 ^b	21,546
Number of Operational Air Traffic Controllers (2012)	18,001	1,480	1,689	3,964	1,716
Number of Air Traffic Facilities	317	18	49	91	20

^a Data from 2010.

^b Data from 2011.

Source: OIG analysis

- **Capital Budgets:** The capital budgets for ANSPs are significantly smaller than FAA's capital budget. For example, FAA's Facilities and Equipment annual budget is \$2.6 billion, with several projects expected to cost hundreds of millions of dollars to complete. Nav Canada's capital budget is approximately \$120 million annually, and considers a large acquisition to be \$10 million.
- **Airport Funding:** U.S. airports are funded through Federal programs, such as the Airport Improvement Program, and Passenger Facility Charges. However, as with the foreign ANSPs, airports in each of the four countries we examined are generally self-supporting, autonomous entities that do not receive government subsidies. In addition, the foreign ANSPs do not include airport development and maintenance costs in their user fee calculations.

¹⁰ Total airspace includes the oceanic airspace each country is responsible for monitoring.

- **Aviation Research and Development:** FAA conducts a wide range of aviation research in areas such as evaluating and testing NextGen concepts. However, none of the ANSPs we examined conduct the level of aviation research that FAA conducts or operates a technical development complex like FAA's Technical Center in Atlantic City, NJ.

Regardless of these differences, other nations' experiences in separating their aviation function—as well as studies we reviewed—have led to several lessons learned. These include:

- **Safety:** Studies we reviewed, including a recent report commissioned by FAA,¹¹ indicate that separating air navigation and safety/regulatory functions has not impacted safety. However, the FAA-commissioned report noted that if a government is planning to separate its safety oversight organization from an ANSP, it needs to establish a clear division of roles between the safety organization and the ANSP, ensure that a sufficient safety and regulatory workforce is in place, and verify that mechanisms are in place to properly fund the safety organization.
- **Transition Issues:** Officials in the countries we visited noted that they had to resolve several transition issues to commercialize their air navigation functions, including determining which functions to transfer, the timing of the transition, and how the government would conduct safety oversight and work with the newly created entity. There were also transition issues for employees moving to the commercialized entity. For example, Nav Canada and its union officials noted that there were contentious labor-management relations for the first several years after the transition. The initially poor relationship between managers and staff was attributed to a lack of trust, employees adjusting to a new business culture, and rules that prevented salary increases for 3 years.
- **Financial Considerations:** Separating the air traffic function from FAA would require resolving several financial issues, including determining which assets would be transferred to the new air traffic entity, such as air traffic facilities and equipment, the value of those assets and the air traffic system, and which entity would be responsible for disposing of old and obsolete assets. Properly valuating the air traffic control system and the associated assets will be important. According to the Auditor General of Canada, Transport Canada did not properly estimate the value of its air navigation system before transferring over to Nav Canada. This resulted in the government receiving significantly less for the system than estimated by the Department's financial advisors.¹²

¹¹ *CAA International Structures*, MITRE Corporation, October 2014.

¹² *Transport Canada – The Commercialization of the Air Navigation System*, Office of the Auditor General of Canada, October 1, 1997.

CONCLUSION

The unique organizational and financing systems implemented by other countries demonstrate that there are different ways to structure and operate a nation's air traffic control system. Should the Administration, Congress, and aviation stakeholders move forward to consider different approaches regarding the organization, structure, and financing of our nation's air traffic control system, there are several significant policy questions that would influence decisions, given the unique characteristics of the U.S. system. But above all, safety must continue to be the United States' number one priority in overseeing our National Airspace System. Regardless of FAA's organizational structure, a strong and fully funded safety and regulatory agency remains critical to keeping our nation's transportation system one of the safest in the world.

AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

We provided FAA with our draft report on July 9, 2015, and received its response on August 10, 2015, which is included as an appendix to this report. In its response, FAA agreed with our overall conclusion but indicated that additional analyses, such as comparing the size, complexity, and cost aspects of the ANSPs, should be considered. Our report, prepared in response to a Congressional request, provides factual information regarding the processes used by different countries to deliver air traffic services and implement new technologies. Moving forward, FAA has an opportunity to produce additional analyses regarding the differences between the various systems, as well as other information that will assist Congress with the reauthorization process. Since our report does not include recommendations, no additional actions are required.

We appreciate the courtesies and cooperation of FAA representatives during this audit. If you have any questions concerning this report, please contact me at (202) 366-0500 or Bob Romich, Program Director, at (202) 366-6478.

