

COMMERCIAL AIRLINE SAFETY OVERSIGHT

HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION OPERATIONS,
SAFETY, AND SECURITY

OF THE

COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

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MARCH 20, 2012
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ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

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COMMERCIAL AIRLINE SAFETY OVERSIGHT

TUESDAY, MARCH 20, 2012

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

The Committee met, pursuant to notice, at 2:45 p.m. in room SR-253, Russell Senate Office Building, Hon. Maria Cantwell, Chairman of the Subcommittee, presiding.

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

Senator CANTWELL. Good afternoon. The Senate Committee on Commerce, Science, and Transportation Aviation Operations and Safety Subcommittee will come to order. I thank the witnesses for being here today for our hearing on “Commercial Airline Safety Oversight.” And I thank the witnesses for their testimony and my colleagues for attending this hearing.

I want to welcome my fellow members of the Committee, the witnesses, and the families of the victims of Colgan Air Flight 3407. Your steadfast efforts in the face of tragedy have led to safety improvements that would not have happened otherwise. And thank you for your advocacy on behalf of all the flying public.

The Federal Aviation Administration’s continued mission is to provide the safest and most efficient air space system in the world. And, by and large, our air transportation does maintain a very high level of safety day in and day out.

The National Safety Transportation Board conducted an examination of U.S. civil aviation accidents involving commercial passenger and cargo carriers from 2000 through 2009, and this study shows that there is a drop in the accident rate when measured by the departures and numbers of flight hours. That’s the good news for the American traveling public. And this is a credit to all the hard work put in by the FAA, airlines, airline manufacturers, and other stakeholders.

Nevertheless, we cannot rest. We must maintain constant vigilance and make sure that ongoing system improvements are made, and we need to know all of the potential mishaps that could happen.

Take the year 2009. The five fatal accidents involving commercial aircraft included three nonscheduled international cargo flights and one nonscheduled domestic business jet flight and one sched-

uled domestic passenger flight, the Colgan Air crash in Buffalo, New York, in which 50 lives were lost.

There has not been a domestic commercial airline crash since. These results are a tribute to the incredibly hard work of, as I said, the airline industry and FAA employees focusing on safety. But that doesn't mean that things are working perfectly. We need to continue our efforts.

First, we need to understand the root cause of the accident. And getting to the root cause of the Colgan Air crash is just what this committee did over the course of a dozen hearings that this subcommittee held in the last Congress. And I appreciate the steadfast work of my colleagues, Senator Chuck Schumer and Senator Kirsten Gillibrand, in advocating for the families of the Colgan Air tragedy.

Pilot experience and training proved to be a critical issue, and pilot and crew fatigue was of equal concern. We learned about unimaginable long pilot and crew commutes to work. And the co-pilot of the Colgan Air Flight 3407 had a commute of over 2,000 miles from Seattle to Newark. So compensation levels for less experienced pilots and crew is not the only reason for long commutes, but it is far too common a reason.

There was also much discussion regarding the consistency of safety practices between regional and large network airlines. And at a fundamental level, the hearing made question of whether regional carriers were effectively being used in their efforts to make sure that the level of safety was being provided. I find it very difficult to tell if one of the safety levels is more important than a policy of making sure that the airline giving the actual name to the regional carrier—whether they were meeting the same standards as the large carrier.

Not surprisingly, company culture makes a huge difference in how safety is approached. As with all the industries, there is a range of approaches to safety standards from topnotch to marginally compliant. And we took particular notice of regional carriers, because over half of all domestic departures and about one-quarter of all passengers in the U.S. were on these regional carriers. And at this time, many passengers did not know what airline they were flying when they actually booked their ticket. They do now.

Given the current financial state of several regional carriers that fly for network airlines, I think that the FAA needs to keep a very close eye to make sure that the safety and commitment remains on par. This committee, working with Senator Schumer and the House Transportation and Infrastructure Committee, led the effort to pass the Airline Safety and Federal Aviation Administration Act of 2010.

This legislation made a number of improvements to airline safety and pilot training. Last December, the final rules were issued for flight and duty times for pilots and crew and proposed rules for pilot certification qualifications. There are several other key rulemakings in various stages that are still making their way through the agency.

The purpose of today's hearing is to examine commercial aviation safety since the Colgan Air crash and the progress that has been made by the FAA and the industry collectively and to hear from

the public about these issues. In short, the hearing is to keep American travelers safe and to make sure that we have the best practices in our air transportation system.

The Committee is very interested in learning the impacts of the 2010 law. And we also want to understand whether the resulting rulemakings were implemented consistently with what Congress intended. Additionally, we would like to know if there are any issues that remain unaddressed either in the 2010 law that requires the FAA rules or in recent enactment of the FAA authorization bill.

So I look forward to hearing from our witnesses. And I think with the prerogative of the Chair here—because have such a short hearing time before votes—I'm going to just go ahead and forego any opening statements by members and go right to our witnesses.

So we'll start with you, Ms. Gilligan. Thank you so much for being here. If you could turn on your button and speak right into the microphone, and if you could keep your statements short and provide the full written testimony, we would so appreciate it.

Thank you.

**STATEMENT OF MARGARET GILLIGAN,
ASSOCIATE ADMINISTRATOR FOR AVIATION SAFETY,
FEDERAL AVIATION ADMINISTRATION**

Ms. GILLIGAN. Thank you, Senator Cantwell, and thank you, members of the Subcommittee, for inviting me here today to provide you with an update of FAA's progress in implementing the initiatives in the Airline Safety and Federal Aviation Administration Extension Act of 2010. Given that the third anniversary of the tragic Colgan accident just passed last month, this gathering is particularly timely.

The provisions of the Act presented a number of challenges for the FAA. Despite these challenges, in the 20 months since the passage of the Act, we have convened five aviation rulemaking committees, issued three notices of proposed rulemaking, one supplemental notice of proposed rulemaking, and one final rule. We've conducted two studies and drafted seven reports to Congress on our efforts to implement the initiatives in the Act.

Although we have not met all the deadlines anticipated by Congress, we've made significant progress in several areas. This is due in large part to the dedication of over 70 safety professionals who have been working tirelessly on these initiatives, while at the same time allowing their counterparts to continue to meet our daily safety oversight responsibilities.

I'm happy to report, Senator, as you noted, that on December 21, Secretary LaHood and Acting Administrator Huerta announced the publication of the final rule for new pilot flight duty and rest requirements for passenger airline pilots. The new rule capitalizes on advances in fatigue science to provide the necessary protections for pilots to be fully rested and alert when reporting for duty.

Air carriers will now be required to consider the time of day a pilot accepts an assignment, the number of flight segments scheduled, and the number of time zones crossed to determine how long a pilot can remain on duty without a rest period. The final rule also recognizes that pilots have a responsibility in their off-time to

use rest periods for their actual intent, to rest. We expect pilots to manage their off-duty rest to report ready for work, and we require them to certify they are fit before each flight. We expect air carriers to support pilots who report if they are not fit and not assign them duty.

We've also made progress on safety management systems. We issued this proposed rule on October 29, 2010, and are working to meet the August 2012 deadline set by Congress for the final rule. We and the industry recognize that safety management systems provide an approach to safety that allows for trend spotting and early identification of possible safety problems, and we are committed to completing that initiative.

On February 29, 2012, we published a proposal to raise the qualification requirements for first officers. The proposal would require first officers to hold an Airline Transport Pilot certificate and require 1,500 hours of pilot flight time. Consistent with congressional direction, the proposal also considers allowing pilots with fewer than 1,500 hours of flight time to apply for an Airline Transport Pilot certificate with restricted privileges based on education or military flying experience. The comment period closes on this proposal April 30, and we look forward to reviewing the comments and completing the final rule.

To improve training requirements for pilots, just one month before the Colgan accident, FAA had published a comprehensive new proposal. We received over 3,000 pages of comments in response to that proposal. Following the accident, the National Transportation Safety Board issued several recommendations related to training, and the 2010 Act mandated additional training requirements that had not been addressed in our original proposal.

To address the requirements in the Act, the NTSB recommendations, and the comments we had received, we issued a supplemental proposal in May 2011. The comment period closed in September 2011, and we are reviewing the comments to develop a final rule that addresses all of the training initiatives.

And, finally, in September 2010, we established an aviation rule-making committee to provide recommendations on leadership training and professional development for pilots. We have drafted a proposal which is in executive review while we work to balance regulatory burdens and costs.

All of these rulemakings are very complex, and it is true we did not meet some of the deadlines Congress anticipated. The rule-making process is by intention a deliberative one and by definition can take quite a bit of time. Even in instances where the FAA has been directed by Congress to issue a final rule, we are still required to meet the other statutory requirements, including the Administrative Procedures Act.

We are also required to ensure the benefits resulting from the rule justify the costs, because as many in Congress have acknowledged, we have to be aware that new rules may add new costs. This has presented quite a challenge for many of the rulemakings that I've outlined for you today.

Chairman Cantwell and members of the Subcommittee, this concludes my prepared remarks, and I'll be happy to answer any questions you might have.

[The prepared statement of Ms. Gilligan follows:]

PREPARED STATEMENT OF MARGARET GILLIGAN, ASSOCIATE ADMINISTRATOR FOR
AVIATION SAFETY, FEDERAL AVIATION ADMINISTRATION

Chairman Cantwell, Senator Thune, Members of the Subcommittee:

Thank you for inviting me here today to update the Subcommittee on the Federal Aviation Administration's (FAA's) progress in implementing the safety enhancement initiatives in the Airline Safety and Federal Aviation Administration Act of 2010. Just last month, we remembered the third anniversary of the tragic accident of Continental Flight 3407. Over the past three years, the aviation industry, as with many other industries, has faced some tough economic challenges. During this period, we have remained vigilant in our oversight responsibilities to ensure that we continue to have the safest aviation system in the world, while also advancing aviation for the future. The provisions in the 2010 Act helped facilitate several of these major advancements, such as new flight, duty and rest requirements for pilots, and issuing a proposal to require air carriers to implement safety management systems. Although some of the provisions have taken longer than Congress anticipated under the provisions of the Act, we have made significant strides in accomplishing many of the objectives and I am here today to outline this progress for you.

Pilot Flight, Duty, and Rest Requirements

In 2009, the Department of Transportation identified the issue of pilot fatigue as a top priority in the Safety Call to Action following the accident of Flight 3407. The FAA launched an aggressive effort to create a new pilot flight, duty and rest proposal, which we issued in September 2010. On December 21, 2011, Secretary LaHood and Acting Administrator Huerta announced the completion of the final rule. This new rule provides the necessary protections for passenger airline pilots, allowing for responsible pilots to be fully rested and alert when reporting for duty, which is what the traveling public expects when they board an airplane. Using the latest fatigue science, the rule addresses cumulative fatigue and how flight schedules affect the body's 24-hour clock in calculating appropriate duty periods for pilots, providing pilots a greater opportunity for rest. Factors such as the time of day a pilot takes his or her first flight, the number of scheduled flight segments, and the number of time zones crossed, will now all be considered when determining how long a pilot can remain on duty without a rest period.

This rule also expands the definition of a flight duty period to include more than just flying the airplane. Flight duty periods are now more comprehensive, and include flight-related activities such as time spent in training in an aircraft simulator, and standing by on-call for flights at an airport. These duties are part of the workday, contribute to fatigue, and must be counted as part of the core job of flying the airplane. The rule also provides for a 10-hour minimum rest period before a flight duty period, which is two hours more than required under the old flight and duty time provisions. We have also addressed cumulative fatigue by placing weekly and 28-day limits on a pilot's schedule.

This rule provides the necessary flexibility to use fatigue science as it progresses to combat fatigue. Air carriers will be allowed to develop a fatigue risk management system, which provides an opportunity to create an alternative model for combatting fatigue by incorporating the latest innovations in mitigating fatigue.

This final rule also establishes new fitness for duty requirements that serve as a reminder to both airlines and pilots of their professional responsibilities to ensure that rest periods are used appropriately and that pilots arrive at the start of an assignment alert and ready for work. In establishing these requirements, we took into account that off-duty activities do have an impact on fatigue for pilots, regardless of the type of activity, such as playing golf or commuting to work. We expect pilots to manage their off-duty rest to ensure they report ready for work. We expect the air carriers to support pilots who self-report fatigued and not assign them to duty.

Due to the complexity of the rule, completing this rulemaking effort took longer than expected. As many in Congress have noted, new rules may add new costs. As with discretionary rules, in instances where the FAA has been directed by Congress to issue a final rule, we are still required to do so in a manner in which the benefits resulting from the rule justify the costs. In evaluating this rule under this requirement, it became clear that applying this rule to cargo operators was not clearly justified compared to the benefits generated for this segment of the industry. The final rule does allow cargo operators to voluntarily adopt provisions of the rule, and some of these operators are already improving rest facilities for pilots. We have encour-

aged, and continue to encourage cargo carriers to continue improving their rest and fatigue related policies.

Safety Management Systems

The 2010 Act required the FAA to issue a proposal to require air carriers to develop and implement a safety management system (SMS) within 90 days of the Act's enactment. The FAA met this statutory deadline and issued the proposal on October 29, 2010. It was published in the Federal Register on November 5, 2010 and the comment period closed March 7, 2011. As proposed, the SMS rule would give air carriers a set of business processes and management tools to examine data from everyday operations, isolate trends that may be precursors to incidents or accidents, and develop and carry out appropriate risk mitigation strategies. The FAA and industry recognize SMS as a holistic approach to safety that allows for trend spotting to help identify possible safety problems and correct them before they lead to accidents or incidents. In the proposal, the FAA described what an acceptable SMS might look like, not how the SMS requirements would be met. This allows air carriers to develop and implement an SMS that best matches the size and complexity of their own unique operating environments. SMS is not a substitute, however, for FAA oversight, inspection, and audits of air carriers to ensure compliance with existing regulations.

Pilot Qualification Standards

On February 29, 2012, we published a proposal that would substantially raise the qualification requirements for first officers (sometimes referred to as "co-pilots") who fly for U.S. passenger and cargo airlines, consistent with the mandate in the 2010 Act. The proposed rule would require first officers to hold an Airline Transport Pilot (ATP) certificate, requiring 1,500 hours of pilot flight time. Currently, these pilots are required to have a commercial pilot certificate, which requires only 250 hours of flight time. Some other highlights of the proposed rule include requiring pilots to have a minimum of 1,000 flight hours as a pilot in air carrier operations that require an ATP prior to serving as a captain for a U.S. airline; enhanced training requirements for an ATP certificate, including 50 hours of multi-engine flight experience; and completion of a new FAA-approved training program.

In the 2010 Act, Congress clearly acknowledged that the measurement of experience in determining when an individual may be ready to serve is not limited solely to the number of hours flown. Rather, education and other commercial flying experience must also be considered. Consistent with the requirements of the 2010 Act, this proposal also allows pilots with fewer than 1,500 hours of flight time to apply for an ATP certificate with restricted privileges. As proposed, this certificate would only be issued to graduates of a four-year baccalaureate aviation degree program with 1,000 hours of flight time, provided they have obtained a commercial pilot certificate and instrument rating from a pilot school affiliated with the university or college. Former military pilots with 750 hours of flight time may also qualify for this restricted ATP certificate. In both cases, pilots with this restricted certificate would only be able to serve as first officers for U.S. airlines. They could not use it to serve as a captain in any commercial flying operation that requires an ATP, nor use it to teach other pilots. Pilots seeking a restricted ATP would be tested to the same standard required for full ATP certificates, and they would be required to have the equivalent minimum instrument time and night time flight hours as a full ATP certificate would require. The comment period for this proposed rulemaking closes April 30, 2012, and we will work diligently to develop a final rule that addresses the safety initiatives required in the 2010 Act.

Crewmember Training Requirements

In January 2009, one month prior to the Continental Flight 3407 accident, the FAA published a proposal to enhance training programs by requiring the use of simulation devices by pilots. The FAA received over 3,000 pages of comments in response to this proposal. Following the accident, the National Transportation Safety Board issued several recommendations related to training requirements for air carrier pilots. And the 2010 Act mandated some additional training requirements as well. In order to fully consider the comments, address many of the NTSB's recommendations resulting from the accident of Flight 3407, and incorporate the mandates of the Act, the FAA issued a supplemental proposal to permit interested parties to comment on the new requirements. The supplemental proposal was issued on May 20, 2011 and the comment period closed on September 19, 2011. The FAA is actively reviewing the comments to develop a final rule that addresses these training enhancements.

In addition to this rulemaking, in 2011, the FAA established the Stick Pusher and Adverse Weather (SPAW) Aviation Rulemaking Committee to examine upset pre-

vention and recovery training and provide recommendations to address stick pusher and adverse weather events.

Mentoring and Professionalism

The FAA recognizes the need to continuously improve professional standards to improve flightdeck discipline. On September 15, 2010, the FAA established an Aviation Rulemaking Committee to develop recommendations on appropriate leadership training and professional development requirements for pilots. That group of experts delivered its recommendations in November 2010, and the FAA has considered them in developing a rule to address the mentoring mandate in the 2010 Act. We have not met the statutory deadline for this proposal because we are evaluating how this effort aligns with existing rulemaking projects. We aim to find a set of proposals that appropriately balances effectiveness and resulting benefits, with regulatory burden and cost.

These rulemakings are very complicated, and in some cases, very expensive. As these rules progress, we are constantly evaluating how these provisions may best be leveraged to improve safety, while ensuring that the aggregate costs to society are not greater than these benefits as we are required to do.

We remain committed to aggressively addressing these safety enhancements while continuing with our daily oversight obligations. In the time since the passage of the 2010 Act, approximately 1.3 billion passengers have travelled on U.S. commercial airlines without a single fatality. At the same time, the FAA has overseen the safe management of the merger of 8 airlines, resulting in 4 new entities—each larger and more complex than ever before. While these mergers had a significant impact on FAA resources, they were handled efficiently and in a manner that ensure continued compliance with regulations and safe operating practices. We have also approved and assisted in implementing the use of new technologies to support NextGen—making operations safer and more efficient. And every day our dedicated safety workforce performed inspections, analyzed data, spotted areas for improvement and worked with air carriers to enhance aviation safety.

Our success in advancing these safety enhancements, while continuing to manage our daily safety oversight responsibilities and plan for the future, is due in large part to the dedication of safety-minded aviation professionals in all parts of our industry, including the FAA's inspector workforce.

In conclusion, we believe that the collective efforts of FAA, the airlines, labor unions and, of course, Congress, will continue to result in ensuring the safety enhancements identified in the 2010 Act are addressed. Safety is at the core of the FAA's mission, and we will always strive to make a safe system safer.

Chairman Cantwell, Senator Thune, members of the Subcommittee, this concludes my prepared remarks. I would be happy to answer any questions that you might have.

Senator CANTWELL. Thank you, Ms. Gilligan.

We'll now hear from the Honorable Calvin Scovel, who is the Inspector General for the U.S. Department of Transportation.

Thank you.

STATEMENT OF HON. CALVIN L. SCOVEL III, INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION

Mr. SCOVEL. Madam Chairman, members of the Subcommittee, thank you for inviting me to testify at this important hearing on airline safety.

As you know, Congress and FAA took swift action following the 2009 Colgan Air crash to improve pilot performance and enhance air carrier safety programs. These actions culminated with the passage of the Airline Safety and FAA Extension Act which is proving to be an important catalyst for change.

Today, I will focus on FAA's progress in responding to the Act and the challenges it faces in implementing certain provisions. I will also discuss several concerns related to achieving the full measure of safety enhancements intended by the Act.

FAA has made noteworthy progress. Early this year, FAA issued a final rule on crew rest requirements, a major achievement given

that the regulations had not been updated since 1985. To its credit, FAA based the new regulations on scientific factors, such as the number of flight segments flown and the number of time zones crossed.

FAA has also devised a plan to help air carriers implement voluntary safety programs. Our analysis shows a steady rise in the use of these programs. Seventy percent of Part 121 air carriers have at least one program, up from 59 percent 2 years ago. FAA is also close to issuing a rule on safety management systems which allow operators to examine day-to-day operations, isolate trends in data that may indicate danger, and put in place risk mitigation strategies.

Despite these advancements, FAA has been challenged to implement key measures related to pilot proficiency and professionalism and to a new centralized pilot records data base. FAA's final rule on pilot training is almost 6 months overdue. This is due in part to industry opposition, which prompted FAA to issue a second proposed rule last May. The proposed rule now requires more thorough training for pilots to recognize and recover from stalls.

FAA is nearly 8 months overdue in issuing a proposed rule for improving pilot performance, a longstanding safety concern. Our audits have found that poor decisionmaking, inadequate aircraft control, improper flying techniques, and a disregard for operating procedures are high-ranking causal factors in airline accidents, a finding consistent with NTSB's review of the Colgan accident.

While FAA focused on advancing pilot mentoring as part of its 2009 call to action, since then it has not released a detailed plan for implementing these programs. Seven of nine carriers we recently visited did not have formal mentoring programs and none had professional development programs. Industry officials have expressed concern that potential pilot turnover could outweigh the benefits of establishing these programs.

FAA does not expect to issue its final rule on enhanced pilot qualifications until August 2013, a year after the mandated deadline. The proposed rule issued in February calls for a substantial increase in pilot flight hours. Air carrier representatives are concerned that the new requirements for first officers do not gauge the quality of flying experience and that entry-level pilots will have difficulty meeting the new requirements.

Beyond implementing the final rule, FAA will need to ensure carriers are ready to transition to the new requirements. This is important, because at the two carriers we recently visited, 75 percent of current first officers did not have the advanced certificate.

FAA must overcome three primary challenges to develop a robust and secure pilot record database that carriers can use when hiring pilots. First, FAA must determine what level of detail from pilot records the database should include. Capturing and standardizing historical pilot training records will also be difficult.

Second, FAA must determine how to transition from current recordkeeping practices to the new database without disrupting the flow of information. Third, FAA must address data reliability concerns related to pilot information obtained from the National Driver Register.

To fully implement the provisions of the Act, FAA will ultimately need to work more effectively with its field offices and the airline industry. Poor communication and outreach have stalled FAA's efforts to implement some safety initiatives. None of the nine FAA field offices we visited during our ongoing review were informed of the agency's progress in developing mentoring and leadership programs for pilots. Early outreach to field offices on the status of selected rulemakings and best practices would, we believe, better position carriers to implement new programs when rules are finalized.

Helping small carriers establish voluntary safety programs is also critical to ensure the Act's provisions are fully implemented. However, FAA has yet to fully execute a plan to provide small carriers with best practices and guidance for these programs.

Finally, FAA must address issues related to pilot commuting, a factor that may significantly contribute to fatigue. NTSB's investigation into the Colgan crash revealed that the two pilots had commuted hundreds of miles before that flight and NTSB found that both pilots' performance was likely impaired because of fatigue.

In its report, NTSB stated that operators have a responsibility to identify commuting risks, implement strategies to mitigate those risks, and ensure commuting pilots are fit for duty. Although FAA considered mandating preflight rest periods for commuting pilots, it concluded that such a requirement would be difficult to enforce and would not guarantee responsible commuting.

Last September, we recommended that FAA collect and analyze commuting data for all Part 121 flight crews and determine if additional actions are needed. FAA has committed to addressing our recommendation by October of this year. Despite delays and the many challenges FAA faces in responding to the Act, we are encouraged by its progress and will continue to monitor its efforts to meet remaining requirements.

