

# AVIATION SAFETY: PILOT FATIGUE

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## HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION OPERATIONS,  
SAFETY, AND SECURITY

OF THE

COMMITTEE ON COMMERCE,  
SCIENCE, AND TRANSPORTATION  
UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

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DECEMBER 1, 2009

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ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

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## AVIATION SAFETY: PILOT FATIGUE

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TUESDAY, DECEMBER 1, 2009

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

The Subcommittee met, pursuant to notice, at 10:14 a.m. in room SR-253, Russell Senate Office Building, Hon. Byron L. Dorgan, Chairman of the Subcommittee, presiding.

### OPENING STATEMENT OF HON. BYRON L. DORGAN, U.S. SENATOR FROM NORTH DAKOTA

Senator DORGAN. We're going to call the hearing to order.

This is a hearing of the Senate Commerce Committee, Subcommittee on Aviation. My colleagues will be joining me shortly, but I want to begin on time.

The discussion today is on the subject of pilot fatigue. Now, let me describe my concern about this issue, and the concern of a number of my colleagues. The issue of pilot fatigue is not new. It has been on the National Transportation Safety Board's most-wanted list for 19 years, since the list was created. Pilot fatigue has consistently been an issue with the NTSB and the FAA. The current flight rules, I believe, have been in existence—with respect to duty time and so on, have been in existence for some 40 or 50 years without much change. The NTSB investigations have found that pilot fatigue was either the probable or the contributory cause of 20 air carrier accidents in the U.S., and has caused 273 fatalities between 1989 and 2008. So, this is not some issue without substantial consequence.

The NTSB's outstanding pilot-fatigue-related safety recommendation calls on the FAA to revise the flight- and duty-time limitations to take into consideration research findings on fatigue and sleep issues.

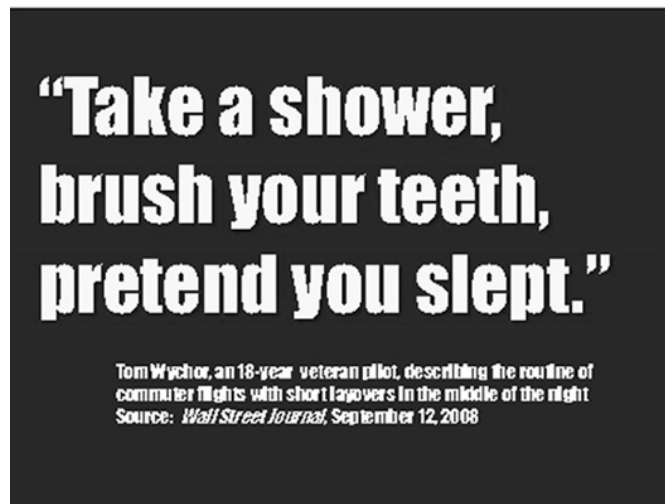
While the FAA also limits the amount of flight and duty time a pilot may work in a day—and these—as I said, these limits have existed for decades—commuting time, which is an increasing phenomenon in recent decades, is not factored into this requirement at all. And I'll talk just for a moment about that today.

The stories that we have heard are fairly frightening. And I want to say, from the outset, my goal today is not to alarm the flying public, far from it. We have the safest skies in the world, in my judgment. But, the issue of pilot fatigue is serious and merits attention. While the skies are safe, they are not perfect. And the—

two events that focused more recent attention on pilot fatigue—there was a Minneapolis overflight recently, an incident last month that has sparked much comment on how two pilots could have overflowed their destination by 150 miles. There was speculation that perhaps the pilots were asleep. The pilots indicated that they were working on electronic devices. No one, I guess, quite knows all of those answers at the moment.

The second is, the tragic crash of Colgan Air flight 3407. We've held a couple of hearings that have discussed that at some length. The NTSB is still conducting its investigation into that tragic accident, and has yet to issue a report on the cause of the accident. But, we do know that both pilots commuted from across the country earlier that day, one from Florida and one from Seattle, to reach their duty stations in Newark.

What I want to do is go through a few charts, if I might. And let me begin on the front side of this, with the first chart, talking about crew rest. These are just some things that most of you and I have heard and seen on investigative reports and official reports. This happens to be a *Wall Street Journal* article about fatigue. Tom Wychor, an 18-year veteran pilot, describing the routine of commuter flights with short layovers in the middle of the night, says, "Take a shower, brush your teeth, pretend you slept." "Take a shower, brush your teeth, pretend you slept."



Well, I don't know Mr. Wychor, but that kind of comment by somebody in the cockpit makes you question the issue of fatigue and whether we have done all that is necessary to make certain that fatigue is not a contributing factor to problems in the cockpit.

Another pilot—and again, pilots, of course, are not in a position to be able to speak very effectively or very candidly about these things. This is an anonymous pilot of a 737 jet flying to Denver. NBC News was quoting the pilot, when discussing fatigue. The quote is, "I have been doing everything in my power to stay awake—coffee, gum, candy. But, as we entered one of the most crit-

ical phases of flight, I had been up for 20 straight hours.” Fatigue in the cockpit by that pilot? Perhaps.

**“I have been doing everything in my power to stay awake. Coffee, gum, candy. But as we entered one of the most critical phases of flight, I had been up for 20 straight hours.”**

Anonymous pilot of 737 jet flying to Denver, quoted by NBC News

*New York Times* report on fatigue, “By the time Captain Paul Nietz parked his aircraft at the last gate of the night, he was exhausted, but he would be due back to work 8 hours and 15 minutes later.” Quote “At the very most,” he said, “if you’re the kind of person that could walk into a hotel room, strip, and lay down, you might get 4 and a half hours of sleep.” Fatigue? Seems to me, probably so. And I happened to have heard this sort of thing from a lot of pilots coming in late at night to an airport, and by the time—on a late flight—flying around, weather, and so on—by the time they get to their hotel and get some rest and are required to report back, the question of fatigue is a very real and a very serious question.

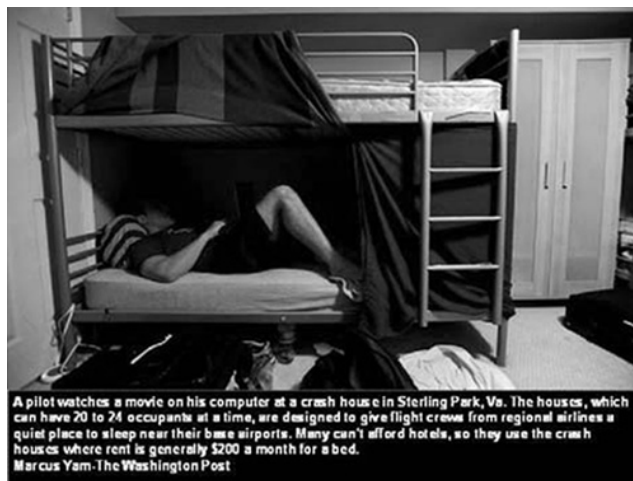
**By the time Capt. Paul Nietz parked his aircraft at the last gate of the night, he was exhausted. But he would be due back at work eight hours and 15 minutes later. “At the very most, if you’re the kind of person that could walk into a hotel room, strip and lay down, you might get four and a half hours of sleep,” he said.**

The New York Times, May 17, 2009  
Pilots’ Lives Defy Glamorous Stereotype  
By DAVID M. HALBFINGER, MATTHEW L. WALD and CHRISTOPHER DREW

I also wanted to discuss, just for a moment, the issue of commuting. I've showed this chart once before. This was the Colgan Air chart, Colgan Air pilots commuting to the Newark base. And this is a different issue than duty time, but you can see pilots commuting all across the country to the duty base. In this case, the tragedy that occurred in Buffalo, New York, the person flying in the right seat commuted all night long from Seattle, Washington, to Newark.



The next chart shows part of the product of commuting. This is a *Washington Post* report, "A pilot watches a movie on his computer at a crash house in Sterling Park, Virginia. The houses, which can have up to 20 to 24 occupants at a time, are designed to give flight crews from regional airlines a quiet place to sleep near their base airports. Many can't afford hotels, so they use the crash house, where rent is generally \$200 a month for a bed."





Incidentally, on this issue, I ran into a pilot, about 2 weeks ago at an airport, a very young pilot, who told me that he had just started his career, but was now quitting. And I said, "Why?" And he said, "Because I'm going to work for a city's police department, and my salary will be twice as much as my salary flying the commuter jet." And it relates to this question of, Why can't someone afford a hotel and, instead, uses crash pads as a part of their commuting across the country—in many cases, across the country—in order to reach their duty station?

The FAA announced earlier this year that they are going to revise the flight- and duty-time rules. So, I'm glad they're here today to tell us about that work. The FAA Administrator Babbitt has said the agency plans to issue those new rules by the end of next year. And, given the history on this issue, I think it's important that they complete that work that was begun by soliciting the recommendations of an Aviation Rulemaking Committee. Another false start, and there have been several, would really, in my judgment, be unacceptable.

I hope this hearing will bring some renewed focus to the issue of pilot fatigue, flight- and duty-time rules, and also, the issue of commuting. And I hope that we can take steps to remove fatigue as a factor in aviation safety.

As I indicated when I started, there have been a fair number of accidents that the NTSB attributes to fatigue. With respect to commercial airlines, in my judgment, there's no room for fatigue in the cockpit. We need to have duty times, flight times and crew rest periods that are sufficient so that we are not running into that problem.

Let me make one additional point. Some will make the case, I think, today—and perhaps in questions and answers we'll explore it more—there's a change in the way we fly in this country. A lot of smaller planes, smaller commercial airplanes, regional commuter planes that are up and down, up and down, up and down all day long. And the take-offs and the landings are the period where pilots, of course, are straining and—I should—"straining" is not the right word—but paying a great deal of attention. There's no room for mistakes on take-offs and landings. And so, there's a lot of tension in the cockpit and a lot of attention paid to the way that airplane is being flown. And so, that also creates fatigue. And I think this hearing can be a catalyst, and hopefully will be helpful to the FAA and the NTSB, in trying once again to put all the spotlights on the same spot when it comes to this issue of fatigue in the cockpit.

Mr. Lautenberg, let me call on you for a couple-of-minutes opening statement and then we'll begin with the witnesses.

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

Senator LAUTENBERG. Thanks very much, Mr. Chairman.

When we look at the details behind the questions that are being raised here now, it borders being shocking. Too much is demanded of our pilots. Too many hours on too little sleep, and operating complex machines with peoples' lives in their hands. The slightest tip in this risky balancing act can cause a disaster, as we saw on the

Colgan flight number 3407. And I heard the Chairman's review of that matter and the stress that was on the copilot, and it's unfair to the individual. It certainly was disastrous for all of them, including the pilots, but the full airplane of travelers.

And in this holiday season, planes are packed. The last thing a traveling family wants to worry about is a sleepy pilot. It's an invitation to disaster.

Now, we have a great system. And it has been safe. But, I think we're nibbling at the margins and that just the courage, the response of a lot of well meaning people, has averted some significant miscues. And whether it was over the Hudson River, where two planes collided; one landed in the river—no area—and this is turning, for a moment, away from the pilots—but, turning to the rules that the FAA lays down for pilot training. You wouldn't ask a brain surgeon to go—to take care of your need if he was up 8 hours doing surgery someplace else. And it's inappropriate with the system, with the value that we have, in our aviation system, that we should ask pilots, who make, in many cases, barely above the minimum wage. The national minimum wage is \$15,000 a year. They have pilots who are going to work—\$20,000 a year. The incident that you talked about, Mr. Chairman, with the fellow going to the police—to a police uniform because he was going to make that—so much more money. A private in the Army, makes \$16,800 a year—private in the Army. And here we're asking someone who has a substantial amount of training in order to get as far as they do to get a commercial pilots license, and we're discarding what is fair and appropriate to keep that person in the best of condition. Athletes don't go out on the field without being ready to do it, or should not. And we see consequences of those incidents occurring.

So, Mr. Chairman, it's the right thing to do. And we—

Senator DORGAN. Senator Lautenberg—

Senator LAUTENBERG. I thank you for holding this hearing.

Senator DORGAN. Well, Senator Lautenberg, thank you for your attention to all these aviation issues. As we've held hearings, you've constantly come to these hearings and been very active, and I know that you've spent a lot of time on them. I appreciate that.

Let me appreciate the witnesses being here.

We are joined by Ms. Peggy Gilligan, the Associate Administrator for Aviation Safety at the FAA; Mr. Basil Barimo, the Vice President of Operations and Safety, the Air Transport Association; Captain John Prater, President of Air Line Pilots Association; and Mr. William Voss, President and CEO of Flight Safety Foundation.

I—let me, as I call on Ms. Gilligan, say, in response to what Senator Lautenberg said, we should not have to learn the same lesson twice, or three or four or five times. We've been through this, this is—you know like Groundhog's Day—we've had discussion after discussion after discussion about fatigue. And they—the same has been true with the NTSB. And having it on the Most Wanted List for some 19 years is unacceptable. And I appreciate the fact that Administrator Babbitt is now in the process of taking action. We're going to hear that from Ms. Gilligan. But, this has to be a catalyst—this hearing has to be a catalyst for insisting at last—at long, long last, after some 40 years or so—that we take a hard look at this and make the changes that are necessary.

Ms. Gilligan.

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

Ms. GILLIGAN. Thank you, sir. Chairman Dorgan and Senator DeMint, members of the Subcommittee, I'm pleased to be here today to discuss the FAA's efforts to mitigate pilot fatigue.

As you know, the agency has been involved in revising the current regulations on flight and duty time for some time. And we are all frustrated by the amount of time we've spent. But, I can tell you that this time our efforts are different.

Administrator Babbitt, himself a former commercial airline pilot, has made this a high priority issue for the FAA. In June, he chartered an Aviation Rulemaking Committee, comprised of labor, industry, and FAA representatives, to develop recommendations for a rule based on the current science of fatigue and a review of international approaches to this issue.

The ARC was chartered to provide a forum for the U.S. aviation community to discuss the current science of fatigue, to discuss approaches to mitigating fatigue found in international examples, and to make recommendations to the FAA so that the United States could modify its regulations. The 18 members of the ARC, representing airlines and union associations, were selected based on their extensive, direct operational experience and their commitment to address this safety risk. The ARC met for over 6 weeks, beginning July 7, and on September 10, the ARC delivered its final report to the FAA.

The Administrator has committed to issue a Notice of Proposed Rulemaking early in 2010. But, this effort is a difficult and complicated effort, and it has taken longer than any of us wanted or expected. The events of the last 15 years are evidence of the complexity of the issue and the strong concerns of all the parties involved. Those concerns are clear in the current rulemaking process, as well. At the same time, our focused efforts since June demonstrates the high priority that Administrator Babbitt places on overcoming these challenges and updating these regulations to enhance safety. While we will need additional time to complete our analysis and make sure that we get it right this time, I am confident we will get there.

Chairman Dorgan, Senator DeMint, members of the Committee, this concludes my remarks, and I would be happy to answer questions that you may have.