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cc: FAA Audit Liaison, AAE-100
DOT Audit Liaison, M-1

EXHIBIT A. SCOPE AND METHODOLOGY

We conducted our work from January 2014 through July 2015 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. The objective of our audit was to compare the processes used by different countries to deliver air traffic services and implement new technologies.

For this report, we examined the air transportation systems of Canada, the United Kingdom, Germany, and France. These countries' were chosen based on their diverse organizational models, air traffic levels, system maturity, and other factors that were similar to this nation's system. We also consulted with FAA and international officials and industry experts. They indicated that the four countries were comparable to this nation's system based on the factors cited above.

To achieve the audit objective, we reviewed the organizational and financing structures of the four countries by analyzing documents and background materials obtained from government and industry sources, as well as the ANSPs. We met with FAA and international government officials, representatives from the other countries' ANSPs, representatives from international aviation organizations, and industry officials to discuss how these countries' systems are organized and financed, how new technologies are developed and delivered, the relationship between the ANSPs and their respected government regulators, and related issues, such as transition and workforce issues. Also, we made site visits to foreign ANSPs' corporate headquarters, airport towers and radar facilities, technology development centers, and training facilities to gain a better understanding of how the foreign ANSPs operate their respective countries' air navigation systems. Finally, we visited FAA's William J. Hughes Technical Center in Atlantic City, New Jersey to gain an understanding of the roles and responsibilities of the Center, and how they compare to other countries' aviation research and development activities.

EXHIBIT B. ORGANIZATIONS VISITED OR CONTACTED

FAA Organizations

- Office of International Affairs
- Air Navigation Commission, ANC Alternate U.S. Representative on the Council of the International Civil Aviation Organization (ICAO)
- William J. Hughes Technical Center in Atlantic City, New Jersey

Air Navigation Service Providers (ANSP)

- Canada – NAV Canada
- France – Direction des Services de la Navigation Aérienne (DSNA)
- Germany – Deutsche Flugsicherung GmbH (DFS)
- United Kingdom – National Air Traffic Services (NATS)

Foreign Governments

- France – Ministry of Ecology, Sustainable Development and Energy, French Civil Aviation Authority
- Germany – Federal Supervisory Authority for Air Navigation Services
- United Kingdom – Civil Aviation Authority

Foreign Organizations

- Delegation of the European Union to the United States
- European Aviation Safety Agency (EASA)
- Eurocontrol
- SESAR Joint Undertaking
- International Civil Aviation Organization (ICAO)

Industry Associations

- Civil Air Navigation Services Organization (CANSO)
- National Air Traffic Controllers Association (NATCA)
- International Federation of Air Traffic Controllers Association (IFATCA)
- Airlines for America (A4A)
- National Business Aviation Association (NBAA)
- Aircraft Owners and Pilots Association (AOPA)
- Business Roundtable
- American Association of Airport Executives (AAAE)
- Airports Council International, North America (ACI-North America)
- International Air Transport Association (IATA)
- MITRE

EXHIBIT C. ADDITIONAL INFORMATION REGARDING FOREIGN AIR NAVIGATION SERVICE PROVIDERS (ANSP)

Canada: Nav Canada is a private, non-profit, non-share corporation whose sole mission is to facilitate the safe movement of aircraft efficiently and cost-effectively through Canada's air traffic system. Beginning operations in 1996, the company is overseen by a 15-member Board of Directors comprised of representatives from airlines, general aviation, unions, and government. Except for its position on the board, the Canadian government does not have a direct role in the day-to-day operations of the company or management of the civil air traffic system.

United Kingdom: The main ANSP, National Air Traffic Services (NATS), was created in 1994 as a government-owned company and was converted to a for-profit, public-private partnership in 2001. The company received a 30-year license from the government to provide en-route air traffic services, but must compete with other ANSPs to provide air traffic services at the nation's airports. While the government is the company's largest shareholder (49 percent), it only receives dividends and does not involve itself in the day-to-day operations of the company or the civil air traffic system.

Germany: Deutsche Flugsicherung GmbH (DFS) was split from direct government control in 1993 and is a government-owned limited liability company. DFS provides services at 4 radar control facilities and at 16 national airports, while German states are responsible for obtaining services at other airports. DFS is run by a Board of Directors that is split evenly between the Government and employees. In 2004, the German government attempted to reorganize DFS into a public-private company by selling 75 percent of its shares to private investors. However, because the German constitution requires the operation of the air traffic system be carried out by the State, the privatization process was stopped in 2006.