That concludes my statement, Madam Chairman. I'd be happy to answer any questions that you, or members of the Subcommittee may have.

[The prepared statement of Mr. Scovel follows:]

PREPARED STATEMENT OF HON. CALVIN L. SCOVEL III, INSPECTOR GENERAL,
U.S. DEPARTMENT OF TRANSPORTATION

Madam Chairman and Members of the Subcommittee:

Thank you for inviting me here today to testify on the Federal Aviation Administration's (FAA) progress in implementing advanced standards for pilot training and new safety measures for air carriers. As you know, following the 2009 Colgan Air crash, Congress and FAA took swift action to implement measures for improving pilot training and qualifications programs, reducing flight crew fatigue, and ensuring operators meet safety standards. These efforts culminated with the August 2010 passage of the Airline Safety and FAA Extension Act,¹ which contains new requirements to enhance safety in these areas. Effective implementation of these requirements should go a long way in improving safety in commercial airline travel.

Prior to passing the Act, this Subcommittee, as well as the House Committee on Transportation and Infrastructure, requested that we review FAA and industry efforts to enforce new Federal regulations for flight crew rest requirements and address fatigue issues and airline pilot training program weaknesses. Since we began

¹ Airline Safety and Federal Aviation Administration Extension Act of 2010, Pub. L. No. 111-216, August 1, 2010.

our work in 2009, we have issued three reports.² Our testimony today is based on those reports as well as our ongoing work regarding implementation of the Act. Today, I will focus on: (1) FAA's progress in responding to provisions of the Act, (2) the challenges FAA faces in implementing certain provisions, and (3) concerns related to achieving the full measure of safety enhancements intended by the Act.

In Summary

FAA has met or is on schedule to meet many of the Act's requirements, such as improving pilot rest requirements and establishing better processes for managing safety risks. However, FAA has not met timelines for raising pilot training standards, implementing mentoring programs, providing enhanced leadership skills to captains, and increasing minimum pilot qualifications. FAA also faces challenges in establishing a pilot records database—an important component for enhancing the air carrier screening process for pilot applicants. In addition to overcoming these challenges, FAA needs to provide additional guidance and assistance to industry—especially smaller carriers—in developing and managing new safety programs.

Background

The 2010 Act included 16 provisions to improve airline safety and pilot training with milestones spread over a 3-year period. The Act called for advanced standards for pilots, including required rulemaking activities for training programs, crew-member screening and qualifications, and new fatigue regulations to improve passenger safety. These rulemaking activities are complex, and some have encountered significant air carrier opposition. In addition to notice and comment periods required by law, FAA must conduct detailed analyses of each rule's likely effects and coordinate with stakeholders. The Act also included several important initiatives that FAA did not complete during its Call to Action on Airline Safety,³ such as developing mentoring and professional programs for pilots and following up with air carriers on efforts to adopt voluntary safety programs. In addition, the Act requires FAA to establish a pilot records database that air carriers must access to review qualifications and past performance data before hiring pilots. (See exhibit for further detail and current status of FAA's efforts in each section of the Act.)

FAA Met Act Requirements to Address Pilot Fatigue and Advanced Some Safety Initiatives at Air Carriers

FAA developed a concerted strategy to meet the Act's stringent timelines and implement new safety programs, including issuing a final rule on crew rest and fatigue, increasing air carrier use of voluntary safety programs, and advancing Safety Management Systems (SMS).

FAA Overhauled Flight and Duty Time Regulations

In January 2012, FAA updated its flight and duty time regulations for Part 121⁴ air carrier pilots to better ensure pilots are rested when they fly. This is a significant achievement for the Agency given that these updates were the first modifications to the regulations since 1985 and that the proposed rule received over 8,000 comments from the aviation industry, mostly opposing the planned requirements.

Unlike the old rules—which included different rest requirements for domestic, international, and unscheduled flights—the new regulations establish one set of rules that are based on scientific factors, such as the time of day pilots begin their first flight, the number of scheduled flight segments, and the number of time zones crossed. Pilots are also now required to affirmatively state that they are fit to fly and are prohibited from flying during a scheduled duty period when they report fatigue. Other key changes in the new flight and duty time regulations include a 10-hour minimum rest period prior to duty, a 2-hour increase over the previous rule,

² OIG Correspondence Number CC-2009-074, "Letter to Senators Rockefeller, Hutchinson and DeMint Regarding Commercial Aviation Accidents, Pilot Experience and Pilot Compensation," February 9, 2011. OIG Report Number AV-2011-176, "FAA and Industry Are Taking Action To Address Pilot Fatigue, but More Information on Pilot Commuting Is Needed," September 12, 2011. OIG Report Number AV-2012-027, "New Approaches Are Needed To Strengthen FAA Oversight of Air Carrier Training Programs and Pilot Performance," December 20, 2011. OIG reports are available on our website: www.oig.dot.gov.

³ FAA's Call to Action Plan, announced on June 24, 2009, consisted of 10 short- and mid-term initiatives to enhance pilot performance and training, increase air carrier participation in voluntary safety programs, and expand pilot records review. FAA also set goals to develop new safety oversight guidance to its inspectors, issue rulemakings on pilot fatigue and training, conduct regional safety forums to discuss industry best practices, and develop programs addressing pilot professionalism.

⁴ 14 CFR Part 121, Operating Requirements: Domestic, Flag, and Supplemental Operations.

and 30 consecutive hours free from duty per week—an increase of 25 percent over the previous regulation requirements.

FAA Promoted Air Carriers' Use of Voluntary Safety Programs

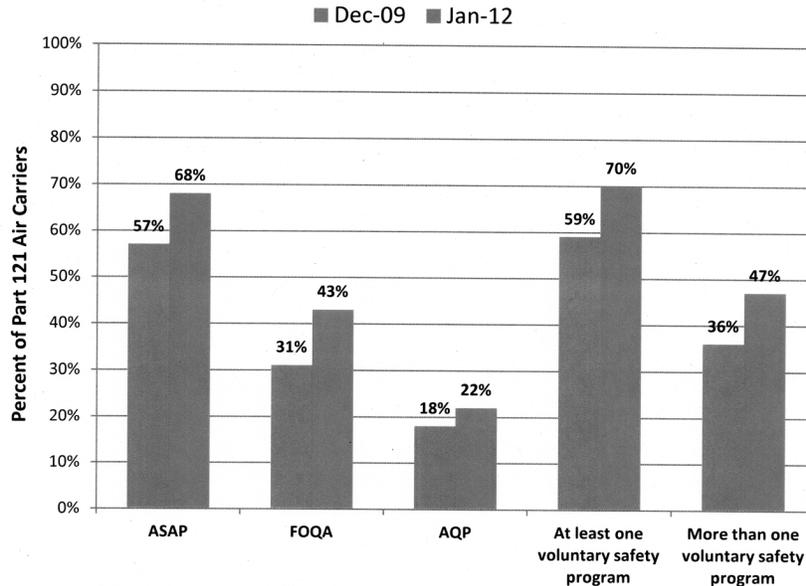
In March 2011, FAA completed a congressionally required review of Part 121 air carriers' use of voluntary safety programs⁵ and later devised a plan to help smaller air carriers implement these programs. Data gathered through voluntary safety programs can be used to identify the trends and patterns that represent risks. The Act targets air carrier participation in three such programs that FAA oversees:

- *Aviation Safety Action Program (ASAP)*, which encourages air carrier and repair station employees to voluntarily report safety information that may be critical to identifying potential precursors to accidents without fear of enforcement or disciplinary action.
- *Flight Operational Quality Assurance (FOQA)*, which collects and analyzes digital flight data generated during scheduled flights to provide greater insight into performance and operations.
- *Advanced Qualification Program (AQP)*, which provides a voluntary alternative to traditional training standards by incorporating data-driven quality control processes to refine pilot training based on the individual's proficiency and identified training needs.

The review found that, as of March 2011, 68 percent of Part 121 air carriers participate in at least one voluntary safety program and just under half of those carriers use more than one. Our ongoing analysis of current FAA data as of January 2012 shows a continued rise in voluntary safety program use—70 percent of Part 121 air carriers have at least one program, up from 59 percent 2 years ago. Further, for the same time period, 47 percent of Part 121 air carriers have multiple programs, compared to 36 percent 2 years ago.

As shown in figure 1 below, the highest concentration of new growth for these air carriers has been with ASAP and FOQA. We also determined that the majority of carriers that transitioned to AQP training were regional carriers. Air carriers that use AQP benefit from improved data collection and analysis techniques and enhanced flight crew coordination.

Figure 1. Increase in Voluntary Safety Program Participation



Source: OIG analysis of FAA-reported data

⁵ Voluntary Safety Programs, Response to P.L. 111-216, Sec. 213, January 28, 2011.

FAA Is Ahead of Schedule for Implementing SMS

Increasing use of voluntary safety programs is important for Part 121 air carriers of all sizes, as the data generated by these programs is a large driver of SMS, a systemic and comprehensive process for managing safety risks. Specifically, SMS provides operators with business processes and management tools to examine data from everyday operations, isolate trends that may be precursors to incidents and accidents, and develop and carry out appropriate risk mitigation strategies. FAA has nearly completed its efforts to issue a final rule on SMS for air carriers. The Agency released a proposed rule in October 2010 and, according to the Act, has until August 2012 to issue a final rule.

FAA has also taken steps to assist air carriers in developing SMS before the completion of the final rule. FAA developed an SMS pilot program in 2007 to develop implementation strategies and oversight responsibilities. SMS pilot projects allow FAA and air carrier input in developing guidance and provide carriers an opportunity to share best practices and lessons learned. Currently, 83 percent of all Part 121 air carriers (73 of 88) are participating in the pilot program.

The new system, when fully implemented across all carriers, has the potential to significantly advance safety. However, there is industry concern that the SMS rule will not be scalable for air carriers of varying size and operational complexity, posing a larger burden on smaller air carriers for their implementation. Currently, 14 of the 15 carriers that are not yet participating in FAA's SMS pilot program are smaller carriers (with less than 20 aircraft). Additionally, air carriers are concerned about public disclosure of SMS-collected data. Most of these concerns focus on whether the data can be used in legal proceedings. The current proposed rule does not address these concerns.

FAA Faces Challenges In Meeting Act Provisions On Pilot Training And Safety Issues

FAA efforts to issue Act-mandated rules to improve training standards, establish mentoring and leadership programs, and enhance screening and qualifications for pilots are delayed. While FAA is responsible for raising pilot qualifications, the successful implementation of such rules depends on FAA's ability to address air carrier concerns and work through the regulatory process in a timely manner, which has been a significant challenge for FAA. The Agency also faces several challenges in establishing a new centralized electronic pilot records database to provide air carriers with better background information on pilots they intend to hire.

Industry Concerns Have Delayed FAA's Rulemaking Efforts To Enhance Pilot Training Standards

FAA is almost 6 months overdue on issuing a final rule revising pilot training requirements—the delay is due in part to significant industry opposition. This is an important safety initiative that will require pilot training programs to incorporate flight simulators and enhance pilots' ability to work together during emergencies. In January 2009, FAA issued the Notice of Proposed Rulemaking (NPRM). However, FAA received extensive industry comments, primarily opposing that the rule imposes overly prescriptive training hours rather than basing pilot training on skills most needed to safely perform flight operations. As a result, FAA issued a second proposed rule in May 2011. The revised proposal requires more thorough ground and flight training for pilots on how to recognize and recover from stalls, as well as remedial training for pilots who perform poorly in training.

With advancements in pilot training on the horizon, it is important that FAA enhance its oversight practices. For example, under the new rule, carriers will be required to provide remedial training for pilots with performance deficiencies. However, it will be difficult for FAA to gauge the effectiveness of this training unless it corrects weaknesses we identified in our December 2011 report on pilot training. We found that FAA was not tracking poorly performing pilots due to inadequate guidance for its inspectors on how to gather data on pilot performance. Specifically, FAA guidance requires inspectors to compare pilot proficiency checks that they have performed against those conducted by the carriers' check airmen.⁶ However, we questioned the viability of this requirement since nearly all pilot proficiency checks are conducted by check airmen, not FAA inspectors. As a result, FAA inspectors may not have sufficient data to make a meaningful comparison.

⁶Pilots employed by air carriers who evaluate a pilot's proficiency during training and examinations.

FAA's Rule To Require Pilot Mentoring, Leadership, and Professional Development Committees at Air Carriers Is Overdue

FAA is also almost 8 months overdue in meeting a mandated timeline to issue a proposed rule requiring that air carriers establish pilot mentoring, leadership, and professional development committees to improve pilot performance. This is due, in part, to a lengthy delay in developing an appropriate balance between the costs and benefits of these programs. FAA intends to issue a proposed rule that it believes would generate benefits by reinforcing safe flying practices.

Pilot performance issues are longstanding safety concerns—pilot performance was cited in 7 of the 10 major accidents that occurred over the last decade, indicating that the quality of training, professionalism, and mentoring is important to safety. In February 2011,⁷ we also reported that poor pilot performance—such as poor decision-making, inadequate aircraft control, improper flying techniques, and a disregard for operating procedures—is a high-ranking causal factor in airline accidents,⁸ a finding consistent with the National Transportation Safety Board (NTSB) review of the Colgan accident.

After the Colgan accident, FAA focused on advancing pilot mentoring as part of its 2009 Call to Action on Airline Safety and Pilot Training but never released a detailed plan to implement programs at air carriers. In December 2011, we reported that regional air carriers were not pursuing mentoring opportunities for their pilots. Officials at these carriers expressed concerns that a mentoring program would have to be scaled to their business model and that pilot turnover at these carriers could outweigh the benefits of establishing these often costly programs. Seven of nine large and small carriers we recently visited as part of our ongoing audit did not have formal mentoring programs, and none had professional development programs to instill and reinforce high performance standards for their pilots.

FAA Is Behind Schedule and Will Likely Miss the Deadline To Issue a Rule Increasing Minimum Qualifications for Commercial Airline Pilots

The Act requires FAA to issue a final rule to substantially raise airline pilot qualifications by August 2012. However, FAA did not issue the proposed rule until February 2012 and expects to issue the final rule by August 2013—a year after the mandate. Given the significant increase in pilot flight hours that the Act mandates for the final rule, FAA has encountered industry opposition.

FAA's rule would require first officers to hold an Airline Transport Pilot (ATP) certificate,⁹ requiring 1,500 hours of pilot flight time—up from the current mark of 250 hours with a commercial pilot's license. The proposed rule would also require first officers to have an aircraft type rating, which involves additional training and testing specific to the airplanes they fly. Air carrier representatives are opposed to the increased flight hour requirement because they feel a pilot's quality and type of flying experience should be weighted more heavily than the number of flight hours. They state that the supply of qualified and available pilots will decrease because it will be difficult for entry-level pilots to attain this amount of hours before being qualified to fly at a commercial air carrier.

Further, while FAA's pilot qualification proposal satisfies most of the Act's requirements in this area, it may fall short in ensuring sufficient pre-employment screening. For example, the Act states that applicant pilot screening must include an assessment of skills, aptitudes, airmanship, and suitability specific to each air carrier's operations. However, it is unclear whether FAA intended for the enhanced ATP requirements in the proposed rule to also satisfy the pre-employment screening measures contained in the Act. If so, air carriers may not make appropriate changes to their pre-employment screening procedures specific to their operations.

Finally, FAA has not acted to ensure carriers are ready to transition to these new pilot qualification requirements. For example, at two regional air carriers we visited as part of our ongoing review, more than 75 percent of current first officers did not have an ATP. Yet, neither carrier had developed a plan to ensure these pilots would be able to meet the enhanced requirements by the deadline, nor had the local FAA inspectors followed up with these carriers to assess their ability to comply with enhanced requirements. Additionally, FAA has not taken steps to determine the poten-

⁷ OIG Controlled Correspondence CC-2009-074, "Letter to Senators Rockefeller, Hutchison, and DeMint Regarding Commercial Aviation Accidents, Pilot Experience and Pilot Compensation," February 9, 2011.

⁸ We analyzed the experience (*i.e.*, total flight time and total main and model flight time in the accident aircraft) of pilots involved in 322 scheduled Part 121 passenger accidents that occurred from January 2000 through December 2009.

⁹ Airline Transport Pilot (ATP) Certificate is the highest level of pilot certification. Pilots certified as ATP are authorized to act as pilot-in-command of an aircraft in commercial airline service. Additional eligibility requirements are contained in 14 CFR 61.153.

tial impact the new ATP requirement would have on current pilots, information that will be important for safety oversight.

FAA Lacks a Clear Strategy for Transitioning to a New Centralized Electronic Pilot Records Database

FAA met the Act's initial milestone in developing a centralized electronic pilot records database that will include records previously maintained by air carriers. The Act did not prescribe any additional milestones for the database's implementation, but the Agency has recognized that a rulemaking will be necessary to fully develop the intricacies of this electronic system and is in the preliminary stages of writing this proposal. However, to create a robust, complete, and secure data repository that carriers can use when hiring pilots, FAA must overcome three key challenges:

- First, FAA must address what level of detail should be captured from air carrier pilot training records, such as whether recurrent flight training will be included. The Act stipulates that comments and evaluations made by the pilot examiner¹⁰ be included in the database; however, industry is highly protective of these data and opposes including them in the database. FAA must also address how to include historical air carrier pilot training records into its new system. Gathering the historical records while keeping them standardized across sources will be difficult because information in the records varies based on differences in air carrier training programs and the record retention period varies from 5 years to indefinitely, depending on the carrier.
- Second, FAA does not expect to issue a final rule and launch the database for at least another 2 years, so FAA will have to determine how to transition from current recordkeeping practices mandated by the Pilot Records Improvement Act (PRIA)¹¹ to the new database without disrupting the flow of information. Therefore, until air carrier records are fully integrated into the new database, carriers may need to continue requesting data from both FAA and previous employers.
- Finally, a pilot records advisory committee identified multiple challenges for FAA in accessing records from the National Driver Register (NDR)¹² and incorporating them into the database. For example, FAA must decide how to ensure data reliability of pilot records and resolve conflicting data retention policies for the database versus NDR.

In addition to these challenges, we reported in December 2011 that FAA lacks a centralized process to receive and respond to carriers' requests for pilot records. This raises questions about whether air carriers are getting all the relevant information FAA has on pilots before they are hired. While this problem may be mitigated once the new database is launched, it remains a concern in the interim, especially since FAA's 2009 Call to Action on Airline Safety and Pilot Training called on carriers to obtain more comprehensive records on pilots prior to hiring. As a result, FAA experienced an influx of record requests from carriers and an increased workload.

Sustained Commitment And Oversight Are Needed To Achieve The Full Measure Of Safety Enhancements Intended By The Act

Sustained FAA management commitment and oversight are needed to ensure that provisions of the Act are effectively implemented and have the desired impact of improving safety. Specifically, FAA needs to: (1) effectively communicate with local FAA offices and industry on the status of new rules and guidance, (2) provide additional direction and support for developing new safety programs at smaller air carriers, and (3) address pilot commuting issues.

FAA Has Not Provided the Level of Education, Outreach, and Guidance Needed for Industry To Implement New Safety Programs

A lack of key stakeholder involvement and poor communication between FAA and industry is impeding progress on several Act initiatives. FAA created six aviation rulemaking committees (ARC) to develop recommendations on multiple initiatives, such as identifying and promulgating best practices in pilot training and developing the pilot record database. However, FAA did not inform its field offices or airlines of many of the ARCs' results, such as status of rulemakings, or engage in effective

¹⁰ An FAA inspector or air carrier pilot who is qualified, and permitted, to conduct flight checks or instruction in an airplane, in a flight simulator, or in a flight training device for a particular type airplane.

¹¹ Pub. L. No. 104-264, Section 502 (codified at 49 U.S.C. § 44703(h)-(j)).

¹² NDR is a central information system that allows states to electronically exchange information on licensed drivers through a computerized network.

outreach efforts for new safety programs other than SMS. For example, none of the nine field offices we visited during our ongoing review had received information from FAA on the Agency’s progress in developing mentoring, professional development, and leadership programs for air carrier pilots. If FAA had provided early outreach to field offices on the status of rulemaking and best practices, air carriers could be better positioned to implement new pilot safety programs when the rules are finalized.

Further, FAA did not follow up to ensure proper implementation of guidance it has issued to air carriers. For example, while FAA issued guidance for retaining and submitting pilot training records for the new electronic, centralized pilot records database, it did not follow up to see that air carriers were following the new requirements. Four of the six carriers we visited during our ongoing review had not clarified their policies to reflect this change. As a result, important details concerning pilot training and proficiency may be lost and not available for air carriers to use in future hiring decisions.

Additionally, some air carriers that had moved forward with new programs encountered obstacles in obtaining FAA approval. For example, one regional air carrier attempted to proactively develop a program for first officers to obtain advanced certification as prescribed by the Act. While the local FAA office initially approved the program, FAA rescinded the approval 1 day before it was set to launch because national-level guidance had not been issued. Although most actions taken by air carriers thus far are voluntary, a lack of clear and timely communication by FAA provides little impetus for air carriers to move forward with new initiatives.

FAA Does Not Have a Focused Plan To Help Smaller Air Carriers Establish New Safety Programs

Despite overall gains, implementation of voluntary safety programs has mostly occurred at larger air carriers. Yet, the Act instructed FAA to develop a plan to help all Part 121 carriers establish such programs, with particular emphasis on ASAP and FOQA. FAA devised an implementation plan for ASAP and FOQA at smaller air carriers, but a lack of funding has prevented FAA from enacting the FOQA plan. As a result, smaller carriers have been unable to purchase and install the equipment needed to run this program. With a focused plan and dedicated funding, FAA can help smaller air carriers establish voluntary safety programs and realize the benefits of increased safety reporting and trend analyses.

As shown in table 1, while all large carriers with more than 50 aircraft in their fleet have an incident reporting system (ASAP), the system has been adopted by only 41 percent of small carriers with 15 or fewer aircraft. Similarly, just over 10 percent of these small operators have FOQA, compared to more than 90 percent of large operators.

Table 1. Air Carrier Voluntary Safety Program Participation

Program	Number of Carriers Participating	Large Carriers (more than 50 aircraft)	Medium Carriers (16–50 aircraft)	Small Carriers (15 or fewer aircraft)
<i>Aviation Safety Action Program</i>	60 of 88 (68%)	24 of 24 (100%)	19 of 23 (83%)	17 of 41 (41%)
<i>Flight Operational Quality Assurance</i>	38 of 88 (43%)	22 of 24 (92%)	11 of 23 (48%)	5 of 41 (12%)
<i>Advanced Qualification Program</i>	19 of 88 (22%)	13 of 24 (54%)	3 of 23 (13%)	3 of 41 (7%)

Source: OIG analysis of FAA-reported data as of January 2012.

Despite the disparities between the large and small air carriers, FAA has not fully implemented its plan to assist smaller air carriers with the resources needed—such as best practices and guidance—to establish new safety programs. Smaller air carriers have fewer resources than their mainline counterparts to handle the operation and management of new safety programs. As a result, they will have to prioritize development of these programs based on feasibility and importance and will face difficulties in implementing new programs simultaneously—especially without guidance or program assistance from FAA.