[The prepared statement of Ms. Gilligan follows:]

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

Chairman Dorgan, Senator DeMint, members of the Subcommittee:

Thank you for inviting me here today to discuss the Federal Aviation Administration's (FAA's) efforts to mitigate pilot fatigue. Administrator Babbitt, himself a former commercial airline pilot, has made this a high-priority issue for the agency. The FAA has always been a leader in advancing measures targeted at preventing or mitigating pilot fatigue through our sponsored research, dissemination of training and educational materials, and, most significantly, through our regulatory requirements. We believe that it is critical, whenever possible, to incorporate scientific in-

formation on fatigue and human sleep physiology into regulations on flight crew scheduling. Such scientific information can help to maintain the safety margin and promote optimum crew performance and alertness during flight operations. Our task is to translate that knowledge to the operational environment in a sound and practical way. The complexity of our current pilot flight and rest regulations, with varying standards for a number of categories of aviation operations, developed through the years as the aviation industry grew, adopted more advanced technology, and employed diverse operational strategies.

Preventing and mitigating the effects of fatigue is a shared responsibility that brings shared benefits in terms of increased safety, better working conditions and greater operational efficiencies. We at the FAA take our responsibility very seriously for investigating any threat to safety in the aviation system and establishing the regulatory framework to enhance the public's safety. To that end, we are engaged in an effort to revise and update our rules on pilot flight and rest, which I will describe in more detail below. At the same time, carriers have the responsibility to conduct their operations at the highest level of safety. That includes adopting appropriate scheduling practices that provide the pilot a clearly identified opportunity to rest. And, finally, pilots have the responsibility to take advantage of the opportunity for rest and report for their assignments well rested and ready for duty. We know that in the vast majority of cases, carriers and pilots act in a professional manner and take this shared responsibility seriously. We have a common goal to ensure that all aviation operations are conducted safely.

### Current Regulations

Current regulations place varying limits on the amount of time that a flight crewmember can fly (*i.e.* per day, week, month, quarter, and year), and require that a pilot be afforded a period of rest, free from obligation to the employer. Flight time limitations are based on the type of operation. For example, under current Part 121 rules, pilots in a two-pilot crew, on domestic flights, can generally fly up to 8 hours per day. Their workday can extend up to 16 hours, including time on the ground between flights. In addition, there are no restrictions on flying during the middle of the night or making numerous takeoffs and landings. In addition to daily limitations, these flight crewmembers are limited to 30 flight hours in any 7 consecutive days.

Flight crewmembers engaged in part 121 flag operations (international passenger flights), are limited to 32 flight hours in any 7 days. Part 121 supplemental operations (typically cargo, on-demand or charter operations) have no 7 consecutive day limitations. Flight crewmembers serving in part 121 domestic or flag operations are limited to 100 hours per calendar month while flight crewmembers serving in supplemental operations are limited to 100 flight hours in any 30 consecutive days.

These differing regulations for different types of operations are inconsistent and complex, and can be easily misunderstood, especially when a pilot can be assigned to different types of operations. The different rules developed over time, as the aviation industry changed and expanded. While such variance in the rules may have been justified when they were first adopted, these differences may no longer be valid in today's operational environment. Our rulemaking will address this.

Current rules also require that a pilot be afforded an adequate rest period. The "crew rest" elements of the regulation are designed to mitigate cumulative and acute fatigue, primarily through limitations on flight hours and defined hours of rest relative to flight hours. For example, the regulation for domestic operations outlines:

- No more than 30 flight hours in any 7 consecutive days.
- At least 24 hours of consecutive rest during any 7 consecutive days.
- Varying rest requirements relative to hours flown in any 24-hour period.

The rule also defines rest period activities and prohibitions, and provides provisions for circumstances under which flight time limitations can be exceeded, such as in adverse weather operations. As of late 2000, an FAA legal interpretation clarified that a pilot crew member, flying under domestic flight rules, must "look back" 24 hours and find 8 hours of uninterrupted rest before beginning any flight segment.

Pilots also have a regulatory responsibility to not fly when they are not fit, including being fatigued. Thus, while the carrier schedules and manages pilots within these limitations and requirements, the pilot has the responsibility to rest during the periods provided by the regulations. The FAA has long held that it is the responsibility of both the operator and the flight crewmember to prevent fatigue, not only by following the regulations, but also by acting intelligently and conscientiously while serving the traveling public. This means taking into consideration weather

conditions, air traffic, health of each flight crewmember, or any other circumstances (personal problems, etc.) that might affect the flight crewmember's alertness or judgment on a particular flight.

#### **FAA Actions**

The FAA has initiated a number of fatigue mitigation efforts in recent years:

*1995 Proposal for Pilots:* In 1995, the FAA proposed a rule to change flight time and rest limits. The agency received more than 2,000 comments from the aviation community and the public. Most of those comments did not favor the rule as proposed, and there was no clear consensus on what the final rule should say. The FAA recently withdrew this proposed rule because it will be superseded by the current rulemaking effort described below.

*1998 ARAC:* In July 1998, the FAA Administrator asked the Aviation Rule-making Advisory Committee (ARAC) to work with the industry to reach a consensus and develop a new proposal. If no consensus could be reached, the FAA would continue to enforce the current regulations. In February 1999, ARAC reported that there was no consensus in the aviation community. The group offered five different proposals to update the flight and rest regulations.

*1999 Federal Register Notice:* In response to concerns raised by the pilot community, the FAA Administrator notified the aviation community on June 15, 1999, that it had 6 months to ensure that it was in full compliance with the agency's current flight time and rest requirements. Reviews of airline scheduling practices conducted in December 1999, and discussions with pilot unions and airlines confirmed that the vast majority of pilots were receiving the amount of rest required by the FAA's rule.

*2000 FAA letter:* On November 20, 2000, the FAA responded to a letter from the Allied Pilots Association that set forth specific scenarios that could affect a very small number of all commercial pilots. The FAA's response, known as the "Whitlow Letter," was consistent with the agency's long-standing interpretation of the current rules. In summary, the FAA reiterated that each flight crewmember must have a minimum of 8 hours of rest in any 24-hour period that includes flight time. The scheduled flight time must be calculated using the actual conditions on the day of departure regardless of whether the length of the flight is longer or shorter than the originally scheduled flight time.

*2001 Federal Register Notice:* The FAA published a notice in the *Federal Register* on May 17, 2001, to reiterate its long-standing interpretation of its pilot flight time and rest rules. The notice informed airlines and flight crewmembers of the FAA's intent to enforce its rules in accordance with the Whitlow letter interpretation. Each flight crewmember must have a minimum of 8 hours of rest in any 24-hour period that includes flight time. That calculation must be based on the actual conditions on the day of departure regardless of whether the length of the flight is longer or shorter than the originally scheduled flight time. The FAA did not anticipate that the notice would result in major disruptions to airline schedules. It stated that, beginning in November 2001, the FAA would review airline flight scheduling practices and deal stringently with violations that came to light.

*2001 ATA/RAA Request:* The FAA denied requests made on June 12, 2001, on behalf of the Air Transport Association (ATA) and Regional Airline Association (RAA) to stay all agency action regarding the November 20, 2000, Whitlow letter of interpretation and the May 17, 2001, *Federal Register* notice of the FAA's enforcement policy regarding pilot flight time and rest. The FAA's letter and *Federal Register* notice were consistent with the agency's long-standing interpretation of the current rules. The documents were consistent with the statutory mandate to issue rules governing the maximum hours or periods of service, the use of plain language in regulations and the regulatory history of the rules. ATA subsequently petitioned for review of the Whitlow letter and the enforcement policy.

On Sept. 5, 2001, the U.S. Court of Appeals for the District of Columbia granted a motion by the ATA to stay the May 17, 2001, *Federal Register* notice. On May 31, 2002, the court denied ATA's petition for review, ruling in favor of the FAA. As a result, the FAA has continued to enforce the current regulations consistent with the Whitlow letter.

*2008 FAA Fatigue Symposium:* In June 2008, the FAA sponsored the *Fatigue Symposium: Partnerships for Solutions* to encourage the aviation community to proactively address aviation fatigue management issues. Participants included the National Transportation Safety Board, the Institutes for Behavior Re-

sources, Inc., and many of the world's leading authorities on sleep and human performance. The symposium provided attendees with the most current information on fatigue physiology, management, and mitigation alternatives; perspectives from aviation industry experts and scientists on fatigue management; and information on the latest fatigue mitigation initiatives and best practices.

*Ultra Long-Range Flights:* In 2006, the FAA worked with Delta Air Lines to develop and approve fatigue mitigation for flights between John F. Kennedy International Airport and Mumbai, India. The flights were operated for more than 16 hours with four pilots provided that the airline followed an FAA-approved plan to manage rest and mitigate the risk posed by fatigue. The mitigation, approved as an Operations Specification issued to Delta Air Lines, was specific for that city pair. Although that specific route is no longer flown by Delta, the FAA viewed Delta's fatigue mitigation strategy as a model program.

As a result of Delta's efforts, the FAA proposed in November 2008, to amend Delta, American, and Continental's Operations Specifications to incorporate fatigue mitigation plans for their ultra long-range flights. Based on comments received from the three air carriers, the FAA withdrew the proposed amendments on March 12, 2009. The FAA is currently working with airlines to gather data that will help the agency enhance the safety requirements for ultra long-range flights. The agency believes that it is in the best interest of passenger and crew safety for airlines to use an FAA-approved fatigue mitigation program to reduce the risk of pilot fatigue.

#### **Rulemaking Underway**

In June 2009, the FAA chartered the Flight and Duty Time Limitations and Rest Requirements Aviation Rulemaking Committee (ARC) comprised of labor, industry, and FAA representatives to develop recommendations for an FAA rule based on current fatigue science and a thorough review of international approaches to the issue. The ARC was chartered to provide a forum for the U.S. aviation community to discuss current approaches to mitigate fatigue found in international standards and make recommendations on how the United States should modify its regulations. The ARC consisted of 18 members representing airline and labor associations. The members were selected based on their extensive certificate holder management and/or direct operational experience.

Specifically, the FAA asked the ARC to consider and address the following:

1. A single approach to addressing fatigue that consolidates and replaces existing regulatory requirements for Parts 121 and 135.
2. Generally accepted principles of human physiology, performance, and alertness based on the body of fatigue science.
3. Information on sources of aviation fatigue.
4. Current approaches to address fatigue mitigation strategies in international standards.
5. The incorporation of fatigue risk management systems (FRMS) into a rulemaking. An FRMS is a data-driven process and systematic method to monitor and manage safety risks associated with fatigue-related error.

The ARC met over a 6-week period beginning July 7, 2009. Early on, the FAA told the ARC members that it was very interested in the ARC's recommendations, but that the agency retained the authority and obligation to evaluate any proposals and independently determine how best to amend the existing regulations. The agency reiterated that participation on the ARC in no way precluded them from submitting comments critical of the NPRM when it was published. On September 10, 2009, the ARC delivered its final report to the FAA.

We cannot discuss further particulars of the FAA's rulemaking efforts at this time, however, we are working as quickly as possible to complete a draft Notice of Proposed Rulemaking (NPRM). I will readily acknowledge that this effort has been difficult, and has taken us longer than we wanted or expected. The events of the last 15 years evidence the complexity of the issue and the strong concerns of the parties involved, and those are clear in the current rulemaking as well. At the same time, our focused effort since June demonstrates the high priority that Administrator Babbitt and I, along with the rest of the FAA team, place on overcoming these challenges and updating these regulations to enhance safety. I am confident we will get there.

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

Senator DORGAN. Ms. Gilligan, we will have a lot of questions, so I appreciate your being here and your testimony.

Ms. GILLIGAN. Thank you, sir.

Senator DORGAN. Mr. Basil—is it “Barreemo”?

Mr. BARIMO. Yes, that’s correct.

Senator DORGAN. Mr. Basil Barimo, Vice President of Operations and Safety, Air Transport Association. You may proceed.

Let me say, to all four of you, that your entire statements will be made a part of the permanent record and you may summarize.

**STATEMENT OF BASIL J. BARIMO,  
VICE PRESIDENT, OPERATIONS AND SAFETY,  
AIR TRANSPORT ASSOCIATION OF AMERICA, INC.**

Mr. BARIMO. Thank you. Good morning. I am Basil Barimo, Vice President of Operations and Safety of the Air Transport Association of America.

Mr. Chairman, members of the Subcommittee, I appreciate the opportunity to join you this morning as you consider the impact of pilot fatigue on aviation safety. This important subject demands a collaborative, thorough, and science-based response.

ATA participated in the ARC that Ms. Gilligan mentioned. It was a productive effort, but we must all recognize that the ARC operated under significant time constraints. It wrapped up its work in a 6-week period. Consequently, we may expand upon the views that we expressed in the ARC and that I’ll outline this morning.

We support a duty-day regulation designed to account for fatigue risks, including circadian cycles, time awake, time on task, and acclimation to time zones. Our goal is to mitigate fatigue risk by reducing the duty time of pilots, expanding scheduled rest opportunities to ensure adequate rest, and increasing pilots’ awareness of fatigue risk in their personal role in mitigating that risk. As in other aviation safety efforts, success here will depend on data-driven analyses and rigor in translating those analyses into regulatory action.

The recommendations that we, in conjunction with the Cargo Airline Association and the Regional Airline Association, provided to the ARC were divided into substantive and procedural considerations.

We had five substantive issues:

First, we recommended that any new regulation establish a minimum of 10 hours scheduled rest, before the beginning of a flight period, at a domestic station and 12 hours at an international station. And we went on to suggest that additional detailed rest requirements were appropriate for certain international flights.

Second, any new regulation should require each air carrier to adopt an FAA-approved fatigue mitigation program. An advisory circular could provide guidance in the necessary flexibility to update fatigue mitigation programs as we gain experience.

Third, we urge that any new regulation account for the wide variety of operational environments, just as the current regulation does. These include domestic and international passenger operations, as well as cargo operations, and on-demand charter operations. Science-based principles, judiciously blended with decades

of operational experience, will allow the various air carrier models to continue to operate safely.

Fourth, there also needs to be a focus on the individual in the regulations. Regulatory language should clearly prescribe the responsibility of the crew member to properly prepare him- or herself for flight. No fatigue policy, without such an admonition, can be regarded as comprehensive.

And fifth, the FAA should endorse controlled cockpit napping, conducted in accordance with FAA-approved procedures, to facilitate alertness during the critical phases of flight. Previous NASA research has shown, overwhelmingly, that controlled napping significantly mitigates fatigue risk.

On the procedural side, we had three issues:

We're particularly concerned about the ultimate scope of any proposed regulation. Extraneous consideration should not burden our efforts to improve aviation safety. A rulemaking proceeding is not the forum in which to resolve collective-bargaining issues.

Second, we are also concerned about the effect of proposed duty and rest regulations on managers, who are also qualified as line pilots. If time spent on administrative duties, such as checking e-mail or making a phone call, count as duty, we risk losing line-qualified pilot managers. These pilot managers have played an essential role in safe airline operations, and the consequence of this rule on those management positions must be carefully considered.

And finally, as with any major regulatory change, covered parties will need time to implement new policies requiring programming and training. That is particularly so here, where crew schedules will be impacted. We therefore ask that FAA provide a transition period of at least 2 years after the regulation is published.