France: The Direction des Services de la Navigation Aérienne (DSNA) is a government agency within the Ministry of Ecology, Sustainable Development, and Energy. Originally part of a single government organization, functional separation occurred between DSNA and the country's safety oversight group in 2005 when the government established the service provider under a separate directorate.

EXHIBIT D. MAJOR CONTRIBUTORS TO THIS REPORT

Name	Title
Robert Romich	Program Director
Terrence Letko	Senior Technical Advisor
Frank Danielski	Project Manager
Tasha Thomas	Project Manager
Craig Owens	Senior Analyst
My Phuong Le	Senior Analyst
Aaron Malinoff	Senior Analyst
Michael Broadus	Analyst
Mi Hwa Button	Analyst
Audre Azuolas	Writer-Editor




Federal Aviation Administration

Memorandum

Date: August 10, 2015

To: Matthew E. Hampton, Assistant Inspector General for Aviation Audits

From: H. Clayton Foushee, Director, Office of Audit and Evaluation, AAE-1 

Subject: Federal Aviation Administration's (FAA) Response to Office of Inspector General (OIG) Draft Report: Significant Differences exist between the United States' and Foreign Countries' Processes for Operating Air Navigation Systems

This draft report compares the air navigation service provider (ANSP) structures of four other countries with the FAA and primarily addresses the differences. It also presents lessons learned as a result of separating the ANSPs from the safety oversight organizations in other countries. The FAA believes that the final report would benefit from additional analyses highlighting differences in the magnitude and complexity of the National Airspace System (NAS) with the other ANSP structures examined by the OIG. A more thorough examination of issues other countries have experienced with labor contracts and negotiations, as well as comparative cost analyses would also provide valuable information for consideration by policy makers.

The draft report concludes that the ANSP structure in France is more similar to Germany, the United Kingdom (U.K.), and Canada. However, a MITRE study of various civil aviation authorities (CAA), which the report references, states that, "the regulation, safety oversight, and provision of air navigation services in France is similar to the United States. It also notes that the French structure is "most similar to US FAA and FAA's ATO."¹³ The primary difference between the French CAA and the FAA is that France charges user fees.

Moreover, the addition of the Single European Sky ATM Research (SESAR) deployment organizational structure by the European Union will also fundamentally change the implied simplicity of the U.K., French, and German organizational and funding structures. Thus, the Agency believes that the draft OIG findings could be subject to misinterpretation because the draft does not address imminent changes in the structures of European ANSPs.

The FAA agrees with the draft report's conclusion that "there are several significant policy questions which would influence decisions, given the unique characteristics of the U.S. system" and that "safety must continue to be the United States number one priority in overseeing our National Airspace System." As part of the currently on-going FAA Reauthorization process,

¹³ MITRE Report, CAA International Structures, October 2014, Appendix E, E-1 and Table 1 (page 3).

there has been much discussion of alternative models for the conduct of the FAA's current mission by stakeholders and in Congress. Changes to the current organizational structure must ensure accountability of the NAS to the users and be mindful of the critical linkages between safety, NextGen implementation and operation, airport infrastructure, as well as other current FAA functions. Any alternative organizational model must also ensure budget stability.

While the report makes no specific recommendations, the FAA also notes that:

- The report implies that the Chief Operating Officer of the ATO is responsible for NextGen. However, responsibility for implementing NextGen is vested with the Deputy Administrator of the FAA, who is also its Chief NextGen Officer.
- France is specifically mentioned as charging taxes on passengers in addition to user fees. While this is factually correct, Germany and the U.K. also levy taxes on passengers in addition to user fees.
- The data on instrument flight rule (IFR) movements in the comparison may be factual but underestimates the significant workload differences. Average distances flown through U.S. airspace are at least 2.5 times longer than those in France and Germany. The FAA controls 60% more IFR flights than all 40 Eurocontrol ANSPs combined.
- The number of FAA facilities appears to exclude the 252 Federal Contract Towers. This underestimates the magnitude of differences between the FAA and the other countries studied.
- In the SESAR Deployment Program, the three major ANSPs in the U.K., France and Germany will receive matching capital funds for approved SESAR investments, and each has received matching funds for SESAR research. It is not accurate to imply that the three European countries studied are not receiving outside investment beyond what is collected from user fees.

Please contact H. Clayton Foushee at (202) 267-9000 if you have any questions or required additional information about these comments.