FAA’s Fatigue Rule Does Not Address Pilot Commuting

FAA’s changes to the flight and duty time regulations represented a significant safety achievement; however, the regulations do not require air carriers to identify pilots who commute. These are significant factors that may contribute to fatigue given that many pilots in the industry reside hundreds or even thousands of miles

from their duty locations. While FAA considered mandating that pilots arrive in time to receive a pre-flight rest period in the proposed rule, it stated that the requirement would be difficult to enforce and would not guarantee responsible commuting.

Pilot commuting and related issues were concerns that came to light after the Colgan accident. The NTSB investigation into the crash revealed that both pilots had commuted hundreds of miles before the flight. NTSB also found that Colgan did not proactively address the pilot fatigue hazards associated with basing its operations at an airport where pilots typically have to commute long distances in order to begin their work shifts. In its investigative report, the NTSB stated that “operators have a responsibility to identify risks associated with commuting, implementing strategies to mitigate these risks, and ensure that their commuting pilots are fit for duty.”

NTSB issued a recommendation to FAA to address fatigue risks associated with commuting, including identifying pilots who commute. The National Academy of Sciences similarly noted in a July 2011 report that there are not enough data to determine the role commuting plays in contributing to fatigue or whether it should be regulated.¹³ This underscores how collecting and analyzing these data could help FAA make well-informed decisions on commuting. In our September 2011 report on pilot fatigue, we recommended that FAA collect and analyze data regarding pilot commuting for all Part 121 flight crews and determine if additional changes are needed or if airlines need to take further mitigating actions in their fatigue management systems. In its response, FAA stated that it will review available data on pilot commuting and determine if additional data could offer added safety benefits. FAA committed to completing these actions by October 1, 2012.

Conclusion

FAA plays an integral role in maintaining the excellent safety record of the U.S. National Airspace System. FAA acted swiftly to address safety concerns highlighted by the Colgan crash and has since made commendable progress in meeting new Act requirements. FAA still faces several challenges, however, in updating pilot training and leadership programs, developing screening and qualifications standards, and ensuring carriers have the data they need to make sound hiring decisions. To effectively implement these initiatives in a timely manner, FAA must balance industry concerns with a sustained commitment to oversight. We are encouraged by FAA’s progress to date and will continue to monitor its efforts to meet remaining Act requirements.

This concludes my statement. I would be happy to address any questions from the Chairman or Members of the Subcommittee at this time.

¹³The National Academy of Sciences, *The Effects of Commuting on Pilot Fatigue*, ISBN 978-0-309-21696-8, July 6, 2011 (Response to P.L. 111-216, Sec. 212).

Exhibit. Status of Key Airline Safety Act Requirements

Section	Initiative	Milestone	Deadline	Milestone Status
202	NTSB Recommendations Report	Report	Annual	Met, On-Target
203	FAA Pilot Records Database	Database Development	10/30/2010	Met
		Report	2/1/2012	Missed & Overdue
204	Air Carrier Safety & Pilot Training ARC	ARC Report	7/31/2011	Met
		ARC Report	7/31/2012	On-Target
205	FAA Inspector Staffing	Start OIG Review	5/1/2011	Met
206	Mentoring, Development, and Leadership	NPRM	8/1/2011	Missed & Overdue
		Final Rule	8/1/2013	To Be Determined
207	Crew Pairing and CRM	Study	8/1/2011	Completed Late—8/26/2011
208	NTSB Training Recommendations	ARC Formation	11/29/2010	Met
		NPRM	8/1/2011	Met
		ARC report	11/30/2011	Completed Late –3/7/2012
		Final Rule	8/1/2013	To Be Determined
209	FAA Rulemaking on Training	ARC Formation	9/30/2010	Completed Late—11/16/2010
		ARC Report	8/1/2011	Completed Late—9/23/2011
		Final Rule	10/1/2011	Missed & Overdue
210	Code Share Ticket Disclosure	Amend 49 U.S.C. § 41712	N/A	Met
211	FAA Safety Inspections	Perform one per year	Annual	Met
212	Fatigue & Commuting	NPRM	2/1/2011	Met
		Final Rule	8/1/2011	Completed Late—1/4/2012
		Risk Management Plans	11/1/2010	Met
		Start Study	9/30/2010	Met
		Preliminary Findings	1/30/2011	Met
		Report	6/30/2011	Met
213	Voluntary Safety Programs	Report	1/28/2011	Completed Late—3/16/2011
214	ASAP & FOQA Implementation	Plans Issued	1/28/2011	Completed Late—4/14/2011
		Plans Implemented	8/1/2011	FOQA Portion Overdue
215	Safety Management Systems	NPRM	11/1/2010	Met
		Final Rule	8/1/2012	On-Target
216	Screening & Qualifications	NPRM	1/28/2011	Completed Late—2/29/2012
		Final Rule	8/1/2012	To Be Determined
		ATP	8/1/2013	To Be Determined
217	ATP Certification	Final Rule	8/1/2013	On-Target

Source: OIG analysis of FAA-reported data.

Senator CANTWELL. Thank you, Mr. Scovel. You brought up some very important points, and I do have questions for you but I'm going to go to Mr. Voss next and hear from the rest of the witnesses. Unfortunately, I have to go to the floor to speak on an amendment that's being voted on shortly, and so I'm going to turn to my colleague, Senator Lautenberg, to continue the hearing in my absence.

And so thank you, Senator Lautenberg, for taking over.

But, Mr. Voss, why don't you go ahead—he's the CEO of Flight Safety Foundation—and we look forward to your comments.

**STATEMENT OF WILLIAM R. VOSS, PRESIDENT AND CEO,
FLIGHT SAFETY FOUNDATION**

Mr. Voss. Thank you, Madam Chairman and distinguished members of the Subcommittee.

The Flight Safety Foundation is an independent nonprofit organization focused solely on aviation safety. We have more than 1,000 organizations and individuals as members across more than 150 countries. I appreciate this opportunity to testify.

Let me first speak briefly to the fatigue rule. When the FAA published the new fatigue rule, it brought to an end more than 20 years of political gridlock and internal fighting. It brought forward a set of rules that reflect a modern understanding of the science of fatigue. The new rule gives industry the flexibility to respond to new operational risks as they emerge and to embrace new advances in science as they occur. This is a great achievement, and the world has taken notice.

As difficult as that was, the pilot certification and qualification requirements are a far greater challenge. There's still a great deal of work to be done to address these issues in experience and training. The training standards for airline operations over the last few decades have become dangerously outdated, and we've seen some tragic consequences.

The problem is not unique to the United States. It's a global problem that must be dealt with now, and the world will be watching the FAA to see how they address it.

Since the initial proposal of the ATP and 1,500 hour rule in H.R. 5900, we've expressed some reservations that too much emphasis was being placed on mandatory flight hours. Our position is that if a flight crew needs to have a specific skill set in order to protect the lives of their passengers, then positive steps should be taken to ensure that knowledge is obtained. Assuming that vital knowledge will be obtained through experience leaves too much to chance.

For that reason, the Foundation agrees very much with the FAA's suggestion that a structured training program can allow the 1,500 hour requirement to be reduced, because structured training programs simply leave less to chance. Ultimately, the Foundation believes the real effectiveness of the new rule will be the result of focused training mandates, and we're encouraged to see a number of these in the proposed rulemaking.

The requirements for an ATP certification training program and the development of an ATP knowledge test are very positive. Also, the advanced jet training course suggested by one of the ARCs addresses many of the high-risk issues. In addition, the NPRM contains two experience requirements that make a great deal of sense. One is the 50-hour multi-engine requirement for second in command. The other is for 1,000 hours of airline operational experience before assuming the role of captain. Most responsible airlines already do this, and we institutionalize some of the best practices.

Looking forward, the progress made to date has been rather impressive. However, I'd like to offer some suggestions and cautions as we move forward with implementation.

First of all, while the external forces such as Congress and the family groups have provided clearly an essential push, it's impor-

tant at this junction that the experts are allowed to focus on the issues that pose the real risks rather than the issues that only resonate politically. There are things that capture the public's imagination, but they may not always be the same things that need to be addressed to reduce risk.

Second, progress against the objectives of H.R. 5900 must be made with a sense of urgency but without overreaching. The myriad of working groups and deadlines spawned by 5900 had the desired effect and unfroze the stagnant system. But the breadth of activity clearly exceeded the resources and capability of the FAA to manage. While a sense of urgency must be maintained, we also have to recognize we're now in a part of the process where the details really matter, and we must respect that.

Finally, it should be acknowledged that H.R. 5900 will have significant international implications. The new ATP requirement the FAA will generate will result in a rule that the rest of the world will be unable to follow. The structure of the global airline industry and the demand for aviation professionals around the world will make it impossible for foreign regulators to follow the FAA's lead. This is an unusual situation and comes at a time when U.S. leadership in aviation is being challenged in some parts of the world.

There will also be some challenges for foreign regulators who inspect U.S. airlines operating abroad. The Flight Safety Foundation strongly supports the FAA proposal to issue an ATP certificate with restricted privileges and to issue this with as few as 1,000 hours. But such a certificate falls outside the framework of international standards. Therefore, foreign inspectors will not be able to accept it unless special provisions are made.

In summary, we are encouraged by the many advances we are seeing in the implementation of H.R. 5900. We retain a healthy respect for the detailed work of implementation which follows. We'll be happy to answer any questions.

Thank you.

[The prepared statement of Mr. Voss follows:]

PREPARED STATEMENT OF WILLIAM R. VOSS, PRESIDENT AND CEO,
FLIGHT SAFETY FOUNDATION

Chairman Cantwell, Ranking Member Thune, and distinguished members of the Subcommittee: My name is William Voss and I am the President and Chief Executive Officer of the Flight Safety Foundation.

The Flight Safety Foundation is an independent, nonprofit, international organization engaged in research, education, advocacy, and publishing. Its mission is to be the leading voice of safety for the global aerospace/aviation community. We have members all around the world representing every facet of the aviation industry. On behalf of the Foundation, I appreciate this opportunity to testify about the implementation of H.R. 5900, the Airline Safety and Federal Aviation Administration Extension Act of 2010.

The short answer is that the implementation of H.R. 5900 is progressing well. The more complicated answer is that there is still work to be done and parts of this law that ought to be reconsidered.

The Fatigue Rule

My background in aviation is diverse. I've been a pilot, an air traffic controller, a certified aviation mechanic, and a regulator and standard-setter, both at the FAA and the International Civil Aviation Organization (ICAO). I know firsthand how the issue of fatigue can affect every aspect of this industry. We all know that fatigue affects our performance, but normally our own drowsiness or lack of sleep does not have the potential for catastrophic consequences, unlike the airline pilot who is re-

sponsible for dozens or hundreds of lives. While some may not be entirely satisfied with all aspects of the fatigue rule mandated under H.R. 5900, I have to say that the overall result is indeed historic. More than 20 years of political gridlock has been broken. What we have today are a set of rules that reflect our modern understanding of fatigue and target operational risks based on science rather than just political horse-trading. The new rule gives the industry the flexibility to respond to new operational risks as they emerge and to embrace new advances in science as appropriate. The world has taken note, and to a great extent is following this positive example.

Pilot Certification and Qualification Requirements for Air Carrier Operations

There is still a great deal of work to be done to address the issues of experience and training requirements called for under H.R. 5900. Congress and family groups were right to call for action in this area. The training standards for airline operations have been relatively static for decades, while incremental implementation of new technology and wholesale restructuring of the industry has caused those training requirements to become dangerously outdated and we are seeing some tragic consequences. This problem is not unique to the United States. It is a world-wide problem that must be dealt with now and the world will be watching to see how the FAA addresses it.

Since the initial proposal of the 1,500 hour rule, the Flight Safety Foundation expressed reservations regarding the focus that H.R. 5900 places on mandatory flight hours. Our position has been that if a flight crew needs to know, understand or have a specific skill set in order to protect the lives of their passengers, then steps should be taken to ensure the knowledge is obtained through training or previous experience. Mandating an arbitrary number of hours experience required to be in a cockpit makes the dangerous assumption that specific knowledge will be obtained simply due to hours in the air. This leaves too much to chance.

There are countless examples of pilots with many thousands of hours, who lacked the critical knowledge to avert a tragedy. The Air Florida pilots who crashed at Washington National more than 20 years ago had 8,300 hours and 3,500 hours respectively, yet still lacked critical knowledge of cold weather and de-icing operations. While the final report has not been issued, it is clear that there were gaps in the knowledge of the crew of Air France 447, which crashed in the Atlantic Ocean several years ago, that lost control of the aircraft following a brief failure of an airspeed sensor.

While the purpose of a 1,500 hour rule is understood, the Flight Safety Foundation strongly supports the notion that a structured training program can allow this requirement to be reduced, since that training program would reduce risk by leaving less to chance. The Foundation believes the real effectiveness of the new rule will be more a result of mandating critical training that targets risk in the real world, rather than simply increasing the number of hours.

The Notice of Proposed Rule Making (NPRM) calls for several changes that are very important. The requirements for an Airline Transport Pilot (ATP) Certification Training Program and the development of a revised ATP Knowledge are positive. These changes will help ensure that the basic knowledge of air carrier operations are provided and will open the door to a modernization of the existing knowledge test.

The Flight Operations and Qualifications Aviation Rulemaking Committee (ARC) also recommended a requirement for an Advanced Jet Training Course. The Foundation supports this recommendation since it would ensure specific practical training that addresses many of the highest-risk areas, and would meet many of the requirements spelled out in Section 216 of H.R. 5900.

The NPRM also includes two new experience requirements that institutionalize common practice and make a great deal of sense. One is the requirement for 50 hours of multi-engine experience for a second in command. This requirement is a de facto industry standard already. The other requirement is for 1,000 hours of airline operational experience before assuming the role of captain. This amounts to a requirement for one to two years of line experience as a first officer before assuming command. Most responsible airlines already have a similar requirement.

It is vitally important to ensure that Captains are promoted in a thoughtful and deliberate manner. Captains become mentors and trainers for first officers. They also set the limits of what is acceptable and the types of risks that may or may not be taken. The professionalism and maturity of the Captains drive the safety culture of an airline. I hope to see additional work that focuses on the important area of mentoring.

Looking Forward

The progress in the area of fatigue and pilot training is impressive. However I would like to offer some suggestions and cautions as we move forward with further implementation.

First of all I would like to suggest that while external forces have provided an essential push, it is important at this junction that the experts are allowed to focus on the issues that pose a risk rather than just the issues that resonate politically. For example, H.R. 5900 Section 207 directs the FAA to, “. . . conduct a study on aviation industry best practices with regard to flight crewmember pairing, crew resource management techniques, and pilot commuting.” I have heard a lot of controversy about pilot commuting but I have heard very little about crew pairing. As a safety professional I will tell you crew pairing techniques are a powerful tool to mitigate risk. We are at a juncture where the things that capture the public’s imagination may not be the same things that need to be addressed to avert the next tragedy.

Secondly, progress against the objectives of H.R. 5900 must be made with a sense of urgency, but without overreaching. The myriad of working groups, studies and deadlines, specified by H.R. 5900 had the desired effect. They created a flurry of activity that unfroze the system that had and drove overdue action on key issues. However, this flurry of activity generated as much heat as it did light. The breadth of activity clearly exceeded the resources and capability of the FAA to manage. From this point on, it would be best if the sense of urgency could be maintained and a schedule agreed to that allows for the thoughtful implementation of some difficult changes.

Finally, it should be acknowledged that H.R. 5900, and specifically the requirement for an ATP for the second –in– command in an air carrier, will have significant international implications. Since the close of World War II, the United States has been a leader in the field of aviation, and the FAA has served as a model for regulatory authorities around the world. For the first time, the FAA will promulgate a rule that the rest of the world will have to universally dismiss. Given the structure of the global airline industry and the demand for aviation professionals around the world, it will be impossible for foreign regulators to follow the FAA’s lead and implement an ATP requirement for the second-in-command of an air carrier.

In addition, there will be challenges for foreign regulators who are confronted with an Airline Transport Pilot Certificate that was issued with less than 1,500 hours. While the Flight Safety Foundation strongly supports the FAA proposal to issue an ATP Certificate with restricted privileges at 1,000 hours, such a proposal does fall outside the framework of international standards and will require some thoughtful adjustments to accommodate international operations.

These are not inconsequential concerns. Our actions reverberate throughout the world and it is important that our lawmakers and regulators at the FAA consider the impact new regulations have on international operators flying into the U.S. as well as the impact some of these regulations may have on the US’s position as the standard-bearer for aviation regulation. We are encouraged by many of the advances we have seen during the implementation of H.R. 5900, but still see some areas that need more work.

For the traveling public, the tragedy of an aviation accident is magnified by the rarity. We’ve achieved levels of safety that are the envy of other industries and can make all of us proud. But we must stay vigilant and understand that safety is an ongoing effort. As we get deeper into the implementation of H.R. 5900, it is our hope that the FAA continues to increase its work with safety professionals and other experts in order to make our safe skies even safer.

Thank you very much for this opportunity to testify this afternoon.

Senator LAUTENBERG [presiding]. Thank you very much.
Dr. Belenky, we’d like to hear from you now, please.

**STATEMENT OF GREGORY BELENKY, M.D.,
RESEARCH PROFESSOR AND DIRECTOR,
SLEEP AND PERFORMANCE RESEARCH CENTER,
WASHINGTON STATE UNIVERSITY, SPOKANE**

Dr. BELENKY. Chairman Cantwell, Senator Lautenberg, and distinguished members of the Subcommittee, thank you for the invitation to comment on the new FAA rule, Flight Crew Duty and Rest Requirements.

In the new rule, the FAA has combined science and operational experience. The FAA introduces the concept of maximum flight duty period as the basis for the prescriptive rule and fatigue risk management systems as alternatives to the prescriptive rule.

The maximum flight duty period takes into account the effects of time on duty, circadian rhythm, and segments flown, so workload. Thus, the maximum flight duty period captures and mitigates the three major components of fatigue: sleep-wake history, circadian rhythm, and workload. Again, fatigue risk management systems offer a flexible, evidence-based alternative to the prescriptive rule.

With respect to the maximum flight duty period and its modulation by time on duty, the circadian rhythm, time of day, and workload, the rule is clear and unambiguous. With respect to fatigue risk management, while there are internationally accepted standards from the International Civil Aviation Association, ICAO, the FAA needs to define what is an acceptable demonstration of an equivalent level of safety and hence an alternative means of compliance for a fatigue risk management system with respect to the prescriptive rule.

Presumably, this will be defined in the upcoming FAA advisory circular on fatigue risk management. In this yet to be released advisory circular, it seems reasonable to expect that the FAA would consider the use of biomathematical models to predict performance on the basis of sleep-wake history and circadian phase.

As the first step in a process of demonstrating an equivalent level of safety, a model could be used to make relative comparisons between schedules generated by the prescriptive rule and schedules generated by a proposed fatigue risk management system. To make such comparisons, the model or models must be shown to accurately predict human performance. Thus, models must be verified as to their internal workings, validated in terms of their predictions, and certified for use in aviation in a manner similar to the mathematical models used to predict mean time before failure of an aircraft component.

Further, modeling is not the only path to fatigue risk management, as ICAO guidance makes clear. In the new rule, the FAA introduces the concept of flight time limits, limits that are well within the temporal boundaries of the maximum flight duty period.

In support of this, the FAA cites studies suggesting, quote, that “after a person has worked for about eight or 9 hours, the risk of an accident increases exponentially for each additional hour worked.” This is a strong claim. Strong claims require strong evidence. The scientific evidence supporting this assertion is weak.

Accident risk is calculated by dividing the number of accidents by the number of people exposed. In the study cited, the number of people exposed had to be estimated from other data bases as exposure data were not available in the accident data bases themselves. As the authors of these papers themselves acknowledge, this introduces a major uncertainty into the calculation.

While there may be a rationale for flight time limits, the studies cited do not provide it. In this instance, a major policy decision was made, in my opinion, on the basis of questionable evidence.

To conclude, the FAA has made important advances in the evidence-based management of fatigue risk by integrating scientific

findings in sleep and performance into its new rule. Uncertainty remains in the validation of biomathematical performance prediction models for use in FRMS, fatigue risk management systems, and in the rationale for flight time limits.

Thank you, Chairman Cantwell, members of the Committee, for the opportunity to testify. I would be happy to take any questions. [The prepared statement of Dr. Belenky follows:]

PREPARED STATEMENT OF GREGORY BELENKY, M.D., RESEARCH PROFESSOR AND DIRECTOR, SLEEP AND PERFORMANCE RESEARCH CENTER, WASHINGTON STATE UNIVERSITY, SPOKANE

Chairman Cantwell, Ranking Member Thune, and distinguished members of the Subcommittee: thank you for the invitation to comment on the FAA rule on Flightcrew Member Duty and Rest Requirements. I am Gregory Belenky, Research Professor and Director, Sleep and Performance Research Center, Washington State University.

In the new rule, the FAA has effectively combined science and operational experience. They introduce the maximum flight duty period as the basis for the prescriptive rule, and, fatigue risk management systems as an alternative to the prescriptive rule. The maximum flight duty period takes into account the effects of time on duty, the circadian rhythm, and segments flown. The maximum flight duty period neatly captures and mitigates the three major components of fatigue—time awake, circadian rhythm, and workload. Fatigue risk management systems offer a flexible alternative to the prescriptive rule.

With respect to the maximum flight duty period and its modulation by flight crew circadian rhythms and workload, the latter represented by segments flown, the rule is clear and unambiguous. With respect to fatigue risk management, what constitutes an acceptable demonstration of an equivalent level of safety and hence an alternative means of compliance awaits the issuance of the relevant FAA advisory circular.

In the yet to be released advisory circular, it seems reasonable that the FAA would consider the use of biomathematical models to predict performance on the basis of sleep wake history and circadian rhythm phase. As the first step in a process of demonstrating an equivalent level of safety, it could use a model to make relative comparisons between schedules generated by the prescriptive rule and schedules generated by a proposed fatigue risk management system. To make such comparisons, the model must be known to accurately predict human performance. Models must be verified as to their internal workings, validated in terms of their predictions, and certified for use in aviation in a manner similar to the mathematical models used to predict mean time before failure of an aircraft component.

In the new rule, the FAA introduced flight time limits that are well within the temporal boundaries of the maximum flight duty period. In support of this, the FAA cites studies suggesting “that after a person has worked for about eight or nine hours, the risk of an accident increases exponentially for each additional hour worked.” The scientific evidence supporting this assertion is weak. Risk is calculated by dividing the number of accidents by the number of people exposed to the accident risk. In the studies cited, the number of persons exposed had to be estimated as exposure data were not available in the accident databases. While there may be a rationale for flight time limits, the studies cited do not provide it. In this instance, a major policy decision was made on the basis of questionable evidence.

To conclude, the FAA has made important advances in integrating scientific findings in sleep and performance into the new rule. Uncertainty remains in biomathematical performance prediction model validation and in the rationale for flight time limits.

Thank you, Chairman Cantwell for the opportunity to testify before the Subcommittee. I would be happy to take any questions that you and the members of the Committee may have.

Senator LAUTENBERG. Thank you.
And now Captain Carl Kuwitzky.
Captain, please go ahead.