ATA members are committed to using the best science available, combined with proven operational experience, to better manage pilot fatigue. We look forward to working with the Committee, the FAA, and other stakeholders in this endeavor.

That concludes my statement, and I look forward to your questions. Thank you.

[The prepared statement of Mr. Barimo follows:]

PREPARED STATEMENT OF BASIL J. BARIMO, VICE PRESIDENT,  
OPERATIONS AND SAFETY, AIR TRANSPORT ASSOCIATION OF AMERICA, INC.

The Air Transport Association of America appreciates this opportunity to discuss pilot duty time and fatigue management issues with the Subcommittee. This important subject demands a collaborative, thorough and science-based response.

ATA participated in the FAA Flight and Duty Time Limitations and Rest Requirements Aviation Rulemaking Committee ("the ARC"). That was a productive effort but we all must recognize that the ARC operated under significant time constraints. In any future rulemaking proceeding, consequently, we may expand upon the views that we expressed in the ARC and that are outlined below.

We support a duty-day regulation designed to account for fatigue risks, including circadian cycles, time awake, time on task and acclimation to time zones. Our goal is to mitigate fatigue risk by:

- reducing the duty time of pilots,
- expanding scheduled rest opportunities to ensure adequate rest, and
- increasing pilots' awareness of fatigue risk and their personal role in mitigating that risk.

As in other aviation-safety undertakings, success here will depend on data-driven analyses and rigor in translating those analyses into regulatory action.



The recommendations that we, in conjunction with the Cargo Airline Association and the Regional Airline Association, provided to the ARC were divided into substantive and procedural considerations.

#### **Substantive Issues**

With respect to substantive issues, we recommended that any new regulation establish a minimum of 10 hours of scheduled rest before the beginning of a flight-duty period at a domestic station and 12 hours of scheduled rest at an international station, with the possibility of a reduction of 1 hour in actual operations. We suggested additional, detailed rest requirements for certain international flights.

Any new regulation should require each air carrier to adopt an FAA-approved fatigue mitigation program documenting its mitigation policies and training. Detailed means of compliance should be provided in an accompanying FAA-issued Advisory Circular. Use of an AC will provide the necessary flexibility to update airline fatigue mitigation programs as we build on future experience.

Different air carrier operational environments must be recognized. These include domestic and international passenger operations, domestic and international cargo operations, and on-demand (nonscheduled) charter operations. We strongly urge that any new regulation account for the wide variety of operations, just as it does today. Nothing in fatigue and sleep research justifies a one-size-fits-all approach. Science-based principles, judiciously blended with many years of operational experience, will allow the various air carrier models to continue to operate safely.

There also needs to be a focus on the individual in the regulations. Regulatory language should clearly prescribe the responsibility of the crew member to properly prepare himself for a flight. No fatigue policy without such an admonition can be regarded as comprehensive. Such language will also help address the pilot commuting issue.

The FAA should also endorse controlled cockpit napping conducted in accordance with FAA-approved procedures to facilitate alertness during the critical phases of flight. Previous NASA research provides overwhelming evidence that controlled napping significantly mitigates fatigue risk. We must act on that evidence.

#### **Procedural Issues**

We are particularly concerned about the ultimate scope of any proposed regulation. Extraneous considerations should not burden our efforts to improve safety. In particular, a rulemaking proceeding is not the forum in which to resolve collective bargaining issues.

We are also concerned about the effect of proposed duty and rest regulations on managers, who are also qualified as line pilots. If time spent in administrative duties counts as “duty” for cumulative purposes, or if a management pilot cannot have the discretion to check e-mail or use the telephone during a scheduled rest period, the possible result could be the end of line-qualified pilot managers, chief pilots or directors of operations. Since the beginning of commercial aviation, these pilot managers have played an essential role in safe airline operations, and the consequence of this rule on those management positions must be carefully considered. We recognize, of course, the need for appropriate rest prior to flight. This might be more appropriate for inclusion in a fatigue mitigation advisory circular.

Finally, as in any major regulatory change, covered parties will need time implement new policies requiring programming and training. That is particularly so here where crew schedules will be affected. We, therefore, ask that the FAA provide a transition period of at least 2 years after the final regulation is published.

#### **Conclusion**

ATA members are committed to using the best science available combined with proven operational experience to improve pilot duty time and fatigue management. We look forward to working with the Committee, the FAA and other stakeholders in this important endeavor.

Senator DORGAN. Mr. Barimo, thank you very much. We appreciate your testimony.

Captain Prater—I think I called you Captain “Pratter.” I didn’t mean that—Captain Prater, welcome. You may proceed.

**STATEMENT OF CAPTAIN JOHN PRATER, PRESIDENT,  
AIRLINE PILOTS ASSOCIATION, INTERNATIONAL**

Mr. PRATER. Thank you. Chairman Dorgan, Ranking Member DeMint, members of the Subcommittee, thank you for having us here today to represent the views of the more than 53,000 members of the Air Line Pilots Association, International.

Pilot fatigue has loomed as a safety issue for our unions since it was founded in 1931. During the difficult years following 9/11, these long standing concerns have intensified with bankruptcy, concessionary contracts, and the layoff of thousands of pilots, forcing many of those who are still working to fly longer hours and more grueling schedules. It is a dire situation that I have experienced in my own cockpit.

Just one example from several years back: Flying on the backside of a 5-day trip that took me from Newark to Japan and back to Newark, my copilot and I were so fatigued from crossing and recrossing numerous time zones that we were barely able to stay awake to make a predawn landing during a stop in Honolulu. At that time, I was in command of a 767 with over 240 passengers on-board. While this segment was legal to fly with only two pilots because it was a few minutes short of the 8-hour limit, it would have been far safer had we had the third pilot to augment the crew, as had been the case for every other leg of that specific trip. That would have allowed both me and my first officer to catch a couple-hour nap in the cabin.

Current U.S. flight- and duty-time rules date from 1954, when the DC-3 was the state-of-the-art. Times and equipment have changed, but the rules have not. Since 1989, the National Transportation Safety Board has issued more than 70 fatigue-related safety recommendations. Few would deny that modern, science-based regulations are urgently needed.

From our view from inside the cockpit, a rule must be grounded on three basic tenets. One, it must be based on science. Two, it must apply equally to all flight operations. No exceptions, no carve-outs, no loop holes for air cargo or charter operations. Three, a new rule must allow and encourage air carriers to implement fatigue risk management systems, known as FRMS.

During the past 60 years, scientists' understanding of sleep, fatigue, and human performance has grown significantly. Several recent studies have focused directly on aviation fatigue. This science, gained through field and simulator studies, confirms that current rules can lead to fatigue that impairs pilot performance. The 190-nation International Civil Aviation Organization, or ICAO, has mandated that flight limitation rules be based on scientific principles to ensure that flight crew members are well rested and alert. The United States is compelled to comply with this international standard. But, unfortunately, we don't, because the FAA current rules are not science-based.

Second, one level of safety in flight- and duty-time regulations is absolutely essential. The current FAA flight-time limit for passenger-carrying pilots is 30 hours in 7 days for domestic operations and 32 hours in 7 days for international flights. But, air cargo pilots can fly up to 48 hours in a 6-day period, or 60 percent more than domestic passenger-carrying pilots. No science exists to sup-

port multiple sets of flight-time/duty-time limits. No rational argument can be made for different fatigue rules for pilots based on whether they fly passengers or cargo, domestic or international. ALPA maintains that uniform rules are indispensable if our industry is to truly address pilot fatigue. Exceptions or carve-outs would kill long overdue efforts to ensure all pilots are well rested. Worse, carve-outs would undermine the one level of safety principle that must remain our ultimate goal.

Finally, the new regulation must enable carriers to transition to a fatigue risk management system, a collaborative, nonpunitive environment, where management and flight crews work together to ensure that crew members operate alertly and safely under all circumstances. It is also imperative that the FAA require air carriers to implement fatigue education and training programs for their crews, their managers, and their schedulers.

I'm very encouraged that we finally appear to be on the verge of securing the modern, science-based flight- and duty-time rules that we know are vital to enhancing aviation safety. ALPA will continue to do all we can to carry on this momentum. Seven ALPA pilots, representing all aspects of our industry, worked on the FAA's Aviation Rulemaking Committee. In October, our executive board unanimously approved new policy that reflects our values of science and the one level of safety for all. And it ensures our vision for ensuring pilots are well rested.

We look forward to evaluating the FAA's proposed rule, and we applaud efforts to create a final rule by mid-next-year. The current regulatory framework is a fabric-and-wire biplane struggling to stay aloft in a supersonic age. I ask for your help in giving the flying public a new consistent level of safety by ensuring that every pilot in the United States starts every trip alert and rested.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Prater follows:]

PREPARED STATEMENT OF CAPTAIN JOHN PRATER, PRESIDENT,  
AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

Mr. Chairman and members of the Subcommittee, I am Captain John Prater, President of the Air Line Pilots Association, International ("ALPA") which represents 53,000 professional pilots at 36 airlines in the United States and Canada.

ALPA appreciates this opportunity to discuss pilot fatigue because we know that it is a significant flight safety issue. Pilot fatigue is as important to flight safety as metal fatigue, wiring insulation fatigue and other component fatigue.

The FAA has a statutory responsibility to prescribe minimum standards to prevent all fatigue that impacts safety. While the agency has been responsive to other types of fatigue, the FAA has not yet fulfilled its responsibility regarding pilot fatigue.

Pilot fatigue has been a major issue for ALPA since it was founded in 1931 and it has been particularly onerous during the difficult years since 9/11.

The financial crisis in the airline industry has brought bankruptcies and concessionary contracts which have resulted in pilots being required to fly up to the legal limits without receiving adequate rest. We receive daily reports of scheduling that causes pilots to be virtual "zombies." The domestic flight and duty rules were last amended in 1985 with the promise that the FAA would revisit these rules in 2 years. Twenty-five years later we are still waiting to review them.

The current rules for International and Supplemental Operations were promulgated in 1954 when the DC-3 aircraft was state-of-the-art. At that time, it was not uncommon to carry a radio operator and mechanic on the aircraft. Today, the Airbus 380 airplane carries 600+ passengers 8,200 miles at a speed of 560 miles per hour. Times and equipment have changed but the flight and duty time rules have not. They were not designed to address our modern environment and equipment.

The National Transportation Safety Board issued three recommendations to the DOT in 1989 following several accidents involving operator fatigue:

1. Expedite a coordinated research program on the effects of fatigue, sleepiness, sleep disorders, and circadian factors on transportation system safety.
2. Develop and disseminate educational material for transportation industry personnel and management regarding shift work, work and rest schedules, and proper regimes of health, diet, and rest.
3. Review and upgrade regulations governing hours of service for all transportation modes to assure that they are consistent and that they incorporate the results of the latest research on fatigue and sleep issues.

Since 1989, the Safety Board has issued more than 70 fatigue-related safety recommendations which were the result of major accident investigations, special investigations, or safety studies that identified operator fatigue as a factor. This includes more than 15 significant accident reports or studies concerning aviation operations conducted under Parts 91, 121 and 135 (see table).

Listing of Selected Fatigue-related aviation investigations and studies conducted by the National Transportation Safety Board since May 1989

Location of accident or topic of the study that identified fatigue-related issues	Accident Date	NTSB Report Number
<i>Aviation</i>		
<i>Accident investigation:</i>		
Molokai, Hawaii	10/28/89	AAR-90-05.
Brunswick, Georgia	04/05/91	AAR-92-03.
Pine Bluff, Arkansas	04/29/93	AAR-94/01/SUM.
Guantanamo Bay, Cuba*	08/18/93	AAR-94-04.
Kansas City, Missouri*	02/16/95	AAR-95-06.
Cheyenne, Wyoming	04/11/96	AAR-97-02.
Everglades, Florida	05/11/96	AAR-97-06.
Little Rock, Arkansas	06/01/99	AAR-99-60.
Nimitz Hill, Guam	08/06/97	AAR-00-01.
Tallahassee, FL*	07/26/02	AAR-04-02.
San Diego, CA	10/24/04	AAB-06-05.
Kirksville, MO	10/19/04	AAR-06-01.
Cleveland, OH	02/18/07	AAR-08-01.
Travers City, MI	04/12/07	AAR-08-02.
Clarence Center, NY (Colgan 3407)	02/12/09	Open (NTSB Preliminary ID No. DCA09MA027).
<i>Special Investigation:</i>		
Commercial space launch incident, Cape Canaveral, Florida	08/17/93	SIR-93-02.
<i>Safety study:</i>	Report Date	
Flight crew-involved accidents	02/03/94	SS-94-01.
Commuter airline safety	11/30/94	SS-94-02.
Aviation safety in Alaska	12/01/95	SS-95-03.

\*Air Cargo accident.

In addition to the accident reports indicated above, the Board acknowledged that fatigue can result in degraded performance in flight crews and that disruption of the sleep/rest cycle may have played a role in the Air Transport International (Swanton, OH) DC-8 cargo crash on February 15, 1992 (AAR-92-05).

The Board has not made distinctions between reforms needed for the rules applicable to passenger and all-cargo operations in its reports and recommendations to the FAA; rather the Board has recognized that the effect of fatigue is the same whether a pilot is carrying cargo or passengers, or operating a scheduled or non-scheduled flight. Fatigue is an equal opportunity killer.

Pilot fatigue has been on the Safety Board's list of Most Wanted Transportation Safety Improvements since the list's inception in 1990. Other, more specific, recommendations have followed. The Board's current Most Wanted List (August 2009) specifies the following objective to reduce accidents and incidents caused by human fatigue in the aviation industry: Set working hour limits for flight crews based on fatigue research, circadian rhythms, and sleep and rest requirements.

I believe that there is universal agreement that there is an urgent need for modern flight time regulations.

This brings us to "what should a modern flight time regulation prescribe?" There are three basic principles for a new rule. One, it must be based on science. Two, it must apply equally to all operations: domestic, international and supplemental. There is no basis for any "carveouts" for air cargo or charter operations. Three, it must include the ability for air carriers to transition to a Fatigue Risk Management System, or FRMS.

First, let me address the science.

There is a large body of sleep science available and there are several recent aviation fatigue studies. Over the past 60 years, scientific knowledge about sleep, sleep disorders, circadian physiology, fatigue, sleepiness/alertness, and performance decrements has grown significantly. Some of this scientific knowledge, gained through field and simulator studies, confirms that aviators experience performance-impairing fatigue from sleep loss resulting from current flight and duty practices. There are also several fatigue models available. These models can analyze a schedule and predict whether the pilot will have an adequate level of alertness to fly the schedule.

The International Civil Aviation Organization, ("ICAO"), a United Nations organization, has 190 member countries including the United States. Its role is to establish standards for the safe operation of civil aircraft throughout the world. ICAO has mandated that flight limitation rules be based on science and they have recently implemented a new standard for flight time rules which states in part:

"For the purpose of managing fatigue, the State of the Operator shall establish regulations specifying the limitations applicable to the flight time, flight duty periods, duty periods and rest periods for flight crew members. These regulations shall be based upon scientific principles and knowledge, where available, with the aim of ensuring that flight crew members are performing at an adequate level of alertness."