**STATEMENT OF CAPTAIN CARL KUWITZKY, PRESIDENT,
COALITION OF AIRLINE PILOTS ASSOCIATIONS (CAPA)**

Mr. KUWITZKY. Good afternoon, Madam Chairperson Cantwell and the distinguished members of the Subcommittee on Aviation Operations, Safety, and Security.

My name is Captain Carl Kuwitzky. I'm a Boeing 737 line pilot flying for Southwest Airlines. I've been with Southwest since 1983, flying captain the last 25 years. I'm honored and grateful for your invitation to appear before you today in my capacity as President of the Coalition of Airline Pilots Associations.

You have before you my prepared remarks. But rather than read those remarks verbatim into the record, I would like to shorten them up a bit and speak to you a little more from the heart.

Today, this committee is taking a look back on the progress of the sweeping legislation passed following the tragic Colgan accident, and that accident was, indeed, tragic. But out of that accident came long-needed change. Today, I want to touch on three issues in my comments, two of them directly out of that legislation.

The first is the flight and duty time rules. As you know, they were released in December, and they were long overdue. Pilots have been working on this issue for 20 years. Why, you might ask? No one knows fatigue better than airline pilots. We live with it every day. Fatigue is a huge issue in our industry.

The FAA approached this issue appropriately using the best available science, convened an aviation rulemaking committee, and pored through thousands of public comments. CAPA applauds the release of these new rules, but there's a critical flaw. And that flaw is the exclusion or carve-out of all cargo carriers from the new rule. Therefore, it misses the mark.

Cargo pilots and pilots flying on the backside of the clock were the ones most in need of the new rules. Cargo pilots suffer the same fatigue issues as passenger pilots, probably even more so. Yet they were excluded.

We do not have one level of safety. We have two, one for passenger pilots, one for cargo pilots. This must change. Cargo pilots must be included under the new Part 117 rules. We should all operate under one level of safety.

With respect to first officer qualification, the legislation you're reviewing required an upgrade in the minimum professional standards for first officers piloting commercial aircraft. CAPA has long supported the current ATP certificate with its requisite requirements as the minimum level to serve as a first officer in Part 121 and 135 operations.

We appreciate the direction and we support the direction the FAA is moving with the recently released NPRM in raising the experience level to serve as a first officer in these operations. What the NPRM proposes is certainly well above the current level, a minimum standard of 250 hours, which is completely unacceptable.

But we believe the current ATP and 1,500 hours should be the benchmark. That certification level produces a mature, experienced, professional aviator with sound judgment to operate in today's complex environment.

The last issue I'd like to talk about is Federal Flight Deck Officers. As you know, the FFDO program was enacted post-9/11. It

was designed to be the last line of defense from a terrorist attack on our Nation's cockpits. Many of our Nation's pilots volunteered to serve, and these pilots incurred significant personal financial costs to participate in attending initial training, maintaining proficiency, and attending requalification training.

This is one of the most cost-effective programs in our Federal Government—\$15 for each flight for an FFDO versus approximately \$3,000 for a FAM to be on the same flight. And the total cost of the FFDO program is but a tiny fraction of the entire Federal Air Marshall Service budget.

Unfortunately, the FFDO budget was reduced by approximately half in the President's recent budget release. The budget amount, if approved, will not sustain the existing program, much less replace pilots who have left the program and will begin leaving in larger numbers later this year when age 65 mandatory retirement begins. There's a backlog of pilots awaiting training, but they've not been allowed to go due to a lack of funding.

Our ask is simple. Please reject the cut in the FFDO budget and increase it to allow pilot volunteers to attend initial training to maintain the existing layer of security in our Nation's skies.

Thank you to the Committee for this opportunity to testify before you today. CAPA looks forward to working constructively with this subcommittee to address the issues I've raised in my testimony. I look forward to your questions and comments.

[The prepared statement of Mr. Kuwitzky follows:]

PREPARED STATEMENT OF CAPTAIN CARL KUWITZKY, PRESIDENT,
COALITION OF AIRLINE PILOTS ASSOCIATIONS

Good afternoon, Madame Chairperson Cantwell, Senator Thune and the distinguished members of the Subcommittee on Aviation Operations, Safety and Security as well as Commerce Committee Chairman Rockefeller. My name is Captain Carl Kuwitzky. I am a line pilot currently flying for Southwest Airlines for 29 years. I am honored and grateful for your invitation to appear before you today in my capacity as President of the Coalition of Airline Pilots Associations (CAPA).

CAPA is a trade association focused exclusively on the safety of the flying public and the enhancement of the piloting profession. We represent over 31,000 commercial airline pilots of Southwest Airlines, American Airlines, US Airways, UPS, Southern Air, ABX Air, Atlas Air Cargo, Kalitta Air, Polar Air Cargo, Arrow Air, Horizon Air, Miami Air, USA 3000, Omni Air, and Gulfstream Air. CAPA was proudly in the forefront in the fight for the passage of the Airline Safety and Federal FAA Extension Act of 2010.

We congratulate this Subcommittee and all of the Senate and the House for enacting this important legislation vital to the safety of America's flying public and to maintaining and improving the high standards of our profession. Enactment of the Airline Safety Bill in 2010 was indeed a watershed moment for the commercial aviation industry. However, it was only the first step that needs to be taken for the safety of our flying public. The rigorous implementation of that bill by the Federal Aviation Administration is the next step that must be taken to ensure commercial aviation safety. As you know, the FAA recently released the new flight duty and rest regulations required by the Airline Safety and FAA Extension Act of 2010.

These long awaited regulations were on the National Transportation Safety Board's "Most Wanted" list and sought by professional commercial airline pilots for over twenty years. The FAA correctly used all available science, convened an Aviation Rulemaking Committee and considered thousands of public comments to determine specific rules governing flight time and duty time in our profession.

While CAPA applauds the promulgation of those rules, it is with regret that we must suggest that the critical standard of "One Level of Safety" for all commercial carriers was not met by the FAA. The regulations unfortunately have a critical flaw, that is, the exclusion of mandatory compliance by "all-cargo" operations. The safety

of our Nation's air space is only as strong as its weakest link, and that weak link is fatigue in primarily all-night cargo operators who were excluded from the rule.

Madame Chairperson, approximately 15 percent of all departures in the United States are all-cargo flights. These aircraft fly in the same airspace and routinely interact with passenger carriers throughout the aviation system. Cargo and passenger aircraft interact during numerous critical phases of flight which include Precision Radar Monitored (PRM) approaches and Land and Hold Short Operations (LASHO). During PRM approaches, aircraft fly with absolute minimum separation, relying on each other to fly precise approaches. During LASHO operations, aircraft are cleared to land and hold short of a crossing runway or taxiway where other aircraft are operating.

Madame Chairperson, an exemption similar to this cargo "carve-out" was attempted in the early 1990s when TCAS was mandated for passenger carriers while cargo carriers were exempt due to the alleged cost of the system. Following a fatal passenger/cargo midair accident in 1996, a near miss in 1997 between a UPS Boeing 747 and Air Force One, and two additional near misses in 1999, TCAS was finally mandated for all cargo aircraft. We fervently hope that the current cargo carve-out can be obviated by the FAA or by Congressional statute if necessary before there is a terrible episode of a fatal accident. It is CAPA's position that until the new flight and rest regulations are applied to passenger carriers, all-cargo carriers and supplemental carriers, our air space will not be governed under "One Level of Safety" and the American public will not be assured of their right to a maximum level of safety.

The Airline Safety and Federal FAA Extension Act of 2010 was also enacted to upgrade the minimum professional stands for First Officers piloting commercial aircraft. CAPA has always advocated the Airline Transport Pilot (ATP) License as the minimum standard for employment as a pilot with a Part 121 or Part 135 air carrier. The ATP provides the minimum requisite academic coursework, flight training and experience needed for the safe piloting of today's complex, high-speed aircraft through a congested, multifaceted air traffic control network in difficult weather and other situational environments. Mainline air carriers require the ATP for employment and once again, "One Level of Safety" dictates that all air carriers, regional or otherwise, should require the ATP as well. The 1500 flight hours that the ATP requires develops a mature, experienced and professional aviator who has the foundation to exercise prudent judgment while responsible for the safe transportation of scores of passengers.

We were gratified that the Airline Safety bill did suggest directionally that all commercial airline pilots have an ATP. We were concerned that the legislation did allow the FAA Administrator to make exemptions from this standard. We were further concerned that the FAA rules will, while upgrading the current minimum standard, not actually require all commercial aviation pilots to have an ATP. We will continue to press the FAA and the Congress to ultimately fix this deficiency in the standard required in our profession.

Madame Chairperson, on another issue not part of the Airline Safety Bill, I would like to raise the issue of the Federal Flight Deck Officer program. The FFDO program is a highly cost effective one designed to provide the last line of defense against possible terrorist activity aboard commercial aircraft. The pilot participants in this program bear significant costs out of their own pockets to train and take part in the program. Other programs such as that of the Federal Air Marshalls (FAMS) are hugely augmented, again in a highly cost effective manner, by the FFDO pilots. The Federal expenditures associated with the FFDO program are a tiny fraction of the cost of the FAM program. As you know, the FFDO budget has been stagnate for a number of years resulting in a significant backlog of pilots who have applied to participate in the program and are awaiting training due to the lack of Federal funds. In addition, unfortunately the budget the President submitted recently to the Congress cuts very substantially the Federal funds allocated to the FFDO program.

CAPA urges the Senate Commerce Committee and the Senate Appropriations Committee to reject that cut in expenditure and indeed increase FFDO funding so new applicants can be trained for the program.

Finally, CAPA congratulates this Subcommittee, the full Commerce Committee and the entire Congress for finally enacting an FAA Reauthorization bill. This bill will help to propel NextGen forward and provide a sustainable, certain level of funding for the Nation's air travel infrastructure. It is the first step the Congress has taken to the development of a national air transportation policy for the 21st century.

CAPA looks forward to working constructively with this Subcommittee on all of the matters I have raised in my testimony. I look forward to your questions and comments. Madame Chairperson, I would respectfully request that my longer statement be included in the record of this hearing.

Senator LAUTENBERG. Thank you.
Mr. Hendricks, we'd like to hear from you now.

**STATEMENT OF THOMAS L. HENDRICKS, SENIOR VICE
PRESIDENT OF SAFETY, SECURITY AND OPERATIONS,
AIRLINES FOR AMERICA (A4A)**

Mr. HENDRICKS. Senator Lautenberg, members of the Subcommittee, thank you for the opportunity to appear before the Committee today on this timely, important subject.

Safety underpins every aspect of airline operations. The remarkable safety record of the airlines that are members of A4A demonstrates their unflagging commitment to fulfilling that responsibility. As a former airline captain, I have repeatedly witnessed that commitment. The results are extraordinary. No mainline U.S. airline has had a fatal passenger accident in over a decade.

That achievement, however, does not mean that we're satisfied. Airline employees and management teams continuously work to improve safety. We very much appreciate the Subcommittee's emphasis on safety, as well as the efforts of the Federal Aviation Administration and the National Transportation Safety Board.

The recently enacted FAA Modernization Reform Act includes a wide range of initiatives that will further enhance aviation safety, including the deployment of ASDE-X radar at major airports, promoting the sharing of safety data by airlines and airline employees with the FAA, and establishing a risk-based inspection system for aircraft repair stations located overseas. But the fact is that day in and day out, our members and their work forces exceed what laws and regulations require.

Government's role in airline safety is crucial. But it is also important to recognize that how we do safety has changed dramatically over the years. The airline industry has reached the point where many of the improvements in safety are attributable to robust, data-driven analysis programs. They often involve collaborative scrutiny of the FAA, employees and management. And many of the most effective programs are the result of voluntary employee reporting mechanisms.

These data-based programs enable us to identify emerging patterns and promptly deploy focused resources to reduce risks prior to crossing the threshold where safety can be compromised. This approach—going where the data take us—has greatly improved the quality of safety programs.

With respect to recent safety initiatives, including those that Public Law 111-216 directed, we want to compliment the FAA on its professionalism in conducting a number of demanding rulemakings in a very short time. One of these proceedings is a proposed pilot qualification rule.

In accordance with the legislation, the FAA issued a proposal on February 29 that first officers hold an Airline Transport Pilot certificate and a minimum of 1,500 hours flight time. Existing FAA regulations do not require a first officer flying for a Part 121 air carrier to hold an ATP certificate. Only the pilot in command must meet this certificate requirement. The proposed rule allows for lesser flight experience thresholds for aviation college graduates and former military pilots.

A4A is preparing comments for the rulemaking proceeding. Although we have not completed them yet, we are concerned about the issue of quantity versus quality. Hard hour minima are not a substitute for the quality of a pilot's training and experience. Moreover, we need to avoid the unintended consequence of the rule becoming a significant barrier to recruiting airline pilots.

Public Law 111-216 also contains training requirements that we supported because they were targeted initiatives. In response to that legislation, the FAA created several aviation rulemaking committees. Last May, it issued a supplemental notice of proposed rulemaking concerning Subparts N and O, the FAA's training regulations. This is a very complex matter.

In simplest terms, we recommend that the FAA withdraw the supplemental rule and convene an aviation rulemaking committee to respond to specific concerns. We propose that they reconsider its decision not to mandate the Advanced Qualification Program as the single means of conducting air carrier training. And, finally, we recommend that the FAA require training for upset prevention and recovery in adverse weather operations.

The FAA's flight time limitations and rest requirements rulemaking proceeding was a complicated undertaking. Overall, we believe the outcome was good. The FAA gave careful consideration to the comments it received and the final rule reflected that.

Our biggest disappointment was that the rule imposed a hard flight time limit of eight or 9 hours, depending on the time of day. No other nation imposes limits to flying time on commercial aviation. Rather, they correctly provide limits on total flight duty periods, which also encompasses nonflying activities. Also, the current rule allows for that limit to be extended for circumstances beyond a carrier's control. That narrow allowance does not compromise safety and recognizes the vagaries of airline operations.

As my remarks indicate this afternoon, the airline industry is committed to data-driven evaluations of operational issues. That kind of analysis produces the most responsive and effective results, and it allows for the most efficient deployment of finite resources in making necessary changes. As my remarks also indicate, we believe that regulation should also demonstrate that commitment.

We appreciate very much the Subcommittee's leadership in aviation safety. We look forward to working with you to achieve further improvements in safety. And I look forward to taking any questions you might have.

[The prepared statement of Mr. Hendricks follows:]

PREPARED STATEMENT OF THOMAS L. HENDRICKS, SENIOR VICE PRESIDENT FOR
SAFETY, SECURITY AND OPERATIONS, AIRLINES FOR AMERICA (A4A)

Chairman Cantwell, Ranking Member Thune and members of the Subcommittee, thank you for inviting us to appear at this timely and important hearing.

Safety underpins every aspect of airline operations. The remarkable safety record of the airlines that are members of A4A demonstrates their unflagging commitment to fulfilling that responsibility. As a former airline captain, I have repeatedly witnessed that commitment. The results are extraordinary: no mainline U.S. airline has had a fatal passenger accident in over a decade.

That achievement, however, does not mean that we are satisfied. Airline employees and management teams continuously work to improve safety. We very much appreciate the Subcommittee's emphasis on safety, as well as the efforts of the Federal Aviation Administration and the National Transportation Safety Board. The re-

cently enacted FAA Modernization and Reform Act includes a wide range of initiatives that will further enhance aviation safety, including expediting the deployment of ASDE-X radar at major airports, promoting the sharing of safety data by airlines and airline employees with the FAA, and establishing a risk-based inspection system for aircraft repair stations located overseas. But the fact is that, day in and day out, our members and their workforces exceed what laws and regulations require.

Government's role in airline safety is crucial but it is also important to recognize that how we "do safety" has changed dramatically over the years. The airline industry has reached the point where many of the improvements in safety are attributable to robust data-driven analysis programs. They often involve the collaborative scrutiny of the FAA, employees and management. And many of the most effective programs are the result of voluntary employee reporting mechanisms.

These data-based programs enable us to identify emerging patterns and promptly deploy focused resources to reduce risks prior to crossing the threshold where safety could be compromised. This approach—going where the data take us—has greatly improved the quality of safety programs.

With respect to recent safety initiatives, including those that Public Law 111-216 directed, we want to compliment the FAA on its professionalism in conducting a number of demanding rulemaking proceedings in a very short time.

One of these proceedings is the proposed pilot qualification rule. In accordance with Public 111-216, the FAA issued a proposal on February 29 that first officers hold an Airline Transport Pilot certificate and a minimum of 1500 hours flight time to obtain the certificate. Existing FAA regulations do not require a first officer flying for a Part 121 air carrier to hold an ATP certificate; only the pilot in command must meet this certificate requirement. The proposed rule allows for lesser flight-experience thresholds for aviation college graduates and former military pilots.

A4A is preparing comments for the rulemaking proceeding. Although we have not completed them yet, we are concerned about the issue of quantity versus quality. Hard-hour minima are not a substitute for the quality of a pilot's training and experience. Moreover, we need to avoid the unintended consequence of this rule becoming a significant barrier to recruiting airline pilots.

Public Law 111-216 also contained training requirements that we supported because they were targeted initiatives. In response to that legislation, the FAA created several Aviation Rulemaking Committees. Last May, it issued a supplemental notice of proposed rulemaking concerning Subparts N and O, the FAA's training regulations.

This is a complex matter. In simplest terms, we recommend that the FAA:

- Withdraw the SNPRM and convene an Aviation Rulemaking Committee to develop revisions to Subparts N and O that are data-driven and respond to specific concerns. The SNPRM's proposals, in contrast, would have a negligible effect on airline safety but would impose significant costs on carriers and would divert resources from some of the most sophisticated training programs in the world. That outcome is not justifiable.
- Reconsider its decision not to mandate the Advanced Qualification Program as the single means of conducting air carrier training. AQP entails a systematic front-end analysis of training requirements from which explicit proficiency objectives for all facets of pilot training are developed. That, we believe, is how all Part 121 carriers should conduct their training.
- Require training for upset prevention and recovery, and adverse weather operations. This should be done by adopting the recommendations of Public Law 111-216 and the Flight Crewmember Training ARC.

The FAA's flight time limitations and rest requirements rulemaking proceeding was a complicated undertaking. Overall, we believe the outcome was good. The FAA gave careful consideration to the comments it received and the final rule reflected that. Our biggest disappointment was that the rule imposed a hard flight-time limit of eight or nine hours, depending on the time of the day. It is important to note that no other nation imposes limits to flying time on commercial aviation. Rather, they correctly provide limits on total flight duty periods, which also encompasses non-flying activities. Also, the current rule allows for that limit to be extended for circumstances beyond the carrier's control. That narrow allowance does not compromise safety and recognizes the vagaries of airline operations.

As my remarks this afternoon indicate, the airline industry is committed to data-driven evaluations of operational issues. That kind of analysis produces the most responsive and effective results. And it allows for the most efficient deployment of

finite resources in making necessary changes. As my remarks also indicate, we believe that regulations should also demonstrate that commitment.

We appreciate very much the Subcommittee's leadership in aviation safety. We look forward to working with you to achieve further improvements in safety.

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

Senator LAUTENBERG. Thank you very much.

We're looking at an industry that has made enormous progress in safety over the years, over the decades. And, obviously, we've got to pay as much attention to any factor that interferes with safe movement in aviation as we can. And in this instance, we're looking, particularly, at pilot training and the number of hours that should be allowed to work—conditions that obviously affected the terrible accident that resulted from the Colgan crash up in Buffalo.

And for some years now, I've been very involved with aviation safety. I had an active role in helping to find the culprit who brought down Pan Am 103 many years ago. I went to Scotland to try and understand what happened there. And one of the things that we do notice, particularly, is that progress made in aviation safety includes significant advancements in technology—when you think about it, the GPS systems.

I used to ride along in a twin second seat and—I never took any training, and a friend of mine once said to me, “What do you do if we're flying along and all of a sudden I go”—I said, “I go”—the same way. And so I admire so much what's happened to the pilot population—with the pilot population, the skill, the—I will say the easier operation of very sophisticated aircraft.

So, Mr. Scovel, the investigation of the Colgan Air crash revealed that prior to the crash both pilots commuted long distances, which likely contributed to fatigue. The NTSB recommended that the FAA implement strategies to reduce risks from commuting.

What steps do you think the FAA ought to take to address issues arising from having to travel that distance? Or should that be a factor at all?

Mr. SCOVEL. Thank you, Senator. We think commuting has potential to be a significant factor as it relates to fatigue. And in the course of the NTSB investigation of the most unfortunate Colgan Air crash in 2009, NTSB entered a finding that the performance of both pilots was likely impaired due to their fatigue.

The NTSB also noted that both pilots had commuted many, many miles in order to get to their home base of Newark. The copilot came from Washington state. The pilot came from Florida. The NTSB report also detailed what efforts, if you could call them that, both pilots had taken in order to acquire some rest before they actually entered the aircraft on the fatal flight.

It's been a problem, and the NTSB, in its report, has identified—and I will quote nearly verbatim here as I did in my opening statement—that operators have responsibility to identify the risk, to take action to mitigate it, and to ensure that commuting pilots are fit to fly. NTSB also stated in that Colgan report that FAA should address fatigue risks associated with commuting, including identifying pilots who commute. As part of its investigation, NTSB also examined the Colgan payroll out of its Newark base and deter-

mined that 49 of Colgan's 136 Newark-based pilots—that's 36 percent—had typical commutes of 400-plus miles from states like California, Nevada, and Washington.

In executing its responsibility under the Airline Safety Act, the National Academy of Sciences reported in July 2011 that it was unable to find enough data to determine a relationship between commuting and fatigue or whether it should be regulated. Based on that and based on the NTSB recommendation that FAA should address commuting's relationship with fatigue, we recommended in September 2011 that FAA collect and analyze commuting data and determine what, if anything, is needed.

We don't presume to prejudge the outcome. It may be, based on the data and proper scientific analysis, that the current situation is just fine. We would tend to suspect not, but that'll be up to the experts to judge.

Senator LAUTENBERG. We can't discuss that in the abstract. There are lots of jobs, lots of careers that are connected to being on duty at the appropriate time. And the commutation that exists in so many instances has been kind of an accepted part of the job. So it takes a lot of thought before a rule change to say, "Well, you shouldn't do that."

Mr. SCOVEL. We need the information, sir. We need the data, and right now we don't have it. We're virtually whistling in the dark in the absence of that information.

Senator LAUTENBERG. Are we getting—is that data being developed at this point?

Mr. SCOVEL. In response to our recommendation, FAA has told us that they will survey the existing data to determine if more data may be needed. In fact, we already have the National Academy of Sciences report that says they've looked for all the data. They haven't been able to find it. We believe it's the FAA's duty right now to go out and get that data.

Senator LAUTENBERG. Ms. Gilligan, last year, a large Air France plane struck a much smaller Delta plane at JFK. Luckily, nobody was injured. But this situation could have had tragic consequences, and we've seen near misses on the ramp, on the airfields themselves. And to help prevent incidents like this, the GAO recommended that FAA increase oversight of ramp areas.

When can we expect FAA to take action on this recommendation?

Ms. GILLIGAN. Well, Senator, we're working with the industry as well. There are some events on the ramp that do rise to the level of an incident or an accident and, if so, those are reported and they are reviewed. But at this point, we don't have a focused program for looking at ramp types of incidents, because we believe that there are other areas of risk that we can address more forcefully.

For example, on the flight duty and rest rule, while commuting is a concern that's been raised, we believe we've addressed it very aggressively in a couple of different ways. First of all, the rule we put out does require that the pilot report fit for duty and determine that, in fact, they are fit and that they've used the rest period to make themselves fit for duty. We require that they certify that they're fit. We expanded the amount of rest time that the carriers provide to the pilots, again, to give the pilot the opportunity to take advantage of that rest opportunity.

And another element in last year's bill which we've not commented on was a requirement you put in place for fatigue risk management plans. Every airline that holds a U.S. certificate has a fatigue risk management plan that's been approved by the FAA which includes education on fatigue and things that contribute to fatigue, which includes commuting and other activities that pilots may be involved in.

I think to your point, pilots are like all the rest of us, and they have lives that they lead beyond the jobs that they do. But it's very important—as Captain Kuwitzky pointed out, it's very important that pilots be educated to understand how they can contribute to fatigue and, more importantly, how they can manage their fatigue so that they do report to work fit for duty. So I think we've taken very aggressive steps to address not just commuting, but the pilot responsibility to spend their time resting when that's appropriate.

Senator LAUTENBERG. Captain Kuwitzky, in the New York/New Jersey region, air cargo is a large part of the aviation system, and you say that in your comments. Roughly 15 percent of departures nationwide are all cargo. But you say—and I think it sounds right to me—that there ought to be one safety standard for whether or not you're flying with passengers or whether you're flying with cargo.

We don't want any accidents to take place. And something like a cargo plane could very well be an important participant in some tragic occurrence if the pilot isn't rested and following the rules.

So what are the potential safety impacts of having weaker standards for some types of pilots?

Mr. KUWITZKY. Thank you, Senator Lautenberg. The passenger and cargo pilots share the same air space, same runways, taxiways, the same environment every day. If a cargo pilot is fatigued, he could be flying an ILS PRM approach just hundreds of feet away in the clouds on an instrument approach. Land and Hold Short operations are another area where fatigue could impair judgment. We also operate in reduced vertical separation now. So it wouldn't take much for an overshoot, and a tired pilot could have catastrophic results.

So that's why we're so adamant about one level of safety. We operate in the same air space. There shouldn't be separate rules for separate operations.

Senator LAUTENBERG. Before I call on my colleague, there are approximately 20 family members from the Colgan crash victims in the audience, and we welcome their participation. We are sorry for the problems that brought them here, but we thank them for their active participation in finding safer ways for aviation to operate, even as good as it is. And it's fantastic, overall, when you think about it.

And I now call on Senator Klobuchar.

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

Senator KLOBUCHAR. Thank you very much, Mr. Chairman. I also thank Senator Cantwell for holding this hearing. And I want to thank all the witnesses and, of course, the families out there who diligently come to so many of these hearings, and I hope that

you see that all has not been lost in terms of the repercussions and the positive outcomes of your work and that we've seen some changes to these rules and there's still a lot more to be done. But I wanted to thank you for being constant reminders of what can go wrong and how serious and tragic it can be.

Minnesota is a hub for Delta, and we also are the home of Sun Country Airlines. So we have a number of—we have a bigger carrier, but we also have a number of smaller carriers that go all over our state. We manufacture Cirrus aircraft up in Duluth, and we also have a manufacturing facility that I visited which has this incredible—makes parachutes for smaller aircraft that have successfully saved hundreds of people where the small plane actually starts to crash—I'm sure many of you know about this—and the parachute comes up. And I got to visit that about a year ago.

My focus in past hearings on this topic has been on the FAA bill and then also on the pilot fatigue issue. So I guess I'd start with you, Ms. Gilligan. You have a major bill now with significant effort to implement the FAA on top of the rulemakings that are required as part of the Airline Safety Act of 2010.

How do you see getting this done, and what do you see as the challenges in getting it done?

Ms. GILLIGAN. Well, I think you've characterized it properly. It will be a challenge. In the recent reauthorization bill, we've identified 12 additional rulemakings and as many as eight to 10 other requirements in the bill that might well lead to rulemaking. So it is a tremendous amount of work for the FAA to take on.

Obviously, we're in the midst at this point of trying to do all that planning. At the same time, there are a number of requirements that have relatively short timeframes with reports to Congress due within the next 90 days and 180 days. We've got our teams working together now to try to meet those short-term deadlines while we do the planning for some of the longer-term requirements.

But I think, to your point, what's important for us right now as well is to make sure we've completed the work we started on the 2010 bill, at the same time trying to balance that with the demands of the recent reauthorization. So it will be a challenge with the resource limitations that we all know all of the agencies are facing. But we understand what the congressional intent is, and we will certainly work hard to meet those expectations. If we run into problems, we'll certainly share with staff where we're having problems and what we plan to do to address them.

Senator KLOBUCHAR. OK. Thank you.

General Scovel, one of the facts that came out of the crash, the Colgan crash, was the lack of sleep for the pilots, which my colleagues have talked about. A report from your office last year found that FAA needed to collect more data on the issue of pilot commuting, including how many flight crew members in the aviation industry commute and the distances they commute.

Is any of that commuting data available or being reported by the industry today? And has FAA taken steps to implement your recommendation on commuting?

Mr. SCOVEL. Thank you, Senator. The Congress in the Airline Safety Act levied a requirement on the National Academy of Sciences to survey the field for available data regarding commu-

ting's impact on fatigue. The National Academy of Sciences reported last July that there was an absolute dearth of such data and recommended that it be collected, as did NTSB in its Colgan report.

We have repeated that recommendation to FAA in our report last fall that FAA collect the data and undertake a proper analysis, again, to determine what impact commuting may have on fatigue, whether the current system is fine, or whether other regulatory steps too, needed from the agency or by industry are to improve FAA's fatigue risk management systems.

The agency reported back to us that it would, again, survey for available data and let us know by this October whether a further data collection effort would be required. We think it's up to FAA now in order to get that done.

Senator KLOBUCHAR. So, Ms. Gilligan, could you talk about why the FAA did not include the impact of commuting in the new pilot fatigue rules? Did FAA examine commuting practices as part of the development of the rules?

Ms. GILLIGAN. Senator, I'll be glad to comment on that. First of all, as the report from the National Academies of Sciences concludes, there are a number of things—any number of activities that pilots may be involved in that can contribute to their fatigue, and that the focus on commuting or any other individual activity may not be sufficient to understand the risk.

And that's why in our rule we took a different approach. We took the approach of extending the opportunity for rest so that pilots now have an opportunity to get the seven or 8 hours of sleep that the science tells us people need, and we've placed—so that's the role for the airline. The airlines have to give more opportunity for rest, and they need to evaluate that, in fact, the crew is coming to work fit to perform.

We also see responsibility, as the Academy's report identified—responsibility on the part of the pilots to use their rest periods to rest, to come to work prepared to perform the functions that they're responsible to perform. And our rules require that they certify, not just at the beginning of the day, but before each flight that they believe they are fit to perform that flight. And if they tell their employer they are not fit, then we expect the airline to take them off that rotation and not assign them to that duty period. So we believe that we've struck the right balance within the rule.

In addition, because of the fatigue risk management plans, we also see that the airlines are providing training to the pilots on fatigue, what contributes to fatigue, how they can better manage their fatigue, so that they, again, can meet their responsibility to come to work prepared. And it's, again, not just commuting. Spending the day playing golf—

Senator KLOBUCHAR. No, I would agree. I just think it's something unique, as someone who commuted for 5 hours today to get here and got up at 4 in the morning—it just seems that people who have these jobs tend to be differentiated because of the fact that many of them have these long commutes, and that's something they have in common that, obviously, can make them tired. And that's why I'm more focused on—it certainly was at play in the Colgan crash. So I hope you'll continue to look at it.

Thank you.

Ms. GILLIGAN. We will.
Senator LAUTENBERG. Senator Thune.

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

Senator THUNE. Thank you, Mr. Chairman. I want to thank our witnesses for being here today as well and for their willingness to testify.

Thankfully, the FAA does operate the safest and most efficient aerospace system in the world, with over 30,000 safe flights daily and nearly 800 million people transported per year, all of the while this industry continues to grow with an estimated 1 billion passengers estimated annually by the year 2021. Even though the national air space system has achieved its safest period in history, we are reminded by the family members of those here today that there is still a lot of room for improvement.

For example, since November 2001, regional carriers have been involved in the last six fatal accidents involving U.S. air carriers which resulted in 136 fatalities. Of these, four have been attributed to pilot error, including the most recent one involving Colgan Air, Inc., in 2009, which we know resulted in 50 fatalities in Buffalo, New York.

In response to this accident, Congress passed the Airline Safety Extension Act in 2010, which directs the FAA to update pilot flight and duty regulation, improve pilot training and experience requirements, and require airlines to implement safety management systems. While the FAA has made some important safety improvements, they also have missed some key deadlines.

For instance, they should be commended for promoting the use of voluntary safety reporting systems, SMS implementation, and updating pilot flight and duty regulations. However, the FAA has not met key timelines for raising pilot training standards, implementing crew member mentoring and leadership programs, and increasing minimum pilot qualifications.

And so I appreciate having those of you who are here today to share your insights with us. To ask a couple of questions related to those subjects—one has to do with the FAA last month proposing—or announcing proposed rules to raise the qualifications for first officers from 250 hours to 1,500 hours. Included in these rules are two exceptions that provide flight hour credit for military pilots and baccalaureate aviation degrees.

And I would direct this to any of you on the panel. But can any of you comment on the rule, in general, and these exceptions, in particular?

Mr. KUWITZKY. I'll take a shot at it, Senator Thune. Our position has always been that the ATP and 1,500 hours is the minimum, because it produces within the criteria to get the ATP a certain level of experience that's able to translate into the cockpit. You can't get experience in a classroom or reading about it. The only place you can get experience is in the cockpit of an airplane, experiencing all that goes on.

Now, you can get 3,000, 4,000 hours of experience in a crop duster that has no translation to our operation. But if you have a minimum of 1,500 hours and you have exposure in the crew system,

in the airline style operation, you're going to be a very good first officer. You're going to understand the system, and you'll be able to serve very well.

Senator THUNE. Anybody else?

Mr. HENDRICKS. Yes, Senator Thune. I'd like to offer my views on this. I think we're trying to accomplish the same thing, which is to have the most highly qualified and trained pilots operating in the flight decks of our aircraft in the Part 121 environment.

I would offer and like to echo the statement made by Mr. Voss previously that it's about the quality of the training, not necessarily about a hard number of hours. I'm a former military pilot. At 300 hours, I was flying fighters off of aircraft carriers. I felt very qualified. The training I had gotten was world-class.

Many airlines in Europe have what are known as ab-initio training programs. They're very successful. They take relatively low-time pilots, expose them to very high-quality training, and the record shows over the course of a couple of decades they've produced quality pilots that perform well over the long term.

So while I agree with my panel members that we want to make sure we have the most highly qualified pilots flying in the flight decks of our aircraft, we should look at the quality of that training, the breadth of that training, rather than just a random number of hours, if you will.

Senator THUNE. Let me ask you as a follow-up, if this rule becomes permanent, how much more difficult is it going to be for carriers, especially regional carriers, to find first officers that qualify?

Mr. HENDRICKS. We think the potential for the regional industry—we think there's a potential it would be very difficult. If you look at the requirement for the baccalaureate degree that you referred to, some of those degrees in aviation cost upwards of \$200,000-plus. And then once those funds are expended, a pilot is not qualified to operate in the environment because he's got to go out and get another 750 or 800 hours of flight time. And what type of quality flying is he going to achieve that's going to make him a better and more qualified airline pilot?

So we have concerns, even with the exceptions that have been made by the FAA for military pilots and those with aviation degrees.

Senator THUNE. Let me ask this, if I might, Ms. Gilligan. On the issue of the FAA issuing the proposed rule for first officer qualifications, they have not issued one for pilots. What's causing the delay there?

Ms. GILLIGAN. Well, sir, that particular rule addresses the particular requirement in the Act that we raise the requirements for those who act as a first officer. Right now, all pilots in command are required to hold an Airline Transport Pilot certificate, and one of the requirements for that certificate is 1,500 hours.

Now, there are other training enhancements that the Act requires. Those we are covering in other rulemakings, one in a rewrite of our training rules, generally, and that will affect both first officers as well as pilots in command. So I think you'll see that we will address all of the requirements in the Safety Act, but they are in different rulemakings, depending on what made the most sense.

Senator THUNE. What's the estimated timeline for issuance of—you talk about those proposed rules?

Ms. GILLIGAN. The first officer qualification rule, which—the proposal just went out. The statute actually has a requirement that the 1,500 hours would go into effect on a date certain, which is August of 2013. So we are looking to finalize our rule before that date so that the airlines can take advantage of whatever we build into the rule.

The training rule doesn't have—the overall rewrite of our training rule doesn't have a final schedule yet. It's quite a complex rule-making, and we got quite a number of comments. We're looking at how we can better balance the requirements of the rule and the costs that it will drive. And we expect that we'll have a published schedule for that shortly, and that will be available on the Department of Transportation website once the schedule is published.

Senator THUNE. Thank you, Mr. Chairman.

Senator LAUTENBERG. I have one question, Ms. Gilligan. The FAA reauthorization signed into law earlier this year exempts certain NextGen projects from environmental review. Exemption has raised concerns in my state and my region that there'll be potentially increased noise as a result of NextGen implementation.

Now, how will the FAA provide communities with an opportunity for public input during implementation? Will they?

Ms. GILLIGAN. Senator, that is an area that I'm not personally involved in, although I can tell you that we are reading the language very carefully, because we understand that—while I think it was congressional intent that some of the Next Generation air transportation system improvements move forward as quickly as we can, we understand that it was not meant to do it without any concern for environmental effects.

So I can assure you—I can promise that we will get back to you directly and let you know how that's being interpreted to help you respond to that question.

[The information referred to follows:]

The FAA Modernization and Reform Act of 2012 did not exempt any projects from environmental review. The Act does provide two legislated categorical exclusions for certain NextGen procedures. A categorical exclusion is still subject to environmental review; however, since a categorical exclusion is presumed to have no significant impact, the review is less detailed and the review process is less extensive than for projects with potential significant impacts. Since these categorical exclusions have been enacted in legislation, their implementation will not be postponed for further public process. However, there will be an opportunity for public feedback at the time both categorical exclusions are incorporated in a revision that is currently being drafted to the FAA's guidance implementing the National Environmental Policy Act. This guidance is subject to public review.

Senator LAUTENBERG. I will hope that they could listen to the language that comes from the homeowners in the area.

Thank you all very much for your excellent testimony. The record will be kept open, and you may get questions in writing, and please respond as promptly as you can.

Thank you all very much.

[Whereupon, at 3:51 p.m., the hearing was adjourned.]

A P P E N D I X

PREPARED STATEMENT OF HON. CHARLES E. SCHUMER,
U.S. SENATOR FROM NEW YORK

I would like to thank Chairman Cantwell and Ranking Member Thune for holding this important hearing on commercial airline safety oversight. It is of great importance to me and the families of Continental flight 3407 that the Senate Commerce Committee is investigating the progress that has been made on implementing P.L. 111-216—The Airline Safety and Federal Aviation Administration Extension Act of 2010—and the work that remains to be done.

I know you are aware of the reason why this issue is so personally important to me. On February 12, 2009, the Nation was jolted awake to the issue of aviation safety when Continental Flight 3407 crashed near Buffalo, New York, claiming fifty-one lives. Since that tragic day, we have learned a great deal about what led to the crash. Working in the wake of the crash with the National Transportation Safety Board (NTSB), the Federal Aviation Administration (FAA), and the heroic family members who lost their loved ones on flight 3407, we were able to successfully pass H.R. 5900 in order to prevent an accident like this from ever happening again.

Since H.R. 5900 (P.L. 111-216) was signed into law on August 1, 2010, the FAA has made significant progress in implementing aspects of the law, including publishing pilot flight and duty rules. However, much work remains to be done to fully implement the law. Critical rulemakings still need to be completed including publishing of final rules on crewmember training and pilot certification and qualification requirements. FAA must also complete work on a pilot records database. If completed, each of these actions will improve the preparedness of those we entrust to fly our planes. In addition, action must be taken to address the problem of pilot commuting. FAA has studied the problem of commuting and has committed to report on this issue by October 1, 2012. I look forward to FAA completing this review and urge them to implement any additional changes that are needed to combat pilot fatigue. Finally, the law requires completion of a rule on safety management systems by August 1, 2012. It is my hope that FAA finalizes a strong rule and works proactively with industry to make sure that all carriers are reporting sufficient information.

As we move ahead with full implementation of P.L. 111-216, I look forward to working with FAA, the NTSB and the Inspector General (IG) to ensure that our aviation safety programs truly raise the bar for aviation safety. It is not enough to simply write regulations. We must continue to evaluate their performance and seek new opportunities to enhance our safety systems. In addition, our safety regime is only as good as its enforcement, which is why oversight hearings such as this and reports by the NTSB and the IG are so critical.

In closing, I reiterate that much progress has been made since the passage of P.L. 111-216, but work still needs to be done to realize its full implementation and the fulfillment of our national promise to provide the best in aviation safety. Three years have passed since the last fatal commercial aviation accident—the crash of Continental Flight 3407—but we cannot lower our guard or slow the pace when it comes to aviation safety. It is imperative that we continue to push ahead with strong regulations and I am confident that by continuing to work together, we can ensure that the FAA will meet its obligations to the Nation's airline passengers.

Thank you for holding this hearing to review the safety of our Nation's airline industry. I look forward to continuing to work with you to promote safety in our Nation's skies.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN D. ROCKEFELLER IV TO
MARGARET "PEGGY" GILLIGAN

Question. What are the primary challenges for the FAA in implementing a new centralized electronic pilot records database (PRD)?

Answer. The primary challenges involved in implementing a PRD include:

- Initiating several new rulemaking projects;
- Meeting the cost/benefit analysis;
- Developing a common data standard that will facilitate the transfer of records from more than two thousand Part 121, 125, and 135 operators;
- Cost of entering a decade worth of FAA and air carrier data in the PRD; and
- Accommodating data from the National Driver Register (NDR).

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO
MARGARET "PEGGY" GILLIGAN

Flight Duty and Time

Question 1. Ms. Gilligan, does the FAA's vision of one level of safety mean one level of safety across all Part 121 operators or does it mean one level of safety between regional airlines and mainline carriers?

Answer. The term "one level of safety" relates to scheduled passenger-carrying operations conducted under Part 121, which covers all scheduled operations conducted in aircraft with 10 or more seats. All scheduled carriers referred to as regional airlines or mainline airlines are covered by Part 121 and meet the same regulatory requirements.

Question 2. The FAA takes pride in the fact that the flight and duty time rules are science based. What is the scientific basis for all-cargo operations not being included under the new rule?

Answer. The decision to not include all-cargo operations under Part 117 was driven by economics rather than science. Even if the FAA is directed by Congress to issue a rule, we must still do so in a manner in which the benefits resulting from the rule justify the costs.

In evaluating this rule under this requirement, it became clear that applying this rule to cargo operators was not clearly justified compared to the benefits generated in this segment of the industry. However, these carriers have the ability to operate under the new rules if they so choose.

Question 3. According to OMB's cost-benefit analysis of the flight and duty time rules, the projected cost for including all-cargo operations is \$306 million and the projected benefit of avoiding one fatal all-cargo accident ranges roughly between \$20 million and \$32 million depending on the number of crewmembers on board the aircraft. Do you agree with scenarios and assumptions OMB used for its cost-benefit analysis of the flight and duty time rules for all-cargo airlines? If the economic benefits of the analysis are weighted heavily towards preventing the loss of life, and all-cargo airlines only carry a handful of crew, doesn't that a priori set the bar impossibly high for any FAA safety rules for all-cargo airlines to clear OMB?

Answer. In developing a rule, we are required to do so in a manner in which the benefits resulting from the rule justify the costs. It is impossible to predict the outcome of any future cost-benefit analysis without knowing the specific content of the proposed regulation and the benefits associated with it.

In evaluating this rule under this requirement, it became clear that applying this rule to cargo operators was not clearly justified compared to the benefits generated for this segment of the industry. In light of this, based on the requirements in the Act that all air carriers, including cargo operators, must have an approved fatigue risk management plan and provide fatigue education training, we determined an appropriate alternative would be to allow cargo operators to voluntarily adopt provisions of the rule.

Question 4. Secretary LaHood called for all-cargo airlines to meet voluntarily the standards called out in the flight and duty time rule. Do you believe this will be an effective approach? Which all-cargo airlines have made such a commitment to date?

Answer. The Secretary has already engaged in several meetings with all-cargo airlines to discuss these matters. Some cargo airlines already have implemented improvements, such as providing improved rest accommodations for pilots to use while cargo is loaded and unloaded during night time operations.

In addition, in accordance with the Act, all-cargo carriers have an approved FRMP, which is an air carrier's method for managing and mitigating day-to-day flightcrew member fatigue throughout its operation within the current regulatory structure for flight, duty, and rest limitations. However, no air carriers have begun implementing the new flighty, duty and rest rules.

Question 5. Many of our Nation's busiest airports for cargo are also our busiest airports for passengers. For example, SeaTac is the 17th largest airport in terms of passenger enplanements. It is also the 18th largest for cargo. Nearby Boeing Field is the Nation's 25th largest airport for cargo. It is a metroplex where both passenger and cargo aircraft share the same airspace and are in close proximity on the ground. Twenty two of the 30 busiest passenger airports are also in the top 30 busiest airports for cargo. It is at these busiest of airports where I have the greatest concern about the disparity in the rules for all-cargo and passenger airlines. When it became clear that the FAA's proposed rules on flight and duty times for all-cargo airlines would not stand as a result of OMB's cost-benefit analysis, did the agency consider requiring all-cargo airlines operating at these most busiest airports to use the same flight and duty time rules as passenger airlines do?

Answer. No. From a surveillance and oversight perspective this would not be operationally and functionally feasible. In addition, during any twenty-four hour period, most passenger and all-cargo operations operate opposite of one another. Passenger operations generally occur between the hours of 5:30 A.M. and 11:00 P.M. while all-cargo operations generally occur between the hours of 9:30 P.M. and 8:30 A.M.

Pilot Commuting

Question 6. Ms. Gilligan, the National Transportation Safety Board (NTSB) in its analysis following the February 2009 crash of Colgan Air Flight 3407 in Buffalo, NY, found that out of 136 Newark-based Colgan pilots, 20 had commutes between 400 to 1,000 miles, and 29 had commutes over 1,000 miles from their home to their domicile of Newark, New Jersey. Why do some pilots commute long distances to their duty stations—is it out of economic considerations, lifestyle considerations, other reasons?

Answer. As stated in the National Academy of Science report, quality of life and economic issues are the reasons pilots commute. Pilots typically live in a particular geographic area to preserve the quality of life for their families or they live in a location where they were previously domiciled but have bid to be assigned to another domicile within the carrier's system.

Question 7. Can airlines benefit if their flight crews commute to their duty stations? How widespread are long distance work commutes for the crews for mainline carriers and for the crews of regional carriers?