The United States is bound to comply with this standard. Our current rules are simply not based on science and therefore do not comply with the ICAO standard.

Second, I will address the need to have one level of safety in flight time limitation regulations. Scheduled passenger, all-cargo and charter air carrier operations are no different when it comes to the actual operation of the aircraft. All three types of operations use the same aircraft, the same airspace, and the same airports in the same cities. As such, there is no rational basis for cargo or charter pilots to have different or more liberal fatigue rules than scheduled passenger operations.

Domestic pilots who carry passengers under FAR Part 121 have a flight time maximum of 30 hours in 7 days, while International (Flag) passenger-carrying pilots are allowed up to 32 hours in the same 7 days under the current FAA regulations. These current "flight time" limits only account for the time pilots spend actually operating the airplane. The current flight time limits do not account for the time pilots spend in pre-flight and post-flight duties, the time spent at airports between flights, the time spent going through security or traveling to and from the airport to hotels, or the time spent in training and other ground-based duties. Even with the existing 30- and 32-hour weekly "flying time" limits applicable to pilots carrying passengers, there is widespread acknowledgement of the existence of serious pilot fatigue problems throughout the industry and widespread acknowledgement that reform of the rules based on modern scientific principles is long overdue. On the other hand, charter and air cargo pilots flying under today's supplemental rules can fly 48 hours in a six-day period or 60 percent more than domestic passenger-carrying pilots. We believe that these supplemental rules significantly reduce available safety margins and put all-cargo and charter operation crewmembers, passengers and persons on the ground at risk. A uniform modernization of the flight time/duty time rules including harmonized rules for the cargo industry is long overdue, and needed to enhance safety.

Third, any new regulation dealing with pilot fatigue should provide a method for carriers to transition to a FRMS. This is the gold standard of pilot fatigue management to ensure that pilots have an adequate level of alertness. Ideally it would be a part of a Safety Management System, or SMS. However, FRMS can operate independently of a SMS.

The purpose of a FRMS is to ensure that flight crew members are sufficiently alert so that they can operate to a satisfactory level of performance and safety under all circumstances.

A FRMS supplements prescribed flight and duty-time regulations and competent, independent scientific research-based software scheduling tools by applying safety management principles and processes to proactively and continuously manage fatigue risks through a partnership approach which requires shared responsibility among management and crew members. FRMS can, therefore, only operate in circumstances where all stakeholders—particularly the pilots—support the operation of FRMS. Accordingly, an open reporting system and non-punitive working environment is a prerequisite for FRMS because honest and accurate crew feedback is an essential component of the program. A FRMS must specify the prescriptive regulatory scheme upon which it is based. In the event of suspension, termination or revocation of a FRMS, the carrier's affected operations shall revert to the baseline prescriptive scheme.<sup>1</sup>

Over the last 3 years, ALPA's Flight Time/Duty Time Committee has developed guidelines for a flight limitation regulation that have a rational, scientific foundation and also incorporate years of operational experience. These guidelines are harmonized with ICAO and the International Federation of Air Line Pilots Association and deal with seven major areas: *duty limits*, including block-hour limits, *rest requirements*, *extension of duty in irregular operations*, *cumulative fatigue*, *augmentation rules that consider the quality of the on-board rest facility*, *reserve rest requirements* and *rules for implementing a FRMS*.<sup>2</sup>

These guidelines represent ALPA's views as to the minimum requirements a regulation must have to insure an adequate level of pilot alertness.

ALPA also believes that it is important that the FAA require air carriers to implement a fatigue education and training program for flight crew members. Such a program should include, at a minimum, information on the detrimental effects of fatigue and strategies for avoiding and countering fatigue. ALPA has implemented its own fatigue training program and we have published and distributed to our members *The Airline Pilots Guide to Fighting Fatigue*.<sup>3</sup>

In closing, I would like to say that I am encouraged that it appears we will finally get new flight limitation rules. As you know, FAA Administrator Randy Babbitt, in June of this year chartered an Aviation Rulemaking Committee ("ARC") to develop a new flight time rule. ALPA along with other members of the industry participated in this process. In addition to having an ALPA pilot, Captain Don Wykoff, serve as a co-Chair, we had four members and two alternates serve on the Committee who fly for domestic, international, cargo and regional airlines. The ARC presented its report in early September to Administrator Babbitt. Mr. Babbitt has publicly stated that he will publish a NPRM on Flight Time by December 31, 2009. We expect a short comment period and hopefully a final rule by mid-2010.

We badly need a new flight and duty-time regulation. While we have been told it will be done in mid-2010, we have seen too many times in the past that the FAA has not delivered on its promises with regard to pilot fatigue regulations. We respectfully solicit Congress' active support in ensuring that this new regulation becomes a reality.

Senator DORGAN. Captain Prater, thank you very much. We appreciate your being here.

Mr. William R. Voss is the President and CEO of The Flight Safety Foundation in Alexandria, Virginia.

Mr. Voss, welcome.

<sup>1</sup>ALPA's White Paper on Fatigue Risk Management Systems (2008) may be found here: [http://public.alpa.org/portals/alpa/pressroom/inthecockpit/FatigueRiskMSWP\\_6-2008.pdf](http://public.alpa.org/portals/alpa/pressroom/inthecockpit/FatigueRiskMSWP_6-2008.pdf).

<sup>2</sup>ALPA's current guidelines for a scientifically-based flight limitation regulation may be found here: <http://public.alpa.org/FTDTFightingFatigue/tabid/3370/Default.aspx>.

<sup>3</sup>[http://public.alpa.org/portals/alpa/fatigue/MagazineInsert10-2008\\_FatigueGuide.pdf](http://public.alpa.org/portals/alpa/fatigue/MagazineInsert10-2008_FatigueGuide.pdf).

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

Mr. VOSS. Thank you. Chairman Dorgan, Ranking Member DeMint, and distinguished members of the Subcommittee, thank you for giving us an opportunity to testify.

Fatigue in aviation has been in the headlines lately, but it has been scientifically researched for decades, as you've noted. In 1979, NASA first studied fatigue and decisionmaking in simulators. Decades of research have followed by institutions around the world. It has taken a long time and a lot of data for the industry to reach consensus on this issue, but the tragedy of the Colgan Air crash has pushed us along toward a conclusion.

Regardless of how we got here, the Foundation supports the FAA's current effort to develop rules that reflect a scientific understanding of fatigue.

In writing these rules, the FAA is faced with a daunting task. Human fatigue is too complex to deal with just the classic approach of regulations and compliance. Ideally, we'd implement a comprehensive fatigue risk management system across the whole industry, but it's unrealistic to think that every operator could adopt such an approach. So, the FAA will have to write traditional, prescriptive rules, while also allowing large operators to take a more comprehensive fatigue risk management approach.

As a minimum, these prescriptive provisions should address the relationships between assigned duty and time of day, the cumulative effects of consecutive duty periods, and the effect of multiple short-haul flights. These provisions will not be perfect, but they will—and they will be a compromise; but, for smaller operators, they'll be practical. And they will significantly improve the level of safety.

Now, for those operators who are able, they should be encouraged to go beyond the basic rules and adopt the fatigue risk management system, or FRMS. FRMS addresses fatigue systematically. It increases the responsibility of the operator and its employees to jointly manage the risk.

Broadly speaking, FRMS offers three layers of protection that include prevention, which is the proactive strategic risk reduction, such as scheduling correctly based on science; mitigation at the operational level, to make sure you execute the plan you've put in place and you have a realistic execution of that plan; and intervention, for when something goes wrong, you still need to have the ability to intervene and reduce the risk of a flight. No matter what you do, there will be times things don't go right.

That brings me to the subject of one of the more controversial interventions, and that's the controlled cockpit rest or napping. No matter what rules are written, there will always be times when pilots become fatigued. When that happens, many countries have determined that safety is best served by allowing and regulating rest in the cockpit. Regulations ensure this is done safely, they specify what happens during the crew rest, who's responsible for various actions, and a post-rest briefing.

Of course, controlled rest cannot be used to replace responsible planning and scheduling. Every flight must begin with a well-rest-

ed crew. But, when things go wrong, controlled rest is an important tool to keep things safe.

There are some other fatigue issues that deserve consideration. Even though much research has been done, there are still some gaps. More research is still needed in the area of high-frequency/high-cycle operations. We understand the Regional Airline Association is willing to conduct studies in this area. The Foundation strongly supports those efforts and calls on the FAA to consider these findings in the proposed rules.

We focus so much on the flight crew that we often overlook fatigue in the rest of the industry. Last year, the Foundation published a long article about the danger of fatigue among aviation maintenance workers. This has also been examined by ICAO, which has cited several accidents in which fatigue among maintenance workers has been a contributing factor. The Foundation strongly urges the FAA to consider maintenance personnel in future rules.

Finally, a concerted effort should be made by the FAA, industry, and labor to educate the aviation safety workforce on matters associated with fatigue risk. Countless operators are in the process of developing fatigue training materials for their workforce. If we pooled these efforts, we could do much more, and do it quickly. Just as regulators, labor, and industry came together 20 years ago to deal with the problem of controlled flight into terrain, we can come together again to deal with this threat. The Flight Safety Foundation is working with the Regional Airline Association and others to make this happen.

In summary, I'm gratified by the cooperation we're seeing around this issue, and I'm optimistic that the FAA proposed rules will be scientifically-based and will include all the latest research and experience.

Thank you very much for the opportunity to testify.

[The prepared statement of Mr. Voss follows:]

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

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

Flight Safety Foundation is an independent, nonprofit, international organization engaged in research, auditing, education, advocacy, and publishing. Its mission is to pursue the continuous improvement of global aviation safety and the prevention of accidents. We have members all around the world representing every facet of the aviation industry. On behalf of the Foundation, I appreciate your providing me this opportunity to testify about the important issue of fatigue, our views of the Federal Aviation Administration's (FAA) potential recommendations, and other recommendations from the Foundation.

The tragedy of the Colgan Air crash in Buffalo on Feb. 12, 2009, like so many other accidents, need not have happened. While we cannot bring back the victims of the Colgan Air crash, we can honor their lives by using the knowledge we gained during this investigation to revamp how we deal with fatigue management. We are pleased to see the FAA and industry—with management working well with labor—addressing this issue as a high priority, and pledging to apply the science we know to bring about very soon practical and needed reforms.

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 catastrophic consequences.

#### **Fatigue Risk Management Systems—The Preferred Approach**

To cut to the chase, we recommend that civil aviation authorities immediately adopt effective fatigue risk management systems (FRMS). FRMS is a proactive approach to addressing fatigue in a systematic, comprehensive manner that does not rely solely on adherence to a set of prescribed hourly limits of duty and required time off. Instead, it decreases the role of the regulator and increases the responsibility of the operator and its employees to jointly manage the risk. In its broadest interpretation, FRMS takes a systematic, three-pronged, incremental approach to managing fatigue risk:

- *Prevention*—This fundamental first step can be characterized as proactive strategic risk prevention. It includes such measures as scientifically defensible scheduling, suitable hotels for sleep, crew augmentation, and education and training about sleep hygiene and fatigue. We believe that this step should also include medical identification and treatment of sleep disorders, such as sleep apnea, which are known to increase with aging; however, the FAA's annual medical examination for air transport pilots (FAA Form 8500-8; Application Process and Examination Techniques) has no requirement to identify possible sleep disorders.
- *Mitigation*—This second step encompasses risk mitigation at the operational level. It includes such measures as responsible trip planning, including pre-trip rest and commuting if necessary, crew rest facilities (both at the airport and in flight for augmented crews), meal planning, anticipation of irregular operational events, and crew resource management (CRM) training that addresses fatigue effects on crew performance.
- *Intervention*—This final step recognizes the inevitable fact that crews sometimes experience significant fatigue despite their and the operator's best efforts to prevent it. It includes those actions that can be invoked to manage the risk until the flight is safely concluded. This intervention can include tailored procedural guidelines, enhanced CRM, timely intake of caffeine, and controlled rest on the flight deck.

An FRMS's comprehensive range of safeguards is designed to control the risk associated with both transient and cumulative fatigue. FRMS is data-driven, monitoring situations in which fatigue risk occurs and in which safety may be jeopardized. It then allows for generating new scheduling solutions or other strategies to mitigate measured fatigue risk. At the same time, FRMS provides operators with flexibility to seek the most efficient safe crewing solutions to meet operational needs.

An FRMS enhances the capability of prescriptive flight-time limitation concepts to provide an equivalent or enhanced level of safety based on the identification and management of fatigue risk relevant to the specific circumstances. Use of an FRMS can allow greater operational flexibility and efficiency while maintaining safety by relying on in-flight measurements of sleep and alertness, including subjective reports by crewmembers, to monitor how scheduling affects flight crew and cabin crew alertness during flight duty.

#### **Fatigue Management—Abundant Study, Not Enough Action**

Flight Safety Foundation has worked on this issue for many years, including creating the Ultra-Long Range (ULR) Crew Alertness Steering Committee, which in 2005 published guidance for conducting flights that last 16 hours or more, and the Fatigue Countermeasures Task Force, which created the Principles and Guidelines for Duty and Rest Scheduling in Corporate and Business Aviation in 1997. In addition to these task forces, Flight Safety Foundation has written about the issue of fatigue extensively in our publication, *AeroSafety World*, as well as in older Foundation publications.

The problem of fatigue in aviation has been highlighted in the headlines over the past year, but it is an issue that has been the target of decades of scientific research. In 1979, the National Aeronautics and Space Administration (NASA) undertook the first study to examine the effects of fatigue on decisionmaking in an aircraft simulator. Shortly after that, Congress directed NASA to undertake a multi-year study to understand the impact of crew fatigue and jet lag. This led to a collaborative study with laboratories in the United Kingdom, the Federal Republic of Germany, and Japan and produced some outstanding results.

### **Federal Aviation Administration Actions**

We are supportive of FAA efforts to establish new rules that reflect a much better scientific understanding of fatigue. With the announcement on November 24, 2009 of the withdrawal of the Notice of Proposed Rulemaking from 1995, we anticipate that new rules will be proposed soon. The industry and regulators have been studying fatigue for many years, and there has been gradual progress in finding a consensus.

In writing this new rule, the FAA is faced with a daunting task. Quite simply, human fatigue is too complex a subject to be dealt with using the classic approach of regulations and compliance. To deal with the problem of fatigue risk effectively, it is necessary to implement a comprehensive fatigue risk management system. Many major operators will do this, but it is unrealistic to think that every operator is going to take such a sophisticated approach. For that reason, the FAA will have to write a rule that has imperfect, but improved, prescriptive provisions, but also encourages the use of fatigue risk management systems where appropriate.

At a minimum, these prescriptive provisions within the new regulation should address the relationship between assigned duty and the time of day, the cumulative fatigue effects of consecutive duty periods, and the effect of multiple short flights during the duty day. These provisions will not be perfect, but for smaller operators, simplicity is more important than perfection.

Another challenge the FAA will face is the fact that the fatigue research, while extensive, is somewhat uneven. A great deal of research has been done on the effects of ultra-long range flights, but relatively little research has been done into the fatiguing effect of frequent short flights. The FAA will have to find a way to put a regulation in place quickly, while allowing for adjustments as new information becomes available.

### **Global Examples—Useful Examples**

Several airlines and civil aviation authorities have adopted FRMS. One of the first airlines was easyJet, which began the system as a research program to gather data on pilots' sleep and fatigue-related performance. The research effort yielded revised work schedules, continuing data collection and more information on fatigue risks, a procedure for crewmembers to report fatigue within a just culture, and a process for investigating the role of fatigue in all incidents. This is a process that could be easily replicated and should be a part of any FAA proposed rulemaking.

An FRMS is easily integrated into any safety management system (SMS). This is the approach taken by Transport Canada. An FRMS is one element of an SMS, while the just culture and non-punitive safety reporting that are called for in FRMS are integral parts of SMS. Flight Safety Foundation has publicly stated its support for Transport Canada's embrace of safety management systems.

Canada is one of many countries that have determined that safety is best served by allowing—and regulating—controlled napping in the cockpit. This is a position that Flight Safety Foundation heartily endorses and calls on the FAA to do the same. Of course, controlled napping must never take the place of a good night's sleep and sensible, scientifically defensible scheduling. But on occasion, a pilot may unexpectedly feel extra-fatigued due to conditions out of his or her control. In that case, it is far safer to have a procedure in place to allow the fatigued pilot to sleep for a prescribed amount of time with the full knowledge of the co-pilot and the rest of the flight crew. The regulations developed by Canada outline a procedure that takes into account all possible variables and leads to safer operations. It includes requirements covering how napping shall be undertaken, what happens during crew rest, and who is responsible for various actions as well as a post-rest briefing.

The idea of controlled rest in the United States is, unfortunately, colored by well-publicized episodes of uncontrolled rest. We hope that the FAA will consider the science and the successful experiences in many other countries to guide them on this aspect of FRMS, rather than alarmist concerns from individuals who have not studied this issue. Many countries and airlines allow for controlled napping, including France, Australia, Singapore and Canada. The aviation safety records of those countries speak for themselves.

The Foundation also urges the FAA to capitalize on its June 2008 fatigue management symposium and its ULR experience to further develop and implement FRMS on a trial basis within the context of current prescriptive flight-time limitations. As in other countries, close cooperation and support among airline management, pilot organizations and regulators will be critical to achieving success. In addition, since ICAO is the appropriate body to establish mutually acceptable worldwide standards and recommended practices for FRMS, the Foundation strongly encourages the FAA's continued participation in and support of ICAO's efforts to use FRMS as an alternative to flight- and duty-time limits.

### Other Fatigue Issues

We focus so much on the performance of pilots and possibly the rest of the flight crew, we often overlook the rest of the industry when we think about fatigue. Last year, *AeroSafety World* published a long article about the dangers of fatigue in aviation maintenance workers (April 2008). This has also been an issue examined by the ICAO, which cited several accidents in which fatigue on the part of maintenance workers was a contributing factor.

North of our border, the Canadians are working on initiatives to incorporate FRMS for both flight crews and maintenance personnel as a mandatory portion of an operator's SMS. Australia is also moving toward implementation of FRMS in aviation maintenance.

Flight Safety Foundation strongly urges the FAA to include maintenance personnel in its proposed rules addressing fatigue.

Another area that calls for more research is that of high-frequency/high-cycle operations. An eight-hour work day means two different things for the ultra-long range operator and the regional operator. Multiple take offs and landings over that time period can lead to a higher level of fatigue due to the higher work load activities. We understand the Regional Airline Association has committed to lead new studies to examine the relationship between these types of operations and fatigue. Flight Safety Foundation strongly supports those efforts and calls on the FAA to include these research findings in the proposed rules. Broadening the research into the short-haul flights is also a recommendation of the National Transportation Safety Board (NTSB).

In addition to the recommendation on increased research on short-haul flights, the NTSB has issued recommendations that address the issue of undiagnosed sleep apnea and other sleep disorders. The FAA's current guidance to aviation medical examiners does not include a discussion of risk factors for sleep apnea, nor does the application for an airman's medical certificate ask if there is a history. According to the NTSB, other Federal agencies overseeing other forms of passenger transportation already gather this sort of information or are in the process of revising forms and guidance in order to do so.

Finally, a concerted effort should be made by the FAA, industry and labor to educate the aviation safety workforce on matters associated with fatigue risk. This doesn't require regulatory action, and would have a significant positive effect in the near term. We can start putting tools into the hands of those people who could make a difference, including managers, schedulers, pilots, flight attendants, maintenance technicians, and others. Countless operators are in the process of developing fatigue training materials for their work force. If we pooled these efforts, we could do much more, and do it quickly. Just as regulators, labor and industry came together 20 years ago to deal with the problem of controlled flight into terrain, we can come together again to deal with this threat. The Flight Safety Foundation is working with the Regional Airline Association and others to try to make that happen.

The United States should be leading the world on fatigue management as it has led the world on so many advances in aviation safety. Civil aviation authorities all around the world are using the research undertaken by NASA and ICAO to mitigate the risk that comes from a fatigued aviation work force. The time is now for the FAA, the operators, management, and labor to come together and develop a consensus on this vital issue. I'm personally gratified by the level of cooperation we are seeing and I'm hopeful that the FAA's proposed rules will meet the challenges of being scientifically based and inclusive of all the latest research and experiences.

Thank you very much for the opportunity to testify today. I would be pleased to answer any questions.

Senator DORGAN. Mr. Voss, thank you very much.

Let me begin with you. I think, what I heard you say was that there should be two different standards of regulations or processes dealing with fatigue, one for the larger carriers, which can do it more comprehensively, and then a separate approach for the smaller carriers. That would not be very comforting to a passenger that gets on an airplane that is not one of the larger carrier planes, because—seems to me fatigue is fatigue, no matter the size of the plane that—and that people in the cockpit that are flying it. If they're fatigued, there are risks. So, expand on that. You're telling us you think there ought to be two standards?

Mr. VOSS. Thank you, Mr. Chairman.

Actually, to be very clear, what I'm trying to say is, is that regulations have to be written in a way that can be complied with. And sometimes you need straightforward rules, as I believe we will be able to put together through this regulatory process, to serve as the limit, as the safety net. However, there is still an opportunity, here, to go beyond the basics. We can ensure a strong level of safety, make a big improvement in the industry, but we need to pay attention to the fact that there are new processes out there, called fatigue risk management, which allow us to take the data we get from everyday operations and see where problems are developing and implement things that even go beyond the rules.

And so, I'm saying that we need to put good rules in place. We need to also make provisions for us to grow beyond the rules that exist.

Senator DORGAN. But, again—maybe, Captain Prater, you can respond to this—we have developed, in recent years, this system of the large trunk carriers and then the regional carriers. The regional carriers are a very important part of our system. They have one-half of the flights and carry one-fourth of the passengers every year. Let me say that again, one-half of the flights and one-fourth of the passengers are on regional carriers. They get on an airplane that has the markings, in many cases, of the large carriers, but it's not the large carrier, it's a regional carrier. And it seems to me that the question of fatigue is a question that is not separate by the size of the cockpit or the size of the airplane.

Captain Prater, you described fatigue—you used the term, “dire”. What's your sense of whether there should be one standard or two or—as Mr. Voss suggests. And I understand why he suggests it. I have difficulty agreeing that we should move in that direction. He says it would be more difficult for the smaller regional carriers to comply to more comprehensive rules.

Mr. PRATER. Well, let me begin with—I'll restate. We believe that there should be one set of strong underlying regulation that creates the foundation, regardless of the size of airplane or the cargo behind the cockpit door. That would be the first. The second level, then, would say, How do we enforce that? And how—and I think maybe Bill was alluding to—how can we improve upon that level of foundation? But, the first foundation, the regulation should apply to all equally. It doesn't matter whether you've got one passenger or 500 in the back of your airplane.

The FRMS would allow us to look at specific situations. Just take one case, the ultra-long range. If I get into a 777 and go from Newark to Hong Kong, it's going to be about 16-and-a-half hours. That exceeds the current regulation. But, with a FRMS, we could come up with the rules on how to conduct a specific flight like that. I think that's where Bill's trying to go.

Senator DORGAN. Captain Prater, you said that the fatigue rules in the U.S. do not comply with the ICAO standards. What do you mean by that?

Mr. PRATER. ICAO has called for the flight-time/duty-time rules to be science-based. Ours currently are not science-based. The future ones, when we get them done, as long as someone doesn't try to delay this like they have the last several attempts, will be

science-based, which would bring us into compliance with the ICAO provisions.

The last thing I would say on the first subject, sir, was the controlled napping. Again, napping should not be seen or viewed as somehow keeping pilots on duty even longer. In other words, I can hear the scheduler now, "Well, I'm pretty tired, I shouldn't start this flight." "Aw, don't worry, you can catch a nap en route." No, that's not a sound strategy for being alert on the other end. You are, once in a while, going to be caught in a position where you need a nap, and you'll coordinate it with your—with the other pilot. But, remember, at that point, there's one pilot in the cockpit. Our system of safety is based upon redundancy after redundancy. And now you want to say, "Well, only one pilot has to be awake." Well, I can tell you right away, trying to come up out of a nap to make a snap decision, or to make even a long-range decision, is difficult. It has to be well planned.

Thank you, sir.

Senator DORGAN. Ms. Gilligan—

Ms. GILLIGAN. Yes, sir.

Senator DORGAN.—can you respond? What is the agency's response to the difference between Mr. Barimo and Captain Prater on the one-size-fits-all approach with respect to fatigue? I think that the ATA argues that you don't want one-size-fits-all. Captain Prater said, I think, that one-size-fits-all is—ought to be the minimum standard. What does the FAA say to that?

Ms. GILLIGAN. Well, sir, the ARC actually presented us a framework recommendation that has one approach. And I think what the science does indicate is that things that contribute to fatigue are common across individuals, across humans, and it has less to do, perhaps, with the environment.

There are some environmental issues that need to be considered. You, yourself, mentioned multiple take-offs and landings is a little bit different environment than long—than the ultra-long-range flight, for example, that Captain Prater referred to. And the rules need to acknowledge that.

So, the framework will be a common framework. But, I think what you'll see in the proposal that the ARC put forward is a bit of a sliding scale that allows us to take into account the time of day that the schedule may encompass and the number of take-offs and landings it may encompass, so that we can properly balance the contributing factors to fatigue.

Senator DORGAN. I'm going to call on Senator Lautenberg in a moment, but one final point. We will have Administrator Babbitt in front of us—I think it's next week—

Ms. GILLIGAN. Yes, sir.

Senator DORGAN.—or the week after. Can you give us—give us the timeline on fatigue. You're talking about the ARC and so on, but, as I said when I started, this goes back 40 or 50 years, and then two aborted attempts in the—

Ms. GILLIGAN. Yes.

Senator DORGAN.—1990s to deal with this issue. What's the timeline here?

Ms. GILLIGAN. Well, the Administrator had announced that we would have a final—a proposal out by the first of next year. Unfor-

Unfortunately, we have run into some additional analysis. What the ARC provided was, as I said previously, a very good framework. But, they did not provide specific recommendations on particular elements of the rule. And we are now having to fill in the blanks and analyze the effect, based on recommendations that the ARC made, but, again, without their specific agreement on what particular hours ought to be included.

Senator DORGAN. Are you saying the first of the year is a time deadline that has been sliding?

Ms. GILLIGAN. We will, unfortunately, miss the first of next year. We have agreed with the Administrator that we will complete all of our analysis by the end of January. And then the rule will need to go through administration review.

Senator DORGAN. All right. I'm going to ask a series of additional questions of you and others about this and—but I want to have my colleagues have the opportunity.

Senator Lautenberg.

Senator LAUTENBERG. Thanks, Mr. Chairman.

And I must say that what we've heard from our panel here today confirms the view, unanimously, that what it is now is not adequate, and that we have to make changes. And it's—the rules are antiquated, based on where the system is today, the number of passengers that come, the different types of aircraft.

And I would ask you this. Might we be looking at something more than just the fatigue factor? There's a stress factor that, even if there's adequate sleep, there are other things that are—that can interfere with clear thinking, not the least of which is income. Now—and I don't know how we get this across, but there ought to be some standard.

What are the requirements now for a commercial pilot's license, Captain?

Mr. PRATER. About 250 hours of flight time, instruction time in a single-engine airplane.

Senator LAUTENBERG. And how about—are there any other educational requirements?

Mr. PRATER. There are no other educational requirements for even up to an airline transport pilot rating.

Senator LAUTENBERG. Are there any physical—what are the physical requirements that must accompany the application for a license?

Mr. PRATER. There are solid physical requirements—basically, good health, correctable vision to 20/20. And most pilots, twice a year, have to meet those physical standards; once a year, if—I believe, if you're under 35.

Ms. GILLIGAN. Forty.

Mr. PRATER. Forty.

Senator LAUTENBERG. Are there any prohibitions about alcohol use in advance of taking command or getting into the pilot seat?

Mr. PRATER. Yes, sir, very strict rules, both time-wise as well as blood alcohol content. Those—that's not—

Senator LAUTENBERG. But, they're not—the pilot isn't—they don't give a blood sample every time they go to—

Mr. PRATER. No, but we are subject to random events. And I will tell you that the—it's a rule that pilots take very seriously, obvi-

ously. And some companies are—even have time limits that exceed the safety limits that the FAA has established.

Senator LAUTENBERG. Yes, because, with all of these things that do exist—and you get back to the starting pay for a pilot or copilot, second to you—when someone is in that seat, are they fully prepared, in your view, to take over command, if necessary?

Mr. PRATER. That is one of the responsibilities of command, in fact, is to assess your fellow crew member. And whether or not it was as a—cite—you cite the concern of alcohol—most of us watch that very, very closely in each other. And I'm proud to say that we have very, very good success in recognizing those individuals that have a problem. And we have very good success—

Senator LAUTENBERG. Well, the problem is—that doesn't suggest that that's a long-time thing. It can be a single episode—

Mr. PRATER. Right.

Senator LAUTENBERG.—but the point I get to here is that the requirements, if met even to the current standard, are pretty heavy-duty things. But, still in all, we have these outrageous examples of pilots not responding to a radio inquiry. Should there be a list of infractions kept that says, if a pilot doesn't answer a radio call in 5 minutes or 3 minutes or something like that, that that ought to be listed as an infraction and a record kept on that?

Mr. PRATER. Sir, I think we would quickly determine that the airspace and flying an airplane is very complicated. And the fact is, there can be either missed radio calls or miscommunications, but we are very successful in trapping those errors, either using other airplanes, whether it's monitoring the emergency frequency of 1215, we do catch those errors. And, in fact, we take it to the next level. When a professional makes an error, under the ASAP systems, you turn yourself in. You report yourself. To me, that's the height of professionalism, because you want somebody else to not make that same error. And those are the systems that we are trying to protect, and they are working very well.

Senator LAUTENBERG. Well, when you hear a pilot say that, "We were distracted," that's not sufficient reason to fly for lots and lots of minutes, more than an hour—not quite—without responding to the—to a tower or a station along the way. It's shocking. And there should be a rule that's consistent with rapid response on radio calls. It is crowded up there, and equipment is moving more rapidly than it used to, so I think there are rules that have to be established that demand of the pilot certain behavioral things, so that the tower knows what's going on and can respond.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Lemieux.