Answer. As stated in the NAS report, having pilots able to commute longer distances to their domiciles rather than requiring them to live nearby may allow the industry to change flight patterns more quickly to respond to changing market demands. Since, for most airlines, pilots are not required to live near their domiciles, the airlines typically do not pay for pilot relocation or for cost-of-living adjustments when pilots move from one domicile to another. The latest data suggests that 60 percent of the mainline and regional pilots commute to their domicile.

Question 8. The 2010 law Congress passed required the National Academy of Science to conduct a study on the effects of commuting on pilot fatigue and air carriers commuting policies. The report had three conclusions and made six recommendations. Do you agree with the report's conclusions? Does the FAA intend to take action on any of the recommendations?

Answer. The FAA included one of the NAS recommendations in draft AC 117-3, *Fitness for Duty*, in which NAS recommended, "Pilots should avoid planning commutes or other pre-duty activities that result in being awake beyond approximately 16 hours before the scheduled end of duty, endeavor to sleep at least 6 hours prior to reporting for duty, and obtain more than 6 hours of sleep per day whenever possible to prevent cumulative fatigue from chronic sleep restriction. Pilots should also consider the amount of sleep and time awake in their decision-making relative to when to inform their supervisors that they should not fly due to fatigue." All other recommendations require additional studies and we are currently evaluating how to address these recommendations.

Question 9. In your written testimony you state: "In establishing these requirements, we took into account that off-duty activities do have an impact on fatigue for pilots, regardless of the type of activity, such as playing golf or commuting to work. We expect pilots to manage their off-duty rest to ensure they report ready for work." Do you believe that pilot commuting should be incorporated into airlines' Fatigue Risk Management System?

Answer. There are distinct differences between a Fatigue Risk Management System (FRMS) and a Fatigue Risk Management Plan (FRMP). The FRMS applies to operations outside the regulatory structure and a FRMP operates within the regulatory structure. The FRMP is a statutory requirement and requires all air carriers, including cargo carriers, to develop a fatigue education and awareness training program. One of the elements of this training program is the effect of fatigue as a result of commuting.

Question 10. The USDOT Inspector General's September 2011 report recommended that the FAA ensure the collection and analysis of data regarding domicile and commuting lengths for all Part 121 flight crews and determine if additional changes are needed or if the airlines need to take further mitigating actions in their fatigue management systems. Has the FAA agreed to act on these DOT IG recommendations? Do you foresee any specific challenges in trying to identify the domicile of flight crews?

Answer. The FAA concurred in part with the DOT IG recommendation to collect additional data, by committing to a review of existing literature and data on the subject to determine if additional data collection would be warranted. The work by the National Academy of Sciences (NAS) represents the most recent effort to determine whether there is a linkage between commuting and safety. The NAS panel identified neither a correlation between pilot commuting and safety nor a unique risk to aviation safety.

Since commuting may still be the result of a change to an air carrier's business model, such as closing a domicile or furloughing pilots, or due to a crewmember's personal choice, any data collection represents only a snap shot of the industry.

Collecting data on pilot domicile and commuting practices would be a daunting task and any consideration of additional data gathering in this regard must be based upon consideration of whatever data is already available and the potential safety benefit of collecting additional data.

Status of Pilot Training and Experience Rules

Question 11. Ms. Gilligan, some of the witnesses here today have expressed concerns about the FAA's progress on requirements to update pilot training and experience rules. Where are the proposed rules in the process? What is the FAA doing to make sure these efforts are on track?

Answer. The FAA has two rulemaking projects that currently address pilot training and experience. The Qualification, Service, and Use of Crewmembers and Aircraft Dispatchers Supplemental Notice of Proposed Rulemaking (SNPRM) is a comprehensive training rule that includes revised airline pilot training requirements. The SNPRM public comment period closed in September 2011 and the FAA is currently developing the final rule. The Pilot Certification and Qualification Requirements for Air Carrier Operations Notice of Proposed Rulemaking, which provides training requirements for achieving an airline transport pilot certificate and includes the requirement that all airline pilots have an airline transport pilot certificate, is currently open for public comment. The comment period closes on April 30, 2012 and the FAA will then work on developing the final rule. The FAA anticipates publishing both final rules in 2013.

Centralized Database of Pilot Records

Question 12. Ms. Gilligan, the 'Airline Safety and Federal Aviation Administration Extension Act of 2010' required the FAA to develop a centralized database of pilot records, which would include a pilot's training and experience history, in order for airlines to better screen applicants for pilot positions. What are the primary challenges for the FAA in implementing a new centralized electronic pilot records database? What is the current timeline for completing the database?

Answer. As previously mentioned, the primary challenges involved in implementing a PRD include:

- Several new rulemaking projects;
- Meeting the cost/benefit analysis;
- Developing a common data standard that will facilitate the transfer of records from more than two thousand air carriers and operators;
- Cost of entering a decade worth of FAA and air carrier data in the PRD; and
- Accommodating data from the National Driver Register (NDR).

We have several major milestones in place and anticipate the Database Proof-of-Concept by 4th Quarter FY 12. The time period to comply with historical data is set for November 2016.

Effectiveness of Call to Action on Safety

Question 13. Ms. Gilligan, former FAA Administration Babbitt's Call to Action on Safety shortly after his Senate confirmation was universally well received. It included a number of FAA actions but also included significant voluntary efforts by industry. Looking back, would you say that there remains a high rate of industry participation in these voluntary safety efforts by both mainline and regional airlines or has interest and participation waned over time as the lessons learned from the Colgan Air crash becomes more historical in nature?

Answer. Participation in FAA's voluntary reporting programs is at an all time high. In January of 2011, 69 percent of part 121 operators participated. Today, over 80 percent participate in at least one voluntary program. If we break it down further into mainline and regional carriers, virtually 100 percent participate in at least one voluntary program and most participate in several voluntary programs.

Airline Transport Pilot Certification

Question 14. Ms. Gilligan, the Airline Safety and Federal Aviation Administration Extension Act of 2010 allows the Administrator to credit specific academic training courses beyond those required towards meeting the flight hours requirements. The Administrator would have to determine that allowing a pilot to take specific academic training courses will enhance safety more than requiring the pilot to fully comply with the flight hours requirement. Would the training courses considered for credit towards flight hour requirements have to be taken at FAA-approved schools exclusively or could the courses also be taken at non-approved schools?

Answer. The FAA has not looked at any individual academic course to allow credit towards meeting the 1,500 hours of pilot time; rather it has proposed two alternative hour requirements for obtaining an ATP certificate with restricted privileges based on overall academic course work. The first alternative permits military pilots to apply for the restricted ATP at 750 hours total time. The second alternative permits pilots who graduated from a 4-year baccalaureate aviation degree program who also obtained their commercial pilot license and multi-engine and instrument ratings at an affiliated flight school to apply for a restricted ATP at 1,000 hours total time.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BARBARA BOXER TO
MARGARET "PEGGY" GILLIGAN

Question 1. I understand that the FAA has been hard at work to implement provisions of legislation that I was proud to champion with Senator Snowe, the Ensuring One Level of Aviation Safety Act, which was passed as part of the larger Airline Safety and Federal Aviation Administration Extension Act of 2010. I appreciate the agency's effort but remain concerned that the rule regarding crewmember training has faced so many delays. The final rule was initially scheduled to be completed on October 1, 2011. When does FAA expect to have this rulemaking completed?

Answer. The FAA is currently in the process of addressing all the comments to the Supplemental Notice of Proposed Rulemaking that was published on May 20, 2011 and is developing a Final Rule.

Question 2. The Airline Safety and Federal Aviation Administration Extension Act of 2010 also called for the establishment of a Pilot Record Database. Creating this database, as the Department of Transportation Inspector General has observed, will require a number of years of rulemaking and engagement with stakeholders to complete. What milestones has FAA set for itself in the development of the Pilot Records Database, and what is the time-frame for these goals?

Answer.

Major Milestones:*

Begin work on the Database	August 2010
—Requirements Team	
—Contract with LM	
Convene PRD ARC	January 2011
ARC Report	July 2011
Evaluating recommendations	On-Going
Study: Economic and hosting alternatives	July 2012
Database Proof-of-Concept (PoC)	4th Quarter FY 2012

This adjusted timeline reflects the addition of time for an "economic and hosting alternatives study". It is not the same schedule that was provided in the PRD "Statement to Congress" in Feb 2012. Once the Proof-of-Concept is complete, we will evaluate the feedback and determine a rulemaking timeline.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. TOM UDALL TO
MARGARET "PEGGY" GILLIGAN

Question 1. I am concerned that the fatigue rule allows for voluntary implementation by all-cargo carriers. As Capt. Kuwitzky testified today, all-cargo carriers comprise 15 percent of departures. Those flights interact with passenger flights on the ground and in the sky. What steps is the FAA taking to ensure that all-cargo carriers have adequate policies in place to ensure their pilots are not-fatigued while flying?

Answer. The FAA developed requirements for an FRMP, which is an air carrier's method for managing and mitigating day-to-day flightcrew member fatigue throughout its operation within the current regulatory structure for flight, duty, and rest limitations. All part 121 air carriers, including all-cargo carriers, have an approved FRMP.

Question 2. In the testimony today we have heard different suggestions for ensuring that crew members and first officers, specifically, are adequately trained. Some groups are concerned that a requirement for a minimum number of hours may not be sufficient to ensure that pilots have the necessary skills. One suggestion is to ensure that pilots also receive specific training in skills like upset prevention and recovery prior to or in addition to receiving their airline transport pilot (ATP) certificate. How does the FAA propose to address the need for additional training, initial and periodic updating, in upset prevention/loss of control recovery?

Answer. The FAA reconvened the Stick Pusher and Adverse Weather (SPAW) ARC in January 2012. The FAA is tasking the ARC with specific deliverables on upset prevention and recovery training in simulators.

The SPAW ARC will meet from March to August 2012. We will consider the ARC's recommendations and develop the guidance material for the delivery of upset prevention and recovery training in simulators for air carriers and the simulator training proposed for pilots seeking an ATP certificate.

The FAA will continue its collaborative efforts in stall and upset prevention and recovery training with EASA, ICAO, and through prominent work groups such as the Royal Aeronautical Society's International Committee for Aviation Training in Extended Envelopes (ICATEE). These harmonized efforts will ensure U.S. pilots will continue to receive the highest quality and relevant training available.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO
MARGARET "PEGGY" GILLIGAN

Question 1. The FAA established an Aviation Rulemaking Committee in 2010 which made recommendations for the establishment of a mentoring program to help more senior pilots work with less experienced crewmembers. This group made recommendations to the FAA in November 2010, yet the FAA has missed the statutory deadline to address the mentoring mandate contained in the Airline Safety and Federal Aviation Administration Extension Act. Why has the FAA not met its statutory deadline?

Answer. The rule has been out of the FAA in review in the Executive Branch since March 2011.

Question 2. When does the FAA anticipate it will address issue a final rule on mentoring?

Answer. Once the NPRM is published, the FAA is required by statute to issue a final rule 16 months after the close of the comment period.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. ROGER F. WICKER TO
MARGARET "PEGGY" GILLIGAN

Question. There are currently six Aviation Safety items on NTSB's Most Wanted List, including Pilot and Air Traffic Controller professionalism.

Recent accidents and incidents have highlighted the hazards to aviation safety associated with departures by pilots and air traffic controllers from standard operating procedures and established best practices.

In fact, an air traffic controller at Gulfport-Biloxi airport who nearly caused a mid-air collision last year recently repeated the same error. Despite the near miss last year, the FAA, after a brief suspension, declared this air traffic controller fit to resume his duties.

While I applaud the thousands of air traffic controllers that provide safe and professional service to our Nation on a daily basis, I am concerned that the FAA saw

fit to return an air traffic controller to his duties after a history of multiple incidents that required past disciplinary action by the FAA.

Can you clarify the standards and procedures that the FAA uses in its internal review process in such incidents?

Answer. The FAA has internal policies and procedures for reviewing air traffic incidents and determining the appropriate course of action for a particular air traffic controller.

Specifically, the FAA closely monitors and evaluates risks and hazards represented by incidents in the air traffic (ATC) system. Incidents are required to be reported via various internal safety management orders. These reporting programs allow for direct action to be taken by management when it is deemed necessary to address the risks or hazards in the National Airspace System (NAS). They also allow for data to be collected to continue to analyze the system for risks which helps monitor, assess, and identify systemic risks in the NAS.

FAA managers are guided by the Human Resources Policy Manual (HRPM) PM-9.1, Performance Management System (PMS), FAA Table of Penalties, FAA Order 3400.20, Individual Performance Management (IPM) for Operational Personnel and specific articles in the NATCA CBA to manage performance reviews and the conduct of all air traffic control specialists. When the operational actions of a particular air traffic controller are called into question, management will make a determination as to whether the employee's actions are a performance issue warranting additional or remedial training, whether it is a conduct issue requiring discipline, or whether his/her actions are the result of systemic issues in the NAS that need correcting, or some combination thereof.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO
HON. CALVIN L. SCOVEL III

Flight and Duty Time

Question 1. What is your interpretation of the FAA's one level of safety? Does it mean one level of safety across all Part 121 operators or just regional and mainline carriers?

Answer. "One level of safety" is a term developed and used by FAA. Generally speaking, FAA has indicated that this term refers to an ongoing commitment of regulatory oversight, technical expertise, and continued efforts from labor and management to share safety best practices among all operators. However, FAA has not articulated exactly what it means or how to implement it. For example, as part of its commitment to safety, FAA proposed one set of regulatory requirements for all Part 121 operators, but ultimately published new fatigue rules that only apply to Part 121 passenger flights. Cargo carriers remain exempt from the changes, and this raises questions about how far "one level of safety" extends. FAA has also indicated that Part 135 air carriers should expect a proposed rulemaking to address pilot fatigue in their operations that will likely include provisions similar to the Part 121 changes. In our opinion, FAA is making progress to address pilot fatigue, but more work remains to define and achieve one level of safety across the industry.

Question 2. Is there scientific basis for all-cargo operations to be excluded from the new rules? Do you consider their exemption from the new regulations as leading to an unacceptable level of risk?

Answer. FAA's decision to exclude cargo operations from the new rules was based on cost. However, the Agency acknowledged that fatigue factors are "universal" based on sleep science and initially proposed to include cargo carriers under the new regulations. During rulemaking, industry experts made conflicting arguments regarding whether the new rules should apply to cargo carriers. For example, one carrier representative noted that some all-cargo operators have invested millions in high-quality rest facilities and stated that they typically fly fewer total hours than passenger flights, thus mitigating potential fatigue. Conversely, a number of labor groups supported the inclusion of cargo carriers under the new rules, and NTSB stated that "human fatigue factors are the same across operations and science cannot support the notion of allowing longer duty hours for certain subgroups." We have not examined the level of risk associated with FAA's decision but believe that safety—not cost—should be FAA's overarching concern.

Pilot Commuting

Question 3. Do you agree with conclusions reached by National Academy of Science in its report on the effect of commuting on pilot fatigue? Do you consider their six recommendations useful?

Answer. The conclusions from the National Academy of Sciences study on commuting and pilot fatigue are consistent with findings from our report issued last year that examined similar issues. Our work in this area was limited to six carrier visits, but none of them had commuting policies. In addition, FAA's new flight crew regulations do not require carriers to identify pilots who commute or have policies to address issues that may impact commuting and fatigue. We believe the Academy's recommendations for FAA to collect more information are useful and will help FAA better understand pilots' commuting patterns, identify factors or trends that may induce fatigue, and target areas that may need specific attention or additional research. The Agency will be unable to determine the potential impact commuting may have on fatigue until this information is collected and assessed.

Question 4. FAA stated that it would review available data on pilot commuting and determine by October 1, 2012 if additional data could offer added safety benefits. Does the FAA's proposed action address the intent of your recommendations?

Answer. In light of our work and the National Academy of Sciences' conclusions that there is inadequate data on pilot commuting, FAA's proposed actions to "scan" for available information on commuting pilots does not directly address our recommendations. We believe that FAA should collect and analyze this information so it can position itself to make certain that commuting and fatigue do not have detrimental consequences or impact safety. However, until FAA conducts its review of available commuting data, it will be premature to presume or prejudge the outcome of this work.

Pilot Training

Question 5. Mr. Scovel, one of the subheadings in your written testimony is called "Industry Concerns Have Delayed FAA's Rulemaking Efforts To Enhance Pilot Training Standards". You also mention that with the upcoming advancements in pilot training, it is important for the FAA to consider how to strengthen its oversight practices of pilots. Will this require a rulemaking or can the FAA do this with its existing authority? Will it require additional staff resources or can it be done through the re-allocation of existing staff resources?

Answer. FAA can use its existing statutory authority to strengthen its oversight of air carrier pilot training programs. In our December 2011 report on pilot training, we found that FAA was not well positioned to assess these programs—in part because it has not prepared inspectors to effectively oversee pilots who have performed poorly or failed training.

We made recommendations to improve oversight of pilot performance that could be accomplished by ensuring inspectors follow existing guidance, and in other cases expanding on guidance to better target surveillance to high-risk areas. For example, FAA guidance requires inspectors to compare pilot proficiency checks that they have performed against those conducted by the carriers' check airmen. However, we questioned the viability of this requirement since nearly all pilot proficiency checks are conducted by check airmen, not FAA inspectors. As a result, FAA inspectors may not have sufficient data to make a meaningful comparison.

We recognize that there are limitations in FAA's inspector workforce and that the Agency cannot monitor every pilot. However, FAA could obtain valuable data, analyze trends, and provide more effective oversight by requiring inspectors to perform a representative sample of pilot examinations. In response to our recommendation, FAA is currently considering whether to establish a method of documenting comparison reviews made between FAA inspectors and check airmen.

Electronic Pilot Records Database

Question 6. Mr. Scovel, what are the primary challenges for the FAA in implementing a new centralized electronic pilot records database?

Answer. The primary challenges for FAA in implementing a new centralized electronic pilot records database include defining the data to be captured, developing a transition plan, and incorporating National Driver Register (NDR) records.

First, FAA must determine the level of detail that should be captured from current and historical air carrier pilot training records. For example, the Act stipulates that comments and evaluations made by a pilot's check airman be included in the database. However, industry is highly protective of these data and opposes including them in the database.

Second, the Agency will have to develop a strategy to transition to the new database while also ensuring air carriers receive available data in the interim. FAA projects the final rule and database implementation will not take place until 2014 at the earliest. Furthermore, the initial data available will be limited to FAA data until air carriers are able to populate the database with their records.

Finally, incorporating records from the NDR will be complicated due to the design of the NDR system. When a request is processed through the NDR, the system identifies possible matches and determines which State retains the records. The requester must contact each State with a possible match to obtain the records and then attempt to verify they are for the pilot in question. This cumbersome process will impact how FAA incorporates these records into the new database. In addition, FAA has not yet determined the implications of including State records in a national database without regard to each State's record retention policy.

Effectiveness of Voluntary Industry Measures

Question 7. Mr. Scovel, former FAA Administrator Babbitt's Call to Action on Safety shortly after his Senate confirmation was universally well received. It included a number of FAA actions but also included a lot of industry voluntary efforts. Looking back, would you say that there remains a high rate of industry participation in these voluntary safety efforts by both mainline and regional airlines, or has interest and participation waned over time as the lessons learned from the Colgan Air crash become more historical in nature? Overall, do you believe that voluntary measures for aviation safety put in place since the Colgan Air crash have generally been effective?

Answer. Thus far, FAA's efforts to facilitate air carrier's adoption of voluntary safety programs have been effective in increasing overall participation. After the Colgan Air accident, FAA focused on advancing the use of voluntary safety programs as a part of its 2009 Call to Action on Airline Safety and Pilot Training. These efforts were bolstered by provisions in the Airline Safety and FAA Extension Act of 2010 that focused on safety programs for reporting incidents, recording flight data, advanced qualification training, and comprehensive risk management. As a result, air carrier participation in these important programs has increased since the time of the accident.

Our ongoing analysis of current FAA data (as of January 2012) shows a continued rise in voluntary safety program use—70 percent of Part 121 air carriers have at least one program, up from 59 percent 2 years ago. Further, 47 percent of Part 121 air carriers now have multiple programs, compared to 36 percent 2 years ago. However, despite overall gains, program implementation has mostly occurred at larger air carriers, and work remains to ensure smaller carriers are provided the assistance needed to implement new safety programs.

We have not examined the effectiveness of voluntary safety programs since the Colgan accident; however, both FAA and the airline industry have continued to emphasize their importance.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN THUNE TO
HON. CALVIN L. SCOVEL, III

Question. Inspector General Scovel, please expand on the discussion related to FAA's ability to develop and implement enhanced pilot screening and qualifications at Part 121 air carriers. Specifically, is FAA on track to issue a final rule that would allow industry and other aviation stakeholders sufficient time to meet the new requirements before the statutory deadline of August 1, 2013? If not, what challenges has the Agency encountered and what obstacles remain for issuing the final rule?

Answer. FAA is behind schedule in issuing a final rule to enhance pilot screening and qualifications by August 2012. As required by the Airline Safety and Federal Aviation Administration Extension Act of 2010, FAA recently issued a proposed rule that would require first officers to hold an Airline Transport Pilot (ATP) certificate, requiring 1,500 hours of pilot flight time. This rule would provide an allowance for pilots with fewer than 1,500 hours of flight time, but who have an aviation degree or military pilot experience, to obtain a restricted ATP certificate. Finally, the proposal would require first officers to have an aircraft type rating, which involves additional training and testing specific to the aircraft they fly.

While issuing a proposed rule is a significant first step, air carriers may have insufficient time to make necessary adjustments to their training and qualification programs prior to the mandatory deadline of August 2013. For example, at two regional air carriers we visited as part of our ongoing review, more than 75 percent of current first officers did not have an ATP. Further, neither of the carriers had developed a plan to ensure these pilots would be able to meet the enhanced requirements by the deadline, nor had FAA inspectors followed up with these carriers to assess their ability to comply with enhanced requirements.

FAA continues to encounter resistance from air carrier representatives who oppose the Act's requirement to increase the minimum hours. They argue that a pilot's

quality and type of flying experience should be weighted more heavily than the number of flight hours. Nevertheless, it is important that FAA take steps to determine the potential impact the new ATP requirement would have on current pilots, and issue a rule with enough lead time for air carriers to prepare first officers to meet the new qualifications.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN D. ROCKEFELLER IV TO
WILLIAM VOSS

Question. The FAA is currently in the process of working with cargo carriers to have them voluntarily meet the new flight and duty regulations that are mandatory for the commercial carriers. Is it realistic to expect that all cargo carriers will meet this goal?

Answer. I believe a large number of cargo carriers will voluntarily adopt the most important safety features of the new rule. The most important, and overlooked feature, of the new rule is the provision for compliance through the use of a Fatigue Risk Management System (FRMS). Given the obvious challenges posed by the overnight schedules associated with cargo operations, many cargo carriers have already started implementing FRMS. These carriers will likely come up with scheduling solutions that will vary somewhat from the proposed flight and duty time limitations, but will be tailored to their unique operations and will ensure a high level of safety.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO
WILLIAM VOSS

Question 1. Mr. Voss, can you detail why you consider flight crew member pairing a powerful tool to mitigate risk?