**STATEMENT OF HON. GEORGE S. LEMIEUX,  
U.S. SENATOR FROM FLORIDA**

Senator LEMIEUX. Thank you, Mr. Chairman.

What we've heard today is pretty distressing about the lack of sleep by some of these folks who are flying our planes. I mean when someone walks onto a plane, onto an aircraft, you know that they are entrusting their life to you. And I think there's a larger issue here about fatigue that goes beyond pilots. There is fatigue in society. And you only have to go to the back of the plane to see—

once the plane takes off, nearly everybody on a plane, these days, is asleep. I think because we're all under increasing demands where—you know, we're on our BlackBerries all the time, we're staying up late with kids, we're doing all the things that we have to do in life, and everybody's tired. So, not only may you have DC-3 rules, you also live in a world where people are a lot more tired. I mean, I think the sleep studies show that America is one of the worst nations in the world for how much sleep the average American gets every night.

So, I'm encouraged that you're going to get these rules done, and hope that you will get them done, and get them done as soon as you possibly can, so that we have something that's scientifically-based.

I want to bring up three things that occurred to me as someone who's just a frequent traveler on airplanes and, in Florida, have done a lot of these short-leg trips. On the Continental planes, which were very similar to that crash that occurred in Buffalo, there are a couple of things. One is, I see that folks who are on airline crews oftentimes now commute to their work—and I think this happened in Buffalo, where you had a Tampa-based pilot. We're talking about being well-rested for the start of the flight, not just being able to say, "OK, I can take a nap when I'm on the plane," if that's the way the rule changes, but to be well-rested when the flight begins. How important is it that the crew member spend the night before they start on their leg, in their home, in their home bed? I mean it worries me that we are flying people from Tampa to Buffalo to go to work, and that that's the first part of their segment, and then they're going to actually start flying when they get to Buffalo or get to Atlanta.

I experience this all the time, in talking to crewmembers, how many people don't live in Atlanta, for example. You know, Delta has its base there. There are a lot of crewmembers who fly to Atlanta to go to work. You know, is this something that's going to be addressed—the initial getting-to-work, commuting to your job, as a crewmember, which has to also increase the wear and tear on the crew member? So, I'd like to discuss that.

The second thing I'd like to hear some comment on is, what availability for sleep rooms are there for pilots? How good are those sleep rooms? Is this something that's being discussed as providing places where pilots can sleep in between flights? Something that's not going to be a place where they're sitting in a lounge where they are not going to really get good rest, but where they'd actually have an opportunity to get in a cot or a bed and get some real sleep between flights.

And the third thing is, who's in charge? My sense, and maybe it's wrong, is that the pilot is in charge. Are there supervisors, that are at the airports, who are looking over these pilots before they get on the plane? Maybe other senior pilots—I don't know how it works—who would say, you know, "Captain Prater's too tired, he just came in from Hong Kong. He thinks he can go on this flight. I don't think he can go on this flight. I'm going to tell Captain Prater has got to take some time off, because he's not ready to make this flight." Is there a chain-of-command that puts somebody in charge at the airports to make these decisions?



So, traveling to destinations, sleep rooms, and supervision. And I'll ask Ms. Gilligan if she would like to start on that.

Ms. GILLIGAN. Sure. Thank you, sir. On the issue of commuting, the Aviation Rulemaking Committee recommended that the pilot be required to report to work fit for duty. That is consistent with our regulations at this point. They did not make a recommendation to change the regulation. However, commuting is one of the areas that we are looking at as we prepare our proposal, to see if there are additional requirements that we want to include in that particular area. So, that is something that will be addressed, and we will certainly ask for comment on, in the proposal.

On the issue of sleep rooms, there are two things. First, there are—especially for the cargo carriers, there are a number of major cargo carriers who actually provide rooms—temperature-controlled, quiet rooms for pilots to sleep. And one of the recommendations from the ARC was to give consideration to that kind of rest, and to perhaps add additional time to the duty day. We will look at proposals in that area and ask for comment on that, as well.

For the ultra-long flights, or the flights where we have what we call “augmented crew,” there are sleeping facilities on board the aircraft. The ARC recommended that the higher-end facilities be given more credit than where an operator might expect a pilot to sleep in a first-class seat, for example. The proposal will look at those differences and ask for comment on whether credit ought to be given in those areas, as well.

We are trying to address all of these various issues that, while not the main issue of fatigue, certainly contribute to helping the pilots better manage fatigue.

Senator LEMIEUX. What about supervision?

Ms. GILLIGAN. Ah, I'm sorry. In the last issue, the regulations will likely propose that both the operator and the pilot will have responsibility. The rule would say the “operator may not allow” and the “pilot may not accept.” Many of our rules are written in that way to have that shared responsibility so that, as Captain Prater pointed out, we can be sure that we have the checks and balances that we need within the system.

Senator LEMIEUX. Captain Prater, can you talk to those three points?

Mr. PRATER. I'd be glad to, Senator.

First of all, I think we need to understand that commuting is a fact of life. Whether I'm driving from Richmond to D.C., that might take me 3 hours, or whether I'm flying from St. Louis to D.C., which would take me an hour and 45 minutes, I am commuting to work. I'm starting my day ahead. It comes down to the professional responsibility of, “What do I have ahead of me that day?” If I'm just flying an easy trip, I'm flying one leg to Florida, yes, I'll come up that morning. I'll be there for several hours, and then I'll go to work and I'll feel fine. If I'm flying an all-nighter, to São Paulo, I'll come up the night before and get some rest during the day. Those are just facts of—as you say, of the life we live in.

Now, you have to know your schedule. It's more difficult for reserve pilots. Most reserve pilots are within 2 to 3 hours of their duty station. But, even there, if you live in—on Long Island and

you're trying to get to Newark, it can easily take 3 hours. So, you do have to plan far ahead.

I do not see it as the problem. One of them that has been cited so many times is that the first officer commuted from Seattle to Newark to fly her trip. What should be said is—or should be pointed out is, she could have flown that trip as a pilot the night before and been legal to fly the trip to Buffalo. So, it's not just commuting, it's the overall issue of how our flight-time/duty-time rules work.

Who's in charge? Well, I think it starts and ends with the captain, but the carrier does have responsibility. The carrier's got a responsibility to accept my word, and they're not going to fire me or discipline me if I say, "I'm too tired to go on." We still fight that problem. We call it "pilot pushing." Because if the airplane doesn't go, the revenue sits on the tarmac. If they don't have enough pilots because they've cut back so much, that trip is canceled. Those economic pressures live every day. We have to fight them.

The last one is the sleep rooms—totally, wholly inadequate at most airlines.

Senator LEMIEUX. Thank you very much.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Klobuchar.

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

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

I also wanted to acknowledge—I know that some of the Colgan families are out there, from the crash. Thank you again for being here and being a—just a moral compass for us as we work on this important topic and try to get these rules down.

And I appreciate, Ms. Gilligan, your saying that these will get done. I was just shocked to learn, at a hearing a few weeks ago, that the deicing rules are 12 years old, that they haven't even gone in the recommendations, and that, finally, actually, I talked to Cass Sunstein, the Director of OIRA, and Secretary LaHood, and they're finally out for public comment after sitting there in some bureaucratic morass for 12 years. So, I want to thank you for pushing on these, and encourage you to do this as quickly as possible.

I think one of the things, to follow up with what Senator LeMieux was talking about, was just this changing culture. And I think that these rules that we have, the FAA's policies on pilot fatigue, are something like a half-century old, and it doesn't reflect new technologies, new ways of living, or new information that we have about fatigue. And one of the things that I've been very focused on is looking at fatigue, is what Senator Dorgan was saying, what, half the flights are regional and a—half the flights are national, and a quarter of the passengers are regional, yet the rules seem to be different with the regional and the national flights.

And, I guess, my first question was—I know that some of the large carriers reimburse pilots for hotel costs so that they can get some sleep between shifts. Do regional carriers do the same thing? And would this be a solution to some of the problems?

Captain Prater, do you want to start with that?

Mr. PRATER. I would say most carriers do not provide for the reimbursement of the expenses for coming to work, to be well rested. So, they don't pay for hotel rooms where you start and end your trip.

Part of the problem, Senator, is that the system doesn't provide for a mechanism to provide the pilots with a decent salary, because we have a marketplace system that we've had over 160 failures of airlines. We keep seeing, in calling these airlines something other than what they are—"regional carrier," what does that mean? They fly from Canada to Mexico. These are "airliners." We need to get away from trying to pigeonhole them because they're flying "just" 50 passengers.

Senator KLOBUCHAR. Right. In fact, I know one of the things we discussed—and maybe you want to comment on this, Mr. Voss—is, arguably, the regional pilots, some of them are flying shorter flights. Their flying time is more stressful because it involves more take-offs and landings, and they're actually doing more during that time. And I wondered, Mr. Voss, if—should we take that into account, as opposed to just simply looking at time in the air?

Mr. VOSS. Yes, thank you, Senator. Certainly should take that issue in account of the frequency of the legs and the workload, and so on, that that involves. And it is interesting that that area is—had probably the least amount of research done to it. A lot of work has been done on ultra-long-haul and time-zone shifts. More work is being done in that area, and I think that's a critical area we need to take into account. And, as I understand the rules that were described by the ARC, we'll take this up-and-down factor into account.

Senator KLOBUCHAR. And then, what do we do about learning from what other countries have done? You know, I know one of the things they've talked about is actually allowing for one pilot to nap if the other one's awake, and they have done things like that. Is that in the works? Does that controlled-napping idea, does that make any sense for longer flights?

Mr. VOSS. Yes, absolutely, we are supporting that very much in the Foundation. Since 1994, I believe, is when the first airline started doing this sort of controlled-napping, and it's found to be a very effective countermeasure. When you try to do everything right, but you still end up with a fatigued crew because of weather or whatever happens, this is a last-ditch effort. And it has proven to be a very safe procedure. And it has been adopted in many countries around the world.

Senator KLOBUCHAR. Ms. Gilligan?

Ms. GILLIGAN. Yes, ma'am.

Senator KLOBUCHAR. Just follow up on some of these questions with the reimbursements, this idea of actually more stress on pilots, whether we call them "regional" or not, but that have shorter flights. And then, also this idea of, Should we look at this controlled-napping?

Ms. GILLIGAN. As Mr. Voss indicated, the ARC did recommend that we consider both the time of day when the pilot begins their schedule, as well as the number of operations or segments that they'll fly, as part of, sort of, a sliding scale of how many hours of duty time and flight time they should be permitted. However, the

ARC did not agree on exactly how many hours of flight time and duty time that ought to allow, and that is what we are in the midst of now analyzing. But, the framework that they presented, and that we will be putting forward, will take into account the time of day. So, if you're flying at night, what they call "back side of the clock," that may reduce the number of hours that you're available. If you have a high number of take-offs and landings, that may reduce the number of hours. We will seek comment on all of that to understand better how to accommodate those factors that can contribute to fatigue.

On the issue of controlled rest, we have not issued standards for that. We have not proposed to permit that. And at this point, I do not expect that we will be proposing that. As Captain Prater pointed out, we believe that the crew needs to come to work prepared for the schedule that they are undertaking. Additionally, we believe that we can manage and mitigate their fatigue through the new regulations sufficiently that they should be alert throughout that flight.

Senator KLOBUCHAR. All right. Thank you very much, I appreciate it.

Ms. GILLIGAN. Thank you.

Senator DORGAN. Senator Snowe.

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

Senator SNOWE. Thank you, Mr. Chairman.

Ms. Gilligan—

Ms. GILLIGAN. Yes, ma'am.

Senator SNOWE.—obviously, we hope that the FAA is going to move expeditiously on this proposed rulemaking. I think it's essential. It's obviously languished for more than a half a century, and it has been on the National Transportation Safety Board's Most Wanted List since 1990. So, clearly, this is an issue that deserves immediate attention. And I think you've given all the testimony that has been presented to this committee in the factors of fatigue.

To follow up on the question that Senator LeMieux made with respect to commutes, many of the regional airlines obviously have pilots that commute long distances. In fact, one of the regional carriers has, you know, a quarter of their crew that commute more than 1,000 miles. How are you factoring that into the rulemaking? Is that going to be something that's going to be part of the rule-making process next year in some way that—and contributes to fatigue?

Ms. GILLIGAN. That is an issue that, as I mentioned, the Aviation Rulemaking Committee did not recommend we make changes to. They recommended that we continue to see commuting as a pilot responsibility, as Captain Prater indicated. We are still considering whether there are additional elements that we can or should regulate. And that may well be a part of our proposal. We've not yet completed that part of our analysis. But, either way, we will be asking for comment on whether there are additional regulatory requirements that should be put in place related to commuting.

Senator SNOWE. Captain Prater, how do you see the FAA addressing this question—if at all? I mean, do you see it essential to addressing this commuter issue?

Mr. PRATER. If anything, I believe that—you know, as I stated before, I do believe that it is a personal responsibility thrust upon you by the circumstances. You could live in your base, and the next day your base is closed, and you're expected to fly out of New York instead of Cincinnati. You've got three kids in school, you just can't do it overnight. Most regional carriers don't pay for paid moves. I know pilots who have had five base changes in 1 year. You just can't move. So, it's not a whole lot different than many jobs in our society, except on the other end of it, we have to be in command of that cockpit.

So, it does start with personal responsibility. I think, if anything, when those circumstances—the carrier must ensure that the pilot is able to get to work with the least amount of hassle at all. It's no different than flying from St. Louis to D.C. to begin your workday here. It's the same thing for us. But, it shouldn't take me 8 or 10 hours to fly from St. Louis to D.C. to start that work.

So, there are things that could be done. But, I believe it'll be done more—unfortunately, maybe—but in the collective-bargaining arena, where we come up with the solution with our employers versus a mandate by the FAA.

Senator SNOWE. Well, do you think it's workable in what Ms. Gilligan mentioned, about the pilot and the operator making the decision, in terms of whether or not a pilot is fatigued, or too fatigued, to make the trip?

Mr. PRATER. I believe—

Senator SNOWE. I mean, I see the operators are most likely to resist the pressure from that situation, because obviously they need the pilot. So, it seems to me they'd be most likely—

Mr. PRATER. It's—

Senator SNOWE.—to come and make the wrong decision in that question, if a pilot is fatigued.

Mr. PRATER. You know, it comes down to our physical, that we take every 6 months. We have to determine, Are we fit to fly, that day? It doesn't matter whether I've got a cough or a cold or I didn't sleep last night because my baby cried all night. I have to make that decision. All we ask is the protection that the employer and—their responsibility under the regulation should be, "You will accept—when a pilot calls in and says he or she is too fatigued to fly, you'll accept that call."

Senator SNOWE. On another issue, I happened to run into an airline pilot last week, for a legacy carrier, and he was very much concerned about the lack of experience of pilots and copilots on these regional aircraft, with the requirement of 300 hours of flight time compared to what he had, for example, as a commercial pilot, 3,000 hours of flight time. In fact, he was asked for some tips by the captain of one of these regional carriers on one flight, and the copilot wasn't even familiar with some of the issues that they were discussing. And he described it as "scary."

So, I was wondering if I could have your views on that. If you combine the issue of fatigue, low salaries, lack of experience in the House of Representatives, for example, there's a piece of legislation

that's being considered, a 1,500 hours minimum requirement to become a commercial pilot—all of these amount to a potentially dangerous situation for passengers and pilots. Can you address that?

Mr. PRATER. Yes, ma'am. We are fully supportive of H.R. 3371, and hope that the Senate will pick that up in the near future. It does raise the bar. It raises the bar for experience before a pilot can become an airline transport pilot in service of carrying passengers.

Now, first of all, let me say, I believe that we're one of the most critical professions, on ourselves. You never have enough experience. The fact is that the captain—the senior captain sharing and discussing issues with that crew is not a bad thing. Two years ago, our economy was going in such a way that pilots were being hired right out of flight school, with 250 to 350 hours. And it did show a crack. We can do better than that. It takes a lot more training at the airline level.

But, again, training is expensive. Many airlines like to cut costs at every corner they can. That's one we can't. In fact, we need to expand some of the training requirements. And much of that is covered in that House legislation.

Senator SNOWE. I appreciate it.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Snowe, thank you very much.

So, Ms. Gilligan, let me bear in a little on this question of when, because, you know, the fact is, this issue has been around—the NTSB has had this on its most-wanted list for 19 years. I appreciate the fact that you've started a process, that—but much more important is that you end the process. And you end the process with the kind of recommendations that are science-based, and that can be implemented, and that we don't have to have these hearings.

So, you indicated that the time is now sliding. Not unusual with Federal agencies. But, disappointing in—given the circumstances we now face and the urgency with which we had communicated to the FAA that we want to move on this. Give me your best judgment about when those of us who are waiting for these recommendations and the implementation of new rules and regulations dealing with fatigue—when we can expect action.

Ms. GILLIGAN. Yes, sir. The Administrator is finally committed to completing this project. I need to make that absolutely clear. I will certainly share that with you next week, when he appears here, as well. He's also committed to getting it right. This is an area in which he is personally knowledgeable, given his own experience as a pilot. And as we have presented to him the framework that the Aviation Rulemaking Committee provided, and the kinds of detailed specifics that we have to analyze, he has agreed that we need some additional time in order to make sure we get it right.

We have committed to having our analysis completed by the end of January, a month later than we had hoped to complete it, and it will go into the final review, both within FAA and throughout the Administration. We have commitment from the Secretary to keep that review as short as we can keep it. And we will be working with the Office of Management and Budget in that same vein, as well.

So, I can assure you the Administrator is fully committed to completing this notice and getting it out as quickly next year as we can.

Senator DORGAN. But—thank you for the answer, but you have just described the FAA, OMB, DOT, all agencies that would have to take reasonably effective and expeditious action in order to get something in place here. And I've had too much experience with OMB, FAA, and DOT to believe that this works very well. And, because I referred to two aborted attempts in the 1990s to do this, and because I've referred to—I think—is it 19 years of being on the most-wanted list—you know, we're just out of patience here. So you're saying a month. This has slid a month—because I—let me ask it a different way.

I assume that, when the FAA decided to embark on this and set a deadline, it is set—it set a deadline based on their judgment of doing it the right way. Now you're saying you need more time to do it the right way, but my guess is you would have set the deadline based on doing it the right way.

Ms. GILLIGAN. Yes, sir. That was certainly our expectation. However, while the ARC gave us a good framework, they did not give us all the specifics that need to be included in the rule and that need to be fully analyzed so that we can present these for comment. I think the ARC members would acknowledge that they did not give specific recommendations, due to, to some extent, the time limits, as well as how complicated and difficult these issues are.

As the Administrator said at that time, we are prepared to make these kinds of difficult and specific decisions. And those are the decisions that he is facing right now. And that requires some additional time.

Senator DORGAN. I don't disagree at all. They are complicated, they are difficult. I understand all that. I just—I think—when I started, today, by citing the number of people who've lost their lives in the last 20 years or so because of accidents related to fatigue, and then understanding that we have this issue of fatigue in front of us and can't come to closure, I'm—what I'm going to do is—well, I will certainly ask the Administrator next week in some detail, but I'm going to write an official letter—and I assume my colleagues would join me on it—month after month as we go along here to find out, Where is it? When is it going to happen? Who has it now? How long do you expect them to have it? I'm going to write them, as well—OMB, DOT. We need to move on this.

Ms. GILLIGAN. Yes, sir.

Senator DORGAN. And we just need to get it done. It is complicated. But, you know, it's not like sending a person to the Moon. We can surely figure out what we need to do to address what Mr. Prater says is a "dire problem." I happen to agree that it's dire, because—when I showed the charts over here today, I—you know, we're talking about crew rest and duty time, but I—also, my colleague Senator Snowe, I believe, talked about commuting. I don't know what we should do about commuting, but I think we should not ignore it. And I think, Ms. Gilligan, you've just indicated that this process will ignore commuting.

Well, you know, again, in the Colgan crash, someone that flew all night long from Seattle, Washington, to finally get to a duty sta-

tion, and then to hang around the lounge for a couple of hours, based on what we know—the investigation is not complete—that is not a pilot that is well rested in the cockpit. Aside from all the other questions, putting pilots and the copilots in the cockpit that didn't know what—had never trained on a stick pusher. Never trained on it, not even in—I mean, it's unbelievable to me. So, at least the piece that we can understand here, the piece that we can and should understand, is fatigue, if nothing else, and try to move as expeditiously as we can to address it.

Now, let me—I want to ask a couple of other questions. This issue of napping.

Ms. GILLIGAN. Yes.

Senator DORGAN. The notion of solving the fatigue issue by taking naps in the cockpit, you know, I understand why someone might suggest that as an alternative. And perhaps some carriers overseas use it. But, I also understand Captain Prater's notion about this. And I have—I've flown airplanes very minimally. I mean, I flew when I was younger. But—very few hours—but I understand, in a cockpit, if you're napping and a bell or a whistle or a light goes off as an—some sort of emergency, you don't wake up from a nap, doing—just like that, to decide, "Here are the actions I take as an experienced, professional pilot with 200 people on the back. Here are the actions to take right now, in an emergency to address this." That's not what you do, waking up from a nap. You're drowsy. So, I don't understand this issue about solving a fatigue issue by napping.

Mr. VOSS. Mr. Barimo, you've advanced it, I guess.

Mr. BARIMO. Yes, I'm glad to elaborate. We don't view napping as a silver bullet for fatigue. It's one of the many tools in that FRMS toolbox. So, airlines would not build schedules that incorporate napping as a requirement to complete a trip. It's a way to manage fatigue as it arises, on a real-time basis. And it's, we think, a smarter approach, managing that napping process, than allowing things to evolve the way they have previously, where you run the risk, potentially, of both pilots falling asleep. We think there's a way to do it. We believe that NASA has done adequate research into this. And Bill Voss is certainly the expert, but it is one of the many tools that get factored into this new equation. And that's the beauty of FRMS, it allows you to take tools like this, like napping facilities on the ground, break rooms and sleep rooms, and incorporate them all into a comprehensive program that really helps you more effectively manage risk.

Senator DORGAN. Mr. Voss.

Mr. VOSS. Yes, thank you. I'm suggesting, again, there are layers that have to be applied here. The first layer is, we have to make the rules better in the first place so that people show up to work—have the opportunity to show up to work—rested. And people have to live up to their responsibility to do so and show up to work rested.

Then, last, in the event that all of our best efforts are spoiled by the realities of the world, weather and everything else, and somebody needs to take a rest—you put one last layer of defense in and have a controlled procedure where they can obtain that rest. It would just be used as an exception, not as a rule.



Thank you.

Senator DORGAN. I'm going to call on Senator Lautenberg, but, Mr. Prater, you want to respond to that?

Mr. PRATER. I think I addressed it adequately. Again, you couldn't prevent a nap if a pilot is that tired, but it has got to be a last-ditch effort so that you can at least feel good enough on the other end. The trick we used to use, when I was flying all-nighters, was, about 5 minutes before landing, to bite into a fresh-cut lemon to give you such a jolt that you would wake up and be able to apply it. That's pushing the human body way too far. And we don't need that. That's what we need the underlying rules for.

Senator DORGAN. Senator Lautenberg.

Senator LAUTENBERG. Yes. Ms. Gilligan—

Ms. GILLIGAN. Yes, sir.

Senator LAUTENBERG.—the Chairman's questions about when the report might be done were questions that I was going to talk about, as well. But, I think that ground has been covered.

The thing that I would suggest, when you talk to the Chairman—talk to Mr. Babbitt—one of the things that we've not discussed is safety, in totality. We're discussing a part of what's required. Another part is to make sure that the towers are in the condition that they should be. And when I look at the schedules for manning, and I see Newark Liberty is—staffing standard there is 40; they have 26, plus 8 trainees. Kennedy Airport, 37 full time—24 are there, 15 trainees. And so it goes. And I think that one of the questions that I'd like us to review when Mr. Babbitt's here is, What are they doing in contemplation of the retirements, et cetera, and including the staffing levels right now?

The other thing, Mr. Barimo, do you think that \$20,000 a year is an acceptable salary for someone who has the responsibilities of pilots?

Mr. BARIMO. Senator Lautenberg, what I would say is that seniority is king in the airline industry. And what that means is that salary is negotiated between the union and the company. It generally favors the more senior pilots. What we're talking about is a pay scale that starts fairly low and ends fairly high. There are certainly ways to level that out and have pilots coming in earn more and pilots at the senior end earn a little bit less. There are ways to do that, again, that's a negotiated element. It's an issue that has certainly been at the forefront of many discussions. But, again, it's an element that's negotiated between the airline and the union.

Senator LAUTENBERG. Yes, I know that. And I don't mean to be impatient, but the simple question is whether or not someone making \$20,000 a year, and particularly with those that have to commute distances—and I've met lots of pilots who drive 150 miles from their home to get to their flight—so that—the question is whether or not—with the responsibility that is inherent in the job, whether \$20,000 is a decent salary. Because many times there will be a second job that these folks have to take in order to keep their heads above water, and that plays a terrific role in establishing stress or fatigue, whichever is the factor. But, it is an invasion of good sensibility.

Mr. BARIMO. Senator, what I'd offer is that airlines are subject to the requirements of FAR Part 121, whether they're commuter airlines or mainline carriers. There is one set of—

Senator LAUTENBERG. But, there's no—they don't—but, they don't recommend their own salaries—

Mr. BARIMO. There's one set of recommendations. Airlines prepare pilots to operate the equipment that they're flying. And it's irrespective of the amount of money that the pilot gets paid.

Senator LAUTENBERG. OK. Well—

Mr. BARIMO. It's the same requirement.

Senator LAUTENBERG. —you said something—you said “seniority dictates.” If I was home on a particular day, I would have seen an airplane pass my window on its way to landing in the Hudson River. That's—the building I live in, in New Jersey, is right on the river, and it's about the height that I live coming down from—where the pilot had to head for lower altitude. Captain Chesley “Sully” Sullenberger, the pilot for U.S. Airways flight 1549, known as “The miracle on the Hudson,” said, in a hearing in the House earlier this year, that his pay has been cut 40 percent in recent years, and he started a consulting business to maintain a middle-class standard of living. This was a guy with terrific experience and, obviously, great skills.

So, I think we're at a point in time when we're going to have to say that there are certain standards that must be met. And I don't know how to implement them. That's not my job here. My job is to make sure that, whatever we do, we have the safety of the public protected as—to whatever extent we can possibly do it. And again, we've all admitted that safety record's pretty good. But, there are possibilities that are relatively high risk that we should avoid.

And I would say this, when we're looking at salaries and we look at what's happening in the regional, Captain Prater, versus the majors, the regionals are doing pretty well, in terms of profitability. SkyWest made \$200 million in the year up to 2009—2008–2009. American Eagle made \$122 million. Express Mesa made \$16 million. Pinnacle Colgan made \$76 million. So, what's to say that they should exert themselves a little bit, in terms of trying to attract the best that they can get, and, once they get them, to keep them alert and satisfied with their job and paying attention to the minutest detail that they have to. And now, at a—particularly when jobs are too few, Mr. Barimo, that it simply can't be left to a negotiation, I don't think—

Mr. BARIMO. Right.

Senator LAUTENBERG.—between the union and the company, because people want to work. But, their willingness to work has to be accompanied by an ability to be as skillful, as alert, and as in command as they can be. Do you agree?

Mr. BARIMO. I certainly agree.

Senator LAUTENBERG. OK. I wasn't sure. There was the bit of silence that I heard.

Mr. BARIMO. The industry has taken a beating since September. It has impacted every employee in the industry, not just pilots.

You mentioned a few airlines posting profits. What I will say is that the industry, as a whole, continues to lose billions of dollars

each year. So, I would be hesitant to view a couple of data points that show up in the black, as an indication that the industry is performing well.

Senator LAUTENBERG. Well, I'll tell you, when it's a commodity like air travel, there may have to be a look-back at where we were at one time in our history and say, "Just because you can raise some money to start a new airline doesn't mean that you ought to be in the industry," when we are paying for the whole infrastructure—the FAA and airport development, et cetera, et cetera. So, we're not going to have time, nor the ability, right now to examine that question in its entirety, but it's one, in my view, that ought to be examined.

Thanks very much, to all of you. Very interesting testimony, and valuable. Thank you.

Thanks, Mr. Chairman.

Senator DORGAN. Senator Lautenberg, thank you very much.

Let me ask a question about—Ms. Gilligan, let's assume that your recommendations are done, OMB sees them come in the door and says, "You know what, we're going to work on this quickly and move it out." DOT says, "God bless you for all your work. We see this, and we're a Federal agency, we intend to get things turned around quickly." And all of a sudden, we have this process complete.

Now, turn just for a moment to a circumstance that has prodded us to do more work in this area. That is, the Colgan crash. And the right-seat pilot flew from Seattle to Memphis—I believe deadheaded on a—I think it was a FedEx plane—and then flew to LaGuardia. And the pilot flew from Florida up to LaGuardia. There's no evidence of either them having a hotel room for rest purposes. There's evidence of both being in a crew rest lounge of some type. Evidence that the left-seat pilot was doing e-mails through a fair part of the night. So, it appears to me, with respect to whatever caused that crash—perhaps pilot/copilot not understanding what a "stick pusher" means—pulling the nose up and stalling the plane rather than having that nose pushed down because of ice, and restoring your airspeed and so on—it's entirely possible that a portion of what caused that crash was fatigue. Assuming that everything that you are doing is done, and we are all ready to announce significant progress for the first time in many, many years, how will it—or how would it have affected the circumstances of the pilot and the copilot I've just described, both of whom flew a fair piece across the country and without any evidence of having rest prior to the flight on that regional carrier?

Ms. GILLIGAN. Sir, I think, as we've heard a lot, there will always be a responsibility for the pilots to manage their rest periods appropriately. The rule will offer an opportunity for rest with sufficient time to sleep, consistent with what the signs of fatigue tells us, which is that you should sleep 7 to 8 hours a night. At the end of the day, the pilots will then have to take responsibility for assuring that they take advantage of that rest opportunity in a way that prepares them to report to work. They will always have that responsibility. And the operator will have the responsibility to determine that the crew member is, in fact, prepared to work at that time.