Answer. In many parts of the world, experienced crews have been in very short supply for a very long time. Many airlines in these regions have managed this risk by paying close attention to crew pairing. They consider factors such as total experience, familiarity with the route, experience in the type of aircraft, and experience in the weather specific conditions and so on. The airlines examine each flight to ensure that the combined experience of the crewmembers addresses the risks that the specific flight is likely to encounter. This relatively simple and common-sense approach greatly mitigates the risks that can be created by junior crewmembers who must at some point acquire operational experience. Crew pairing is done to a limited extent by U.S. airlines but more could be gained by looking at this risk-mitigation approach more closely.

Question 2. Mr. Voss, do you believe that exempting all-cargo airlines from the flight and duty time rules represents an acceptable level of risk? Do you believe significant numbers of all-cargo airlines will voluntarily adopt the new flight and duty time requirements?

Answer. I believe a significant number of cargo airlines will achieve the safety objectives of the new rule by implementing Fatigue Risk Management Systems that allow them to monitor fatigue risk in their operation, and tailor crew schedules to mitigate these specific risks. The provision for FRMS is a key component of this new rule, and makes a great deal of sense for night-time cargo operators. FRMS have been implemented in many major airlines around the world, and have been shown to assure a high level of safety while allowing significant operational flexibilities.

Question 3. Mr. Voss, what are mainline and regional airlines doing to improve pilot training for safely performing flight operations independent of any new FAA rules?

Answer. Of course the FAA has a number of voluntary programs that significantly improve operational safety. Following the Colgan accident there was a significant increase in the number of Regional Airlines conducting Flight Operations Quality Assurance (FOQA). It has long been a position of the Flight Safety Foundation that this program provides essential predictive safety information about the operation of the airlines. FOQA has been an international requirement for more than a decade. The U.S. is one of the few nations that does not mandate this program by regulation.

Another important voluntary program that is much more cutting-edge is the Advanced Qualification Program. This program allows airlines to analyze operation data to identify crew deficiencies and then develop training programs that target the actual risk that face the airline rather than simply comply with statutory requirements that were published decades before.

This data-driven approach to training is a fundamental change. Traditional regulatory approaches generate lists of training objectives that rapidly become obsolete and burdensome. These “laundry lists” are inevitably a response to the last accident. The training driven by the AQP system is always targeting the next accident.

Question 4. Mr. Voss, former FAA Administration Babbitt’s Call to Action on Safety shortly after his Senate confirmation was universally well received. It included a number of FAA actions but also included a lot of industry voluntary efforts. Looking back, would you say that there remains a high rate of industry participation in these voluntary safety efforts by both mainline and regional airlines or has interest and participation waned over time as the lessons learned from the Colgan Air crash becomes more historical in nature?

Answer. The FAA has always had a large number of voluntary programs. All of these programs are very good and make a significant contribution to safety. Participation in these programs among Regional airlines clearly increased in the aftermath of the Colgan accident. I believe many of these airlines will continue to participate in these voluntary programs, because once these programs are established they prove their value by providing real operational benefit and insight to the airline.

It is interesting to note that many of these voluntary programs are mandatory nearly everywhere in the world except the U.S. In this regard, the FAA is actually non-compliant with international standards. There are several reasons for this. First of all, industry and labor forces have much more influence over the regulatory process in the U.S. compared to the rest of the world. Secondly, the FAA is constrained by the administrative procedures act which requires them to cost-benefit each regulation against a history of fatalities. The safety record in the U.S. is so good, that it is not possible to cost-justify the implementation of safety regulations that are considered essential in the rest of the world.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. MARIA CANTWELL TO
GREGORY BELENKY, M.D.

Flight and Duty Time

Question 1. Dr. Belenky, what are the fundamental differences between a prescriptive rule approach to fatigue mitigation and a fatigue risk management one?

Answer. A prescriptive rule is a one size fits all approach to fatigue mitigation usually taking the form of limits to permissible on-duty hours/24 hours. In contrast, a fatigue risk management system does not set prescriptive limits but rather uses data collection in actual operations, often in judicious combination with sleep and performance prediction modeling, to tailor fatigue risk management to the actual operation in question to ensure adequate sleep for all operational personnel. A fatigue risk management system ensures that there is adequate timing and duration of sleep opportunity, monitors to ensure that personnel make good use of this opportunity, follows up to ensure that the combination of adequate opportunity and use made of the opportunity is effectively sustaining performance, and investigates errors, incidents, and accidents with an eye toward further improving the system.

Question 2. Dr. Belenky, based on your research experience and the literature is there any difference in the type of fatigue experienced by pilots of passenger airlines and that experienced by all-cargo airlines?

Answer. Fatigue is a result of time awake (sleep/wake history), time of day (circadian rhythm), and workload (approximated by time on task). There is no difference in the fatigue experienced by pilots whether flying passengers or cargo, if time awake, time of day, and workload are the same.

Question 3. Dr. Belenky, in your testimony you raise issues with the studies the FAA cites that suggest “that after a person has worked for about eight or nine hours, the risk of an accident increase exponentially for each additional hour worked”. Could you describe in more depth the difficulties with the scientific papers claiming an exponential increase in accident risk after 8–9 hours on duty?

Answer. The FAA relied on review papers in reaching this conclusion. These review papers overstated the conclusions reached in the primary sources they cited and did not discuss the limitations and caveats that the authors of the primary sources included in their discussion of their results. Specifically, none of the data sets used in the analyses in the primary sources had exposure data from the same population as they were taking their accident data. Accident risk is calculated by dividing the absolute number of accidents by the number of people exposed to the accident risk (exposure). So, in the above example, to calculate accident risk in the 9th hour on duty one would divide the number of accidents that occurred during the 9th hour on duty (numerator) by the number of people on duty during the 9th

hour (denominator). As is obvious, this calculation is sensitive to the accuracy of both the numerator and denominator. In the primary sources cited by the review articles cited by the FAA in support of its assertion of an exponential increase in accident risk, the researchers had accurate accident data (numerator) in for example the 9th hour on duty but did not have number of people on duty during the 9th hour from the same data set. They were therefore forced to estimate this number from other, unrelated data sets. For example, in one paper specific to fatigue risk in aviation, accident data was data was derived from a review of records over a 20 year period through 1998 and the exposure data estimated from a single two month period in 1998 as self-reported by a few airlines. Similar to the example just given, for all the primary sources cited by the secondary sources cited by the FAA, exposure data (the denominator; the number of people working extended hours) was not available from the data set from which the number of accidents was determined and had to be estimated from other unrelated data sets. Thus, the evidence for the FAA assertion “that after a person has worked for about eight or nine hours, the risk of an accident increase exponentially for each additional hour worked” is at best flimsy. Hence, a major policy decision—to impose flight time limits within the temporal boundaries of the flight duty period—was based on inadequate, highly questionable evidence.

Question 4. Dr. Belenky, in your testimony, you state that operational fatigue is the result of integrating effects of sleep/wake history (time awake, sleep loss), circadian rhythm (time of day), and workload (time on task, task intensity, and task complexity). In addition there appears to be trait-like individual difference in response to all three factors. My understanding is that many of the predictive models that have been developed use ad hoc data sets. How can researchers validate mathematical models predicting human performance from sleep/wake history and circadian rhythm phase? Is there a need for a FAA approved standardized process for the verification, validation, and certification of these models?

Answer. As you indicate, what validation has been done has been done by the model developers themselves and using data sets available to the particular modeler in question. What is needed is a process of model verification, validation, and certification that is independent of the model developer and uses the same standardized data sets in validating any and all models. This process would most logically be done by an independent agency or entity with guidance and oversight from the FAA.

Question 5. Dr. Belenky, as long as a pilot has eight hours of sleep within a 24 hour period, does it matter if the sleep is consolidated or if it is split? Another name for the smaller segment of split up sleep is a nap. Are you supportive of pilots taking naps while on duty?

Answer. If total sleep time sums to 8 hours in every 24 hours, it does not matter if the sleep is consolidated into a single sleep period or split into two or three sleep periods (main sleep plus one or two naps). Naps add to recuperative sleep time. Again, it is total sleep time in 24 hours that is the primary determinant of recuperation. However, splitting sleep into two or three periods is one thing, fragmenting sleep with awakenings every two to three minutes is another. If sleep is fragmented, *i.e.*, interrupted by awakenings 3–4 times/hour, minute-by-minute recuperative value is reduced, and if interrupted every 2–3 minutes recuperative value is abolished, even if total sleep time sums to 8 hours.

Pilot Commuting

Question 6. Dr. Belenky, the National Research Council report “The Effects of Commuting on Pilot Fatigue” included three conclusions and six recommendations. The conclusions were along the lines of “there is insufficient evidence”, “there is inadequate data” and “there are no valid and reliable tools and techniques feasible to reach the goals of detecting fatigues and fitness for duty in pilots in an operational setting”. One recommendation was: “Pilots should avoid planning commutes or other pre-duty activities that result in being awake beyond approximately 16 hours before the scheduled end of duty, endeavor to sleep at least 6 hours prior to reporting for duty, and obtain more than 6 hours sleep per day whenever possible to prevent cumulative fatigue from chronic sleep restrictions. Pilots should also consider the amount of sleep and time awake in their decision making relative to when to inform their supervisors that they should not fly due to fatigue.” What do you think of that conclusion?

Answer. The NRC report on commuting is excellent and the specific recommendation given above is sound.

Question 7. Dr. Belenky, based on your research do you believe a pilot who commutes long distances can get quality sleep on the flight to their domicile?

Answer. The recuperative value of in-flight sleep depends upon the duration of the sleep opportunity, the timing of the sleep opportunity relative to the circadian cycle, and the quality of the sleeping environment. The quality of the sleeping environment is a function primarily of how flat one can lie while sleeping (the flatter the better) and secondarily of how quiet and isolated from noise and other disturbance the sleeping environment is. If one can lie flat, be insulated from sound, and the sleep opportunity is of adequate duration and placed at a sleep conducive time with respect to the circadian cycle, then sleep will be of good quality and therefore recuperative.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN D. ROCKEFELLER IV
TO CAPTAIN CARL KUWITZKY

Question 1. CAPA opposes the carve-out from the flight and duty regulations that the cargo industry received for a number of reasons, including the predominance of nighttime flights in the industry. The FAA is currently in the process of working with cargo carriers to have them voluntarily meet this requirement. Can you give us an update on how many carriers CAPA represents that have agreed to this?

Answer. As of this writing there have been no all-cargo carriers voluntarily “opt-in” to the new Part 117 rules.

Question 2. Is it realistic to expect that all cargo carriers will meet this goal?

Answer. Given the fact that the cargo industry lobbied extremely hard to exclude themselves and their pilots from the rule, I think it is highly unlikely that they would voluntarily “opt-in” under the Part 117 rules.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO
CAPTAIN CARL KUWITZKY

Flight and Duty Time Rules

Question 1. Captain Kuwitzky, according to OMB’s cost-benefit analysis of the flight and duty time rules, the projected cost for all-cargo operations is \$306 million and the projected benefit of avoiding one fatal all-cargo accident ranges roughly between \$20 million and \$32 million, depending on the number of crewmembers on board the aircraft. Do you believe that the scenarios and assumptions OMB used to evaluate the rule for all-cargo airline pilots were the proper ones?

Answer. No, I don’t. The OMB considered the loss of a cargo aircraft in isolation. By that I mean they did not consider the loss including a passenger flight involved either inflight with a mid-air collision, or on the ground with a cargo flight. Additionally, they did not consider the financial cost should a cargo flight go down in a congested metropolitan area.

Question 2. If the economic benefits of the analysis are weighted heavily towards preventing the loss of life, and all-cargo airlines only carry a handful of crew, doesn’t that a priori set the bar impossibly high for any FAA safety rules for all-cargo airlines to clear OMB?

Answer. No, please see the previous answer. If a cargo flight is involved in a mid air collision or loss of control in flight and crashes in a congested metropolitan area, the costs involved could well exceed the costs of a passenger carrier going down due to fatigue.

Question 3. In your testimony, you mentioned that several years after TCAS was required for passenger jet, it was required for cargo jets. In the final rule for requiring TCAS on all cargo aircraft, did OMB perform a cost benefit analysis?

Answer. With respect to an OMB review, I do not know for certain. I do know that the FAA conducted an “Initial Regulatory Evaluation Initial Regulatory Flexibility Determination, And Trade impact Assessment” for Collision Avoidance Systems for Cargo and All New Manufactured Airplanes. This analysis was done by the Office of Aviation Policy and Plans-Regulatory Analysis Division in September 2001. The docket number is as follows: FAA 2001 0910910.

Question 4. Secretary LaHood called for all-cargo airlines to meet voluntarily the standards called out in the flight and duty time rule. Why or why not do you believe this will be an effective approach?

Answer. This approach is to be applauded but it is extremely problematic. Due to the OMB review, The Secretary of Transportation is limited in what he can do. That is why we believe the proper action is for Congress to address the deficiency in Part 117 and to compel DOT/FAA to require cargo carriers to comply with Part 117.

Question 5. What is your interpretation of the FAA’s “one level of safety”? Does it mean one level of safety across all Part 121 operators or does it mean one level of safety between regional airlines and mainline carriers?

Answer. “One Level of Safety” is a broad term that we have long viewed as applying to all commercial 121 operations. The level of safety should be constant regardless of whether there are 30 or 300 passengers in the back of the aircraft. It should be no different if it is an all-cargo operation as well.

Pilot Commuting

Question 6. Captain Kuwitzky, why do some pilots commute long distances to their duty station—is it out of economic considerations, lifestyle considerations, or for other reasons?

Answer. Pilots commute for a variety of reasons including lifestyle and economic factors. Additionally, many pilots commute out of necessity due to being on the bottom of their respective seniority list. Company’s often open and close bases as well as transfer flying to other bases on a monthly basis forcing junior pilots to another base. A pilot moving considering these numerous variables is both problematic financially and personally for the pilot’s family.

Question 7. Do you have a sense whether, in general, pilots of regional carriers on average commute a greater distance to their domicile than pilots of mainline carriers?

Answer. I do not have any hard data but would expect that commuting distance would not vary much from regionals to mainline carriers. I would say though that I would expect a higher percentage of regional pilots commuting than mainline pilots.

Question 8. How do pilots that make these long commutes typically address their fatigue?

Answer. Pilots with long commutes typically have fewer flight options to get to their destination, which would normally give them plenty of opportunity to get rest in hotels or apartments in advance of their trip. The pilot members of CAPA have a positive record of showing up for work rested and in compliance with FAA requirements.

Question 9. Do you believe pilots who commute long distances to their duty stations represent a safety concern?

Answer. No. Pilots who commute know very well of their responsibility to show up for work well rested. They plan to arrive in time to get the necessary rest before their trip. However, among the regional carriers, the low pay at some carriers may force pilots to seek less than optimum rest facilities in advance of a trip.

Pilot Training

Question 10. Captain Kuwitzky, what are mainline and regional airlines doing to improve pilot training for safely performing flight operations independent of any new FAA rules?

Answer. I do not have access to the various carriers to speak to this question.

Lithium Batteries

Question 11. Captain Kuwitzky, my understanding is that CAPA is concerned about the language regarding the air transport of lithium batteries in the enacted “FAA Modernization and Reform Act of 2012”. Can you explain your concerns?

Answer. CAPA is concerned in that the Act you referenced actually lessens an already weak standard in place in our Air Transport System. By allowing a standard in this country to now be set by an international regulatory body (ICAO), we have further diluted our ability to manage “at home” an area of Airline Safety that needs immediate reform. Since 1997, UPS Airlines alone has lost two airliners, one to spontaneous lithium battery fire and another apparently so based on preliminary reports. There were also two pilot fatalities in the recent UPS accident in Dubai. There have been numerous other similar accidents both here and abroad with similar results. In fact the FAA’s own internal study released just last fall, predicts that U.S. Air Carriers will lose at least five commercial aircraft, their crews and cargo, to lithium based fires in the next 10 years. We have no idea to what level we may expect fatalities and property damage on the ground at these aircraft crash sites, but past history indicates there will be and to us that is clearly unacceptable risk. CAPA has long requested the Senate mandate an industry stake holder working group to look at and propose safe standards and increased protections when transporting these hazardous and dangerous materials. In addition, we believe the best standard of safety on this and any rule regarding air transportation is one set and regulated here at home.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. TOM UDALL TO
CAPTAIN CARL KUWITZKY

Question. In your testimony you address the cost effectiveness of the Federal Flight Deck Officer (FFDO) program and ask this committee and the Appropriations Committee to reject the Administration's proposed cuts to the FFDO program in the FY13 budget. In the budget, the Administration states that funding for the FFDO program should be reduced because TSA is focusing its "aviation security activities on programs that mitigate the highest amount of risk at the lowest cost" and that the FFDOs are less necessary because other security improvements since 2001 "have greatly lowered the chances of unauthorized cockpit access and represent a comprehensive and redundant risk-mitigation strategy that begins well before passengers board the aircraft. How do you respond to the Administration's position on the FFDO program and could you discuss in more detail why you believe the budget cuts are ill advised?

Answer. While improvements have been made post-9/11 on our aircraft including a hardened cockpit door, it must be noted that the cockpit doors were not breached by force on 9/11. Every day our Nation's cockpit doors are opened inflight due to physiological needs by the pilots or to receive meal and/or beverage service and an opportunity is introduced for terrorists to attempt to breach the cockpit. Data has shown that it takes less than 3 seconds for a terrorist to breach the cockpit when the door is opened. Additionally, the cockpit door is designed to prevent penetration from ballistic intrusion. While that is an improvement, the door can still be breached with sufficient force. Having a cost effective solution in place with FFDO's armed in the cockpit is and should be the last line of defense.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN D. ROCKEFELLER IV
TO THOMAS L. HENDRICKS

Question 1. In your testimony, you mention how useful databased safety measures are to carriers and to the FAA. I applaud A4A's great progress in implementing ASAP and FOQA at all of your member airlines even before the FAA finalizes this requirement. Can you update me on how many of your regional airline partners have yet to implement these programs?

Answer. While A4A does not represent regional airlines, we have attached slides from MITRE Corp. that shows which regional airlines have ASAP and FOQA programs. Those regional carriers that do not have an FAA-approved FOQA program are denoted in grey. 69 percent of Regional Airline Association (RAA) carriers have established pilot ASAP programs, and 55 percent have implemented FAA-approved FOQA programs.

Question 2. Beyond ASAP and FOQA, are there other safety programs that the FAA has not required which could be useful?

Answer. Yes, and many are in place. Technically, the Internal Evaluation Program (IEP) is not "required", but there is an Advisory Circular that addresses it (AC-120-59A). DOD requires it in their biennial Air Carrier Survey Program audits, and most Part 121 carriers do it. These periodic internal compliance audits are a reasonable way to stay "up to date" between biennial DOD and IATA Operational Safety Audits (IOSAs) that most Part 121 carriers undergo to satisfy DOD airlift, international codeshare and alliance requirements. In addition, carriers must undergo continuous data reporting under FAA's Air Transportation Oversight System (ATOS) to satisfy their Certificate Management Offices. This enables the transfer of data collected by inspectors (with appreciable air carrier assistance) into the ATOS database. Safety Attribute Inspection (SAI), Element Performance Inspection (EPI), and Constructed Dynamic Observation Report (ConDOR), random inspection, and Dynamic Observation Report (DOR) data are used to assess air carrier system design and performance, and identify any safety issues. When many of these programs are fused together with ASAP, FOQA, and FAA's Continuous Analysis and Surveillance System (CASS) under the umbrella of Safety Management Systems (SMS), the resulting processes require air carriers to devote considerable funds, personnel, time and attention to administration of safety programs across the functional departments comprising operations.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO
THOMAS L. HENDRICKS

Flight and Duty Time Rules

Question 1. Mr. Hendricks, to date have there been any operational challenges reported by airlines in implementing the FAA's new flight and duty time rules?

Answer. No, the implementation date is still more than a year away.

Pilot Commuting

Question 2. Mr. Hendricks, do you think there is any linkage between pilot commuting and safety? In general, do airlines encourage, discourage, or are silent on the issue of whether its flight crews should commute long distances from their home to their domiciles? Page 24 of the National Academy of Sciences report "The Effects of Commuting on Pilot Fatigue" cites the benefits to commuting for airlines. These benefits include "ability to adapt quickly to changes in flight patterns because of changes in the market; no need to require pilots to live near domicile; no need to pay relocation expenses for pilots for domicile change made; and no need to pay cost-of-living adjustments for domicile changes" Do you agree with this statement?

Answer. Individual airlines all address the commuting issue, albeit in different manners, through their safety and training programs, and via contractual agreements with pilots. The issue is best addressed by individual airlines. Suffice it to say, safety is the paramount consideration in any and all agreements between airlines and their pilots. With respect to the NAS report, the benefits to pilots and their airlines vary by company, individual situations, and can be somewhat subjective.

Question 3. Do you agree with the U.S. DOT's IG recommendations that the FAA—(1) Ensure the collection and analysis of data regarding domicile and commuting lengths for all Part 121 flight crews. Specifically, information regarding the number of pilots and other flight-crewmembers who commute, their methods of transportation, and distances, and distances they commute, should be collected, and (2) Review and analyze the Part 121 domicile and commuting data collected to determine if further changes to flight duty and domicile regulations are needed or if airlines need to take further mitigation actions in their fatigue management systems?

Answer. We do not object to these recommendations.

Question 4. Should pilot commutes be incorporated in a given airline's Fatigue Risk Management system?

Answer. Yes—we believe pilot commutes should be incorporated in a given airline's Fatigue Risk Management system.

One Level of Safety

Question 5. Mr. Hendricks, does A4A interpret the FAA's vision of one level of safety to mean one level of safety across all Part 121 operators or does it mean one level of safety between regional airlines and mainline carriers?

Answer. I think the term "one level of safety" has become abused and outmoded. As we move into the future, Safety Management Systems (SMSs) will comprise an infinite level of safety. We will be looking beyond compliance with existing regulations to an industry that communicates safety effectively across all functional boundaries, starting with shared safety policies, aggressive hazard precursor identification and reporting, data-driven risk assessment, and layered mitigations.

One of industry's prime tasks will be to continuously evaluate risk mitigation effectiveness as conditions in the National Airspace System change dynamically day-to-day and through constant evolution. The regulator's task will also evolve—from constantly looking over the operator's shoulder to spot non-compliance to observing performance metrics at various nodes of multiple processes to validate that the operator's SMS is functioning as it should.

Pilot Training

Question 6. Mr. Hendricks, what are mainline and regional airlines doing to improve pilot training for safely performing flight operations independent of any new FAA rules?

Answer. I can only speak for the mainline carriers. Our members constantly collect data and feedback to adjust and improve their programs as necessary. We are very proud of our training programs and believe they are the best in the world.

Call to Action

Question 7. Mr. Hendricks, former FAA Administration Babbitt's Call to Action on Safety shortly after his Senate confirmation was universally well received. It in-

cluded a number of FAA actions but also included a lot of industry voluntary efforts. Looking back, would you say that there remains a high rate of industry participation in these voluntary safety efforts by both mainline and regional airlines or has interest and participation waned over time as the lessons learned from the Colgan Air crash becomes more historical in nature?

Answer. The commercial aviation industry is moving aggressively toward adopting Safety Management Systems (SMS) to meet the design goals of a rule that will likely go into effect in mid-August of this year. SMS is revolutionizing the way we look at safety. All FAA Part 121 commercial airlines and FAA Part 139 airports will, as aviation service providers, have a common safety strategy put forth by the International Civil Aviation Organization. It will be scalable and flexible, depending on the size and complexity of the organization, but it will leverage existing required processes, those that air carriers have adopted voluntarily as traditional “best practices,” and the results of the Call to Action. I predict that SMS will further enhance the industry’s unprecedented level of safety.

Pilot Database

Question 8. Mr. Hendricks, the FAA is required to develop a centralized database of pilot records, which would include a pilot’s training and experience history, in order for airlines to better screen applicants for pilot positions. You heard Mr. Scovel discuss some of the FAA’s challenges in accomplishing this from the USDOT IG’s perspective. What are the challenges from A4A’s perspective to the FAA implementing a database and corresponding processes that will make it useful for your member airlines?

Answer. Last year, A4A and several of our member carriers participated on an Aviation Rulemaking Committee (ARC) to develop a practical platform for the FAA’s electronic Pilot Records Database (PRD). While the ARC members made substantial progress on most issues, IG Scovel’s concerns about the feasibility of entering “historical” pilot records in a standardized format into the PRD are very well-founded.

The ARC’s investigation revealed that “historical” records, which are estimated to exceed 7 million documents and date back to the 1970s, are stored in a variety of incompatible mediums (*e.g.*, paper—typed; paper—handwritten; microfiche; digital, and scanned). Further, the content of these records varies widely and can include irrelevant or privacy protected information: *e.g.*, medical and payroll information might appear on the same sheet with the record of a training event. Moreover, carriers cannot remove unrelated information as Federal regulations prohibit carriers from “altering” or “summarizing” existing aviation records.

Accordingly, the ARC recommended a “phase-in” system for the PRD. Under ARC’s proposal, carriers hiring pilots would obtain “current” and “future” records from the PRD, while continuing to request “historical” records directly from the prior employers until the PRD had at least five years of records stored.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO THOMAS L. HENDRICKS

Question 1. The DOT IG’s report notes that implementation of voluntary safety programs such as ASAP and FOQA has mostly occurred at larger air carriers, while it hasn’t been implemented at smaller and regional carriers. What barriers are there to implementing these voluntary safety programs?

Answer. There are no barriers. There are currently 244 pilot, dispatcher, mechanic, flight attendant, and ground support programs. Resource impacts are scalable. A small regional air carrier can operate a pilot ASAP fairly economically. The biggest hurdle is training Event Review Committee members to work effectively toward consensus.

Question 2. What can mainline carriers do to make sure these programs exist for their smaller regional code sharing partners?

Answer. Mainline carriers have been doing this for the past two years. Our mainline carriers with regional codeshare partners meet frequently in person or by teleconference to look at trends, discuss best practices, and encourage optimal safety performance. Two of our mainline carriers, Delta Air Lines and U.S. Airways, have completed Level IV of the FAA SMS Pilot Program, and share lessons learned with their codeshare partners (Piedmont, Pinnacle, Colgan, PSA, ExpressJet, Chautauqua, Comair, Compass, GoJet, Mesaba, Shuttle America, SkyWest).

PREPARED STATEMENT OF AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

The following statement is submitted by the Air Line Pilots Association, International (ALPA), representing more than 53,000 professional airline pilots flying for 37 airlines in the United States and Canada. ALPA is the world's largest pilot union and the world's largest non-governmental aviation safety organization. We are the legal representative for the majority of professional airline pilots in the United States and are the recognized voice of the airline piloting profession in the country, with a history of safety advocacy that extends for over 80 years. As the sole U.S. member of the International Federation of Airline Pilots Associations (IFALPA), ALPA has the unique ability to provide active airline pilot expertise to aviation safety issues worldwide, and to incorporate an international dimension to safety advocacy.

The "Airline Safety and Federal Aviation Administration Extension Act of 2010" stands as a major milestone in ensuring that airline travel remains the safest form of transportation in human history. ALPA applauds the Senate's diligence in monitoring progress toward implementation of the safety improvements outlined in this legislation. We have been pleased to represent the voice of airline pilots nation-wide through our participation in all of the FAA Aviation Rulemaking Committees formed as result of the Act. We have commented extensively through that process and through the public comment process for FAA Notices of Proposed Rulemaking (NPRM) covering pilot fatigue and mitigations for it, pilot training and standards, pilot qualification requirements, and principles related to the initial and continuing professional development of an airline pilot. Our formal comments go into extensive detail on many of the topics under consideration by the Subcommittee and we would be pleased to provide the Subcommittee with copies of those comments. ALPA has long said, and continues to maintain, that the single most effective safety feature of a modern airline aircraft is a well-trained, well-motivated, well rested professional pilot.

Pilot Fatigue

ALPA believes that in general, our industry is making good progress in developing and implementing the safety enhancements set forth in the legislation under discussion here today. There are, however, notable areas where there remains critical work to be done.

Foremost among these is the gap left in the safety net by the exclusion of pilots of all-cargo airlines from the provisions of the newly promulgated flight and duty time regulations. We continue to find it unconscionable that some airline pilots will not be afforded the safety margins that the new law provides as relates to fatigue risks. This inequity has been created despite the fact that airline pilots operate the same aircraft at the same time in the same airspace and to and from the same crowded airports, and that this discrepancy is based solely on the nature of the payload.

Just this month, the National Sleep Foundation's report on its 2012 'Sleep in America' poll vividly illustrated the risk posed by fatigue among transportation workers and the particular challenges that airline pilots face in delivering on their commitment to achieving the highest standards of safety. That poll is the latest evidence of the serious risk. ALPA respectfully urges the Administration to acknowledge that risk—and the compelling and conclusive science that preceded it—and bring cargo pilots under the new pilot fatigue rules. To that end, we ask this Committee to pursue an immediate legislative remedy to mandate that the new flight and duty regulations (FAR Part 117) apply to all-cargo operations.

In spite of that shortcoming, the new pilot fatigue rule marks historic progress in what must be an unrelenting commitment to ensuring the highest safety standards throughout the airline industry. For decades, ALPA has fought for regulations that are based on modern science; apply equally to all types of airline operations, including domestic, international, and supplemental; and enable air carriers to establish Fatigue Risk Management Systems. ALPA is proud to have led the effort to move forward on these critical safety provisions in our role as co-chair of the FAA's Aviation Rulemaking Committee, which made recommendations regarding this important rule, with the determined goal of advancing safety. While the new rule brings much-needed science-based improvements in flight and duty regulations, ALPA will continue to strongly advocate for One Level of Safety for all types of flight operations and across the airline industry.

Pilot Training and Development

Another key element of the Act is the recognition that the screening, selection, training, qualification and continued professional development of a pilot in air carrier service is a critical factor in maintaining the absolute highest levels of safety.

The Act directed a number of activities, including the formation of several aviation rulemaking committees (ARCs). Those groups have done extensive work to identify industry best training practices and to develop recommendations for more rigorous selection and qualification criteria, improved training standards and means to ensure continuing professional development of airline pilots. ALPA's advocacy in these efforts has been consistent and universal across the activities specified in the Act. Almost all of the industry efforts directed by the Act have been completed, and FAA is in the process of evaluating the many recommendations made.

To date, we note the publication of the aforementioned long-awaited improvements to flight time, duty time and fatigue regulations, and rulemaking proposals for revisions of training standards and requirements for new first officers in airline service and for implementation of safety management systems at airlines.

The remaining efforts identified in the legislation are not yet incorporated in proposed rulemaking. This means there remains a great deal of work yet to be done, and we urge the Administration to dedicate sufficient resources to ensure these vital efforts can continue without delay.

In particular, we note the potential, embodied in the Act, for significant improvements in the minimum qualifications necessary to become a professional airline pilot and in the standards to which pilots must be trained. As our industry has evolved, the complexity and sophistication of the aircraft, the airspace, and the operations have increased dramatically. Yet the pilot training and qualification regulations have failed to keep pace. The FAA has recently issued a Notice of Proposed Rulemaking that, when finalized, will represent a quantum leap in recognizing what ALPA has said for some time—that piloting an airline aircraft in revenue service is a demanding profession that requires the highest levels of training and certification that operating in today's airspace system demands. In particular, those improvements include the following:

- Increasing the minimum flight experience necessary in order to be hired by a FAR 121 air carrier
- Establishing a restricted ATP that recognizes that quality of training is more important than total flight hours accumulated and gives appropriate level of credit to military trained pilots and graduates of aviation colleges and universities that have intense structured professional pilot training programs
- Establishing ATP training programs tailored toward FAR 121 airline operations
- Establishing a requirement for SIC pilot to be type rated in the aircraft they operate to ensure that they demonstrate the same knowledge requirements and flying skills as the PIC for that aircraft.
- Establishing minimum experience requirements for pilots before they can move into the PIC position

Federal Aviation Regulations (FAR) Parts 61 and 121 have not kept pace with the dynamic airline industry. Many pilot training requirements currently in force were first published in an era in which common business practices, driven not by regulation but by the supply of pilots and equipment in use, dictated that low-time, commercial-certificated pilots could only get airline jobs flying small, slow, propeller-driven aircraft and as flight engineers on jet transports. Pilots would traditionally fly several years and thousands of hours before even being given an opportunity to upgrade to first officers on high-performance jet transports.

Today, it is not uncommon for new-hire pilots to be employed as first officers of high-altitude, high-performance aircraft carrying 50 or more passengers in highly complex Part 121 operations. This reality demands that airlines hire pilots with more knowledge and greater skills than the new-hire airline pilots of the past, but in fact, just the opposite is happening at some airlines.

Due to economic pressures, some "regional" airlines actually seek out and hire the least experienced pilots meeting FAA minimum requirements because they are willing to accept the lowest compensation in order to build flight time and use that experience to progress to larger, more stable airlines. It must be noted that building this experience is done in unrestricted revenue service.

It is also noteworthy that before code-sharing with regional partners began, all flying was done by the pilots of an airline on a single pilot-seniority list. This practice ensured that newly hired airline pilots—even those with thousands of hours of military or civilian flight time—had several years of airline operations experience before assuming the command responsibilities of an airline captain. However, as competitive cost concerns increased with the advent of post-deregulated start-up carriers, the "legacy" airlines began to outsource the flying to as many as a dozen new "regional" partners flying 30- to 50-seat propeller aircraft and 50- to 90-seat jets. The "legacy" airlines then began the practice of having their "partners" bid against

each other to maintain these “fee for departure” outsourcing contracts. As the legacy airlines replaced more and more mainline flying by this outsourcing scheme to regional operators, they furloughed hundreds of highly experienced pilots, effectively replacing them with lower-paid and lower-experienced pilots.

The time has clearly come for these regulations to be updated to ensure that a high standard of aptitude, knowledge and training are met by anyone flying an aircraft in Part 121 operations. One critical gap in this effort, however, needs to be addressed. New regulations promulgated with the intent of ensuring relevant experience is obtained before pilots begin airline service must not allow the unintended consequence of rendering an active airline pilot suddenly ineligible to continue his or her employment. Fairness and common sense dictate that attempts to ensure relevant experience should not inadvertently result in taking that experience out of the cockpit. New regulations must include a clear path for currently employed airline pilots to follow to continue to fly and be able to achieve full compliance with requirements imposed after their employment began.

As a result of P.L. 111–216, we have seen broader recognition of the value of professional development, command training and mentoring. ALPA has long advocated these principles, and the ongoing industry activity to develop these programs, initiated as a result of the Act must be supported in order to continue. As we have noted, our industry has changed dramatically since the era when many of today’s training regulations were developed. That change has affected the training culture within airlines as well. The days of pilots being “seasoned” through years of experience under the tutelage of wise old Captains are gone. However, the need for the piloting skills developed in that manner remains, and the need for the pilot in command to in fact *be* in command has become more acute. The solution is to replace the mentoring, command training and professional development which once were a guaranteed by-product of business models and industry practices with formal mechanisms to address the means to develop these skills.

An airline captain must have skills far beyond simply being able to operate the aircraft from the captain’s seat. The captain must be able to organize the efficient cooperative activity of all flight crew, cabin crew, and ground crew to ensure the safe planning and conduct of the flight from gate to gate. He or she must be able to maintain control of situations under adverse conditions and in the face of pressure to compromise standards in the interest of operational expediency. The need to maintain command authority has arguably increased due to the continuing decline in experience levels of other crewmembers.

P.L. 111–216 accurately identified the need for airlines to provide specific command training courses for new captains to instill in them the skills to lead on the flight deck. In addition to basic skills such as aeronautical decision making and crew resource management, new captains should receive training to reinforce effective communication, leadership, conflict resolution, and judgment necessary to properly lead a crew, exercise command authority, and maintain the highest levels of safety in the face of internal or external pressures.

The Act also points out the value of mentoring. Mentoring is a form of instructing in which seasoned pilots share their experiences to help newer pilots increase their proficiency. This activity does not take the place of any proficiency training, but supplements it. In many cases, this mentoring takes the form of captains mentoring first officers, but could also be an experienced first officer providing counsel to a new-hire on company policies, piloting technique, aircraft systems, etc. Much of this mentoring can be informal if an airline safety culture fosters the opportunity for pilots to interact away from the actual flight, but can and should also be formalized in the interest of transferring the maximum amount of knowledge across experience levels. This training must go beyond just written statements in the airline’s manuals.

ALPA has long recognized the value of a formal Professional Standards function within an airline’s pilot group, and in fact maintains such a formal organization at each ALPA-represented airline and as part of ALPA’s Air Safety Organization at the national level. Such Professional Standards organizations, supported by both line pilots and airline management, are identified in the legislation as a critical component to enhancing safety.

The ARC that addressed mentoring, leadership and professional development has made its recommendations to the FAA, and that activity must not be allowed to stagnate. These are critical cultural changes that will take time to fully implement and mature, so we must begin sooner rather than later to implement these enhancements.

Safety Management Systems

A safety management system (SMS), such as referred to in P.L. 111–216, has been described as a comprehensive, process-oriented approach to managing safety throughout an organization. An SMS includes an organization-wide safety policy; formal methods for identifying hazards; controlling, and continually assessing risk; and promotion of a safety culture.

SMS stresses not only compliance with technical standards but increased emphasis on the overall safety performance of the organization. ALPA has participated in numerous FAA activities related to developing and promoting SMS, including the SMS Pilot Project and the SMS Aviation Rulemaking Committee (ARC). We are encouraged that the FAA appears to be on schedule to comply with P.L. 111–216 and publish a final SMS rule this summer.

Use of SMS has been recognized by the International Civil Aviation Organization (ICAO) as an effective means to implement a non-punitive safety culture in an organization. SMS encourages all members of an organization to identify hazards and for that identification to be made without fear of retribution, even if the identified problem is that individuals' own error. Thus, protection of safety data is an essential and critical element of any safety program, and especially of an SMS. Data must be gathered in sufficient depth and detail to support analysis of risk and implementation of corrective procedures, processes, etc.

Voluntary Safety Programs

We note that the Act recognizes the value of voluntary safety programs that can exist independently or be part of an SMS, such as the Aviation Safety Action Program (ASAP), Flight Operations Quality Assurance (FOQA), Advanced Qualification Program (AQP) and Line Oriented Safety Audits (LOSA). We must point out, however, that these programs rely to varying degrees on data provided by individuals that is provided voluntarily with an expectation that the reporter's forthrightness will be respected as an attempt to enhance safety and thus the need to protect those data from misuse is critical to the survival of these safety programs. Processes in place to protect the data gathered through various need to be strengthened and expanded to provide proper protection for the data, both within and outside an organization.

Information gathered through an anonymous, non-punitive employee reporting program must be protected against disclosure to anyone who is not authorized to view such safety reports. If sanctions are taken against an employee as a result of a safety report, that reporting program will lose participation. Much can be inferred about an organization's safety culture through their support for employee reporting programs. Failure to protect data in these programs will hinder future data-gathering efforts. ALPA has spoken often at a number of venues urging protection of this information to better assure data privacy and legal protections. Use of this information for any other than its intended purpose perverts an essential, much-needed safety system.

In conclusion, ALPA is encouraged by the progress made to date in pursuing safety enhancements outlined in P.L. 111–216, but we reiterate that much remains to be done. ALPA stands ready to continue to assist in that effort, and we appreciate the opportunity to offer our views to the Subcommittee.

PREPARED STATEMENT OF GERALD L. DILLINGHAM, PH.D., DIRECTOR,
PHYSICAL INFRASTRUCTURE ISSUES, GAO

Aviation Safety: FAA Has an Opportunity to Enhance Safety and Improve Oversight of Initial Pilot Training*

What GAO Found

FAA's pilot training requirements for certification of commercial pilots are not aligned with airline operations or emphasize skills that airlines consider important for greater aviation safety.

- Requirements do not emphasize training in decision-making, although this skill is essential to the airline pilot profession. According to FAA and other stakeholders, the regulations regarding ground school and flight training, as well as the test standards for a commercial pilot certificate, generally emphasize the development of motor skills to master of maneuvers and individual tasks to determine competence, and not decision making.

*The complete statement can be found at <http://www.gao.gov/products/GAO-12-537T>.

- Requirements do not emphasize training in using modern technologies, such as flight simulation training devices. Modern aircraft used by regional airlines have evolved and the operational demands have increased on pilots in high altitude and complex airline operations. Pilots in today's newer aircraft have to manage automation, advanced avionics and systems, information displays, and other new technologies.
- Requirements and testing do not emphasize situational awareness or understanding risk assessment, or provide a complete understanding of managing the automation of the aircraft.

Many of the key industry stakeholders GAO interviewed said the current training regulations for commercial pilots should be revised to incorporate additional training requirements that would improve the performance capabilities of the first officer applicants that seek employment at airlines. Some of the recommended types of training are provided to pilots when they are hired by airlines to ensure that the newly hired commercial pilots are competent in a range of training areas—some per FAA requirements. However, according to the Air Line Pilots Association, the lack of specific training requirements to be a commercial airline pilot results in a wide range of initial training experiences, not all of which are well suited for the commercial airline industry. To compensate, some regional airlines use various flight training devices to screen pilots during the hiring process to gauge their piloting skills. FAA has an opportunity to ensure that the knowledge and skills it requires of commercial pilots is still relevant.

FAA has an annual inspection program that includes the oversight of pilot schools, pilot examiners, and flight instructors, *i.e.*, the gatekeepers for the initial pilot training process. However, GAO's analysis of FAA inspection data found that the agency does not have a comprehensive system in place to adequately measure its performance in meeting annual inspection requirements for pilot schools and pilot examiners, which could make it difficult to ensure regulatory compliance and that safety standards are being met. GAO's report included recommendations to improve FAA's oversight of pilot certification by developing a comprehensive system that may include modifying or improving existing data systems to: (1) measure its performance in meeting the agency's annual inspection requirements for pilot schools and pilot examiners and (2) better understand the scope of discretionary inspections for flight instructors. FAA generally agreed with the recommendations.

Why GAO Did This Study

Regional airlines have experienced the last six fatal commercial airline accidents, and pilot performance has been cited as a potential contributory factor in four of these accidents, including the most recent in February 2009 which resulted in 50 fatalities. Public and media concerns about aviation safety escalated as a result about the level of safety across the entire airline industry, particularly about pilot education and training before they can be hired by regional airlines. The Federal Aviation Administration (FAA) is responsible for ensuring that pilots receive the necessary training and undergo the proper certification testing. Once hired, all U.S. commercial airlines are required to provide the advanced training for their pilots. However, to become a certified commercial pilot, which is currently the minimum requirement for being hired by an airline as a first officer; individuals must undergo several steps of pilot training and certification in accordance with FAA regulations.

This statement is based on GAO's November 2011 report on initial pilot training and focuses on (1) the various types of U.S. pilot training organizations, the regulatory training requirements for commercial airline pilots, and how they compare in preparing pilots candidates for commercial airlines, and (2) how and to what extent FAA carries out its oversight role of pilot training and certification of private and commercial pilots.

Chairwoman Cantwell, Ranking Member Thune, and members of the Subcommittee:

I am pleased to submit this statement on GAO's work related to the U.S. pilot training system. This study was undertaken at the request of the House Committee on Transportation and Infrastructure, its Subcommittee on Aviation, and members of Congress. Although the U.S. mainline airlines are experiencing an unprecedented level of safety, there have been several accidents in recent years involving regional airlines.¹ Specifically, the last six fatal commercial airline accidents involved regional airlines, which account for about 53 percent of the Nation's commercial

¹Mainline carriers operate aircraft seating 90 or more passengers and regional air carriers are airlines that generally operate aircraft seating fewer than 90 passengers.

flights. As a result, Congress and the flying public have raised concerns about the extent that there is “one level of safety”² across the entire airline industry. The National Transportation Safety Board (NTSB) cited pilot performance as a potential contributory factor in four of these accidents, including the one on February 2009, in Buffalo, New York, involving Colgan Air., Inc. in which 50 lives were lost.³ The focus of our study was the initial pilot education and training required before pilots can be hired by airlines, at which time they receive advanced training.⁴ The continued safety of the U.S. aviation system depends in part on the roughly 3,400 U.S. pilot schools providing well-trained pilot candidates for airlines. This is particularly relevant for regional airlines, which are much more likely to hire and train pilots directly from these schools, whereas large mainline airlines tend to hire and train pilots who already have experience at regional airlines or in the military.

This statement is based on our November 2011 report⁵ and focuses on (1) the various types of U.S. pilot training organizations, the regulatory training requirements for commercial airline pilots, and how they compare in preparing pilots candidates for commercial airlines, and (2) how and to what extent FAA carries out its oversight role of pilot training and certification of private commercial pilots. To address our objectives in the report, we reviewed and synthesized published literature related to pilot certification and training issues in the United States. We also reviewed Federal Aviation Regulations related to training and certification for pilots, and legislative provisions that addressed issues related to pilot training. We interviewed officials at Department of Transportation (DOT), Federal Aviation Administration (FAA), and NTSB. We also conducted interviews with representatives from a range of aviation stakeholder organizations, including pilot unions, pilot school associations, general aviation groups, commercial aviation industry associations, international aviation associations, and regional airlines. For a more detailed explanation of our scope and methodology, see appendix I of our full report.

The performance audit on which this statement is based was conducted from March 2010 through November 2011 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.



²Since 1995, FAA has imposed the “one level of safety” on the entire airline industry in which all U.S. commercial airlines—mainline and regional—are subject to the same standards and requirements, and receive the same level of safety oversight.

³NTSB Aircraft Accident Report, 2010, Loss of Control on Approach, Colgan Air, Inc., Operating as Continental Connection Flight 3407, Bombardier DHC-8-400, N200WQ, Clarence Center, New York, February 12, 2009. NTSB/AAR-10/01. Washington, D.C.

⁴Mainline and regional airlines provide their pilots with 1) advanced training as entry-level indoctrination training when they are hired and 2) continual recurrent training while they are employed.

⁵GAO, Initial Pilot Training: Better Management Controls are Needed to Improve FAA Oversight, GAO-12-117 (Washington, D.C.: November 2011).