The regulatory framework can only set, just that, the framework that allows for the operator and the pilot to properly prepare themselves to provide safe transportation.

Senator DORGAN. I understand the responsibility of the pilot. That's the responsibility of a professional to himself or herself in the profession, and the responsibility to the passengers they're transporting. What I don't quite understand is, when we finish this whole process, nothing will have changed with respect to the circumstances that existed in that cockpit with respect to fatigue, if it existed as a part of the cause of this crash, because—if we have the chart that shows the Colgan commutes.

We know that something significant has changed with respect to air travel in this country. And I'll describe it just this way. In—if you'll put that down for just a moment—in North Dakota, where I grew up, the airlines that served our capital city were Republic, a regional carrier—but that—but, they didn't fly small planes; they flew DC-9s and 737s, and so on—Western Airlines, Northwest Airlines, and Frontier Airlines. All of them flew jets—737s, 727s, and DC9s. And my guess is that people in the cockpit, three—a three-member crew in the 727s by the way, and two-member crew in the others—my guess is that there wasn't somebody in a right seat with any one of those carriers, 30 years ago, that was being paid the equivalent of today's \$18,000 or \$20,000 a year. It just wasn't the case.

Then what happened is, our system morphed into something different. Those carriers merged and merged and merged again, became much larger, and then created a network of regional carriers that flew smaller equipment and had a different system for hiring outside of the trunk carriers. And so, we now have developed a system where one-half of the flights and one-fourth of the passengers are carried in circumstances where you have less experience in the cockpit.

And one of the other things that has happened, especially in the last couple of decades as we've morphed into this new system, is this chart, which shows that everybody's commuting everywhere.

Now, it shouldn't be lost on any of us, including Captain Prater—you're a pilot—and it shouldn't be lost on us that this chart is demonstration of a significant potential problem. You've got people, whose work station is on the East Coast, flying from all over the country just to get to a station where they should go to work.

And, Ms. Gilligan, what you are saying, and what some others have said, is, "Well, you know what. It's their responsibility." Well, let me ask the obvious question. Atlas Air, for example, a cargo company, they were having problems attracting qualified pilots, and so they instituted what was called a "Gateway Travel Program." Been very successful. They actually pay commuting pilots to come to their duty station, and they provide hotel accommodations overnight for them. And they require them to be there for an overnight. This—that's how one cargo company decided to do it.

If you're going to have people, living in Seattle or Los Angeles, working out of New York, the question is, "How do you make that happen? How does that work?" And my great concern is—and I'm not suggesting that people shouldn't commute; I am suggesting that if you're going to have this kind of substantial commuting,

you'd better understand that you're going to have some problems related to it, with respect to fatigue, unless the carriers and the pilots get there and have rest and find a bed, go to sleep, and show up in that cockpit fully rested.

That was not the case in the Colgan plane, with all due respect. I've read the transcripts. I understand at least enough of the facts to understand, neither of those pilots, I believe—and I—again, and I feel bad, because they're not with us and not able to defend themselves—but, it appears to me, neither of them had a night's sleep. And I just—when we're done with this issue, Ms. Gilligan, I don't think we will have altered the circumstances that allowed that to exist. And somehow, I think we must.

Ms. GILLIGAN. Well, sir—

Senator DORGAN. Your response?

Ms. GILLIGAN. —as I mentioned, the Aviation Rulemaking Committee did not make recommendations in this area. It is an area that we are looking at to see just how the Federal Government might address this in a regulatory framework. As you suggest, it can be difficult. As Captain Prater suggests, people drive from Fredericksburg to work in Washington, D.C. at DCA, and that's a long drive. That is not the same as flying. How to approach it is hard. But, we know that we do need to address it. And whether we should address it in the rule itself or in guidance in training materials for the pilots and for the airlines, we have not yet completely reached that conclusion. But, we agree with you. It is a risk factor that must be addressed, both by the airline and by the pilot.

Senator DORGAN. It just seems to me that would be a better time, or a more appropriate or more required time, to do it than now, when you're actually addressing fatigue in the cockpit?

Ms. GILLIGAN. Yes, sir.

Senator DORGAN. And, Mr. Prater, my guess is—you run a pilots organization and you're going to want to say, "You know what, they have a right to commute wherever they want to commute from. They have a responsibility to get some rest before they fly." I understand all that. But, do you believe that there's simply no issue here, no problem at all with this substantial amount of commuting that is—that has morphed into this—particularly the regional carriers, and the trunk carriers, in recent decades?

Mr. PRATER. I would not say there is not an issue, sir. There is an issue. And I give you our commitment that we'll continue to work with, not only the FAA, but with our employers, to find the solution to these problems. This is the reality. The reality is that the workforce has become very mobile, none more so than ours. And the fact is that the companies keep moving the flying around. I've said, they—the regional carriers, especially, they lose a contract and all of a sudden people who have lived in Cincinnati for 20 years, flying out of their home base, now have to commute, overnight. Those type of decisions are going on throughout our system.

So, we need to do a better job working with our carriers to make sure that pilots, if they have to fly to get to work, they're able to do so quickly, easily. It's a mirror image, if you will, of the Atlas program that you identified. NetJets, other operators, cargo operators, do the same thing. FedEx, UPS, they get their pilots to where they pick up their flight. It may be overseas, sir. So, there are sys-

tems out there, and we can do a better job, both as a union and as our employers and the associations that represent them, ensuring that the pilots show up ready to go.

Senator DORGAN. Mr. Voss, do you think the commuting is a part of this issue?

Mr. VOSS. Thank you, Mr. Chairman. Yes, clearly, commuting sets up a situation where things can go wrong. And we've seen some things go wrong. And so, I think what we have here is a problem. But, it's a difficult problem to deal with in a regulatory format. Clearly, there has to be an obligation for the airline to provide the opportunity for rest. And, of course, then there's the—they have to take that opportunity up.

I think the—a long-term way to look at this, though, is the fatigue risk management system we talked about, but haven't explained well. It puts a lot of sensors into the operation; and so, tells you if you have a problem on a given set of segments because of tired pilots or poorly trained pilots or other things. You need to be able to look at the data from your operation, and deal with it, and put in place the mitigations. Maybe it's an improved rest facility and so on. But, those are the type of things we need to do. That's why I am such a supporter of the data-driven and more sophisticated approaches that we can take in this industry.

Senator DORGAN. All right. Mr. Barimo, you have a response?

Mr. BARIMO. I would just reiterate that, as Captain Prater said, commuting is a part of the commercial airline business today. We're much smarter today, and we're getting smarter each day, when it comes to fatigue management. I think we have a challenge before us in how to factor commuting into fatigue management. I think we recognize that as an issue, and we're committed to resolving it, however that turns out to be.

Senator DORGAN. But, you—in some ways, this is like looking at a picture and not seeing it. You know, the three of you suggest that commuting is a part of an issue here, part of a problem. What Ms. Gilligan and the FAA is going to give us, at some point, is something that doesn't address that. And it just seems to me that all of these things relate to the circumstances that we know cause additional risk.

You know, from the hearings I have held—I was on a regional carrier a while back, and I happen to know, from the hearings, of the type of training that particular carrier did with their regional. They have identical training requirements, and they own the regional, and they—so, I sort of felt, well, this is an interesting carrier. Identical to the trunk carrier in training in every respect. On the other hand, my guess is, Captain Prater, if you fly regionals, you might get on one sometime—and you know a little more about it than some others—and see people in the cockpit that have a few hundred hours, and wonder if they're able to handle this plane as well as I am, speaking of yourself, with all the experience you have.

A lot of things have changed, with respect to regionals. They are a very important part of our air transportation system. We need them. But, we need to make sure that we're dealing with the issues that relate to—the issues that have become self-evident to us in recent years.

The issue of fatigue is not just a regional issue. The issue of fatigue relates to every cockpit everywhere and how we address that.

Ms. Gilligan, I have not meant to “heckter” you, with respect to——

Ms. GILLIGAN. No, not at all.

Senator DORGAN.—but, I do intend to in the future——

[Laughter.]

Ms. GILLIGAN. I’ll look forward to it.

Senator DORGAN.—because it is very important. Randy Babbitt is a new administrator with a great deal of promise, in my judgment. He knows the industry. He has spent a lot of time in the air, commanding airplanes. And I have high hopes for some excellent work coming out of the FAA. And that will include your work and many others. But, it is essential that we consider these things urgent, based on what we now know—or “dire,” as the Captain indicated. And it’s essential that it be science-based. But, it’s essential, after all of these years, all of these many, many years and lives that have been lost, it’s essential that we get this done. And so, I’m going to be—in my part of the country, we call it a “bur under the saddle,” but I’m really going to keep pushing, because we need to get this done.

I appreciate that—we’ve gone a little longer, but I appreciate the fact that all four of you have come to testify. We’ll have the Administrator here next week——

Ms. GILLIGAN. Yes, sir.

Senator DORGAN.—and begin to reach, I think, some conclusion on some of these issues.

And I hope, Ms. Gilligan—and I will write to the Administrator—I hope also to talk at some length about commuting, with the Administrator, in addition to the other fatigue issues.

Let me thank you very much.

And this hearing is adjourned.

[Whereupon, at 11:57 a.m., the hearing was adjourned.]





## A P P E N D I X

### PREPARED STATEMENT OF THE CARGO AIRLINE ASSOCIATION

On December 1, 2009, the Aviation Operations, Safety, and Security Subcommittee of the Committee on Commerce, Science and Transportation held a hearing to examine the issue of pilot fatigue and the status of the FAA Rulemaking on Flight Crewmember Duty and Rest Requirements.

The Cargo Airline Association (the “Association”)<sup>1</sup> did not testify at that hearing, but, as a full participant in the FAA’s Aviation Rulemaking Committee (ARC) which was chartered to examine this issue, is extremely interested in the outcome of this process. Several comments made at this hearing, however, raise concerns that need to be addressed.<sup>2</sup>

First, in her written testimony, Margaret Gilligan, FAA Associate Administrator for Aviation Safety, stated that “. . . differing regulations for different types of operations are inconsistent and complex, and can be easily misunderstood, especially when a pilot can be assigned to different types of operations. The different rules developed over time, as the aviation industry changed and expanded. While such variance in the rules may have been justified when they were first adopted, these differences may no longer be valid in today’s operational environment. Our rulemaking will address this.” Testimony, p. 3.

While the Association recognizes the need to update the current regulations which have been developed over a number of years and have been subject to several legal interpretations, any implication that a “one size fits all” solution to pilot fatigue is simply incorrect. As a practical matter, today’s aviation marketplace is comprised of various industry segments, with different operating characteristics driven by the underlying business model and different opportunities for crewmembers to rest. For example, the time it takes to sort and load cargo onto an all-cargo aircraft at a hub facility allows time for crewmembers to rest. Similarly, security concerns at certain foreign airports would make it imprudent to schedule overnight stays; rest can better be addressed through on-board rest accommodation and other means. Those unique differences must be taken into consideration. Indeed, FAA Administrator Randy Babbitt, at an ALPA Safety Forum on August 5, 2009, specifically noted that “In rulemaking, not only does one size not fit all, but it’s unsafe to think that it can.” In addition, during the course of the ARC, FAA representatives specifically recognized the different characteristics of the all-cargo industry and invited the Cargo Airline Association to submit a cargo-specific proposal. Therefore, any notion that the all-cargo carriers are asking for a “carve out” from the rulemaking is simply false.

Faced with these realities, all-cargo interests cannot be simply subsumed into a “one size fits all” rule, but rather must be separately considered, taking into account the operational characteristics on this industry segment. That is not to say that the FAA must have separate sets of regulations. Rather, the FAA can and should apply a common framework to the rules to avoid confusion and thus reducing the need to issue legal interpretations, but also recognizing differing operational and environmental characteristics.

Another subject that generated significant comment at the December 1 hearing was the subject of “commuting”. While everyone agrees that flight crews must present themselves for service in a fit condition, there appears to be significant disagreement on the FAA’s role in assuring that flight crews are not fatigued when they report for duty. Although there were statements that the ARC did not rec-

<sup>1</sup>The Cargo Airline Association is the organization representing the interests of the United States all-cargo air carrier industry. U.S. airline members are: ABX Air, Atlas Air, Capital Cargo International, FedEx Express, Kalitta Air and UPS Airlines.

<sup>2</sup>The Association has no intention of repeating its comments made to the FAA in the course of the ARC. Those comments are on file with the FAA and have been provided to Committee Staff. Rather, the brief comments below only relate to the testimony presented on December 1, 2009.

commend any FAA action in this area, the Association submission (which was transmitted to the FAA as part of the ARC recommendation) did, in fact, address this issue. Indeed, an entire section entitled “The FAA Must Address Pre-Duty Required Rest” was included in the Association proposal, with the notation that “. . . any regulations covering flight/duty limitations and rest requirements must also address pre-duty required rest of individual flight crewmembers and put teeth into the FAA’s enforcement of crewmember responsibility to report to work fit for duty”. Association Submission, p. 26. During the hearing, the FAA repeatedly said the delay in the rulemaking process and its subsequent later than expected release was largely due to the ARC not addressing commuting.

The Association appreciated the opportunity to participate in the ARC process and looks forward to filing comments when the Notice of Proposed Rulemaking is issued. If the Subcommittee needs any further information, please do not hesitate to contact us.

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PREPARED STATEMENT OF RONALD N. PRIDDY, PRESIDENT,  
NATIONAL AIR CARRIER ASSOCIATION (NACA)

The National Air Carrier Association (NACA), a member of the recent Federal Aviation Administration (FAA) Flight and Duty Time Limitations and Rest Requirements Aviation Rulemaking Committee (ARC), appreciates the opportunity to present written testimony for the record of the hearing on “Aviation Safety: Pilot Fatigue” which was held on December 1, 2009.

NACA,<sup>1</sup> founded in 1963, is comprised of 11 air carriers that fill a unique niche in the air carrier industry offering low cost scheduled air transportation as well as non-scheduled all-cargo and passenger air transportation worldwide. While diverse in our operations, all members operate under the same high safety standards and requirements as the major scheduled airlines, 14 CFR Part 121. In addition to providing significant, leading edge air transportation for customers and commercial partners on most every continent, *all* of NACA member air carriers are partners with the U.S. Department of Defense (DOD) in the Civil Reserve Air Fleet (CRAF) program. We provide significant lift capacity for our soldiers and their cargo in support of U.S. DoD missions around the globe. On any given day, NACA member airlines are providing the majority of the civil air transportation in support of Operation Enduring Freedom in Afghanistan and Operation Iraqi Freedom.

*NACA member airlines support science-based changes to the FAA flight, duty and rest regulations.* We have participated in every aviation rulemaking committee (ARC) on this subject since the early 1990s. We were instrumental in the changes that produced the cabin attendant duty and rest regulations in 1994. Since then, we have participated in each of the FAA duty and rest related ARCs. When consensus in those ARCs did not materialize, the NACA Board of Directors invited then FAA Administrator, Jane Garvey, to NACA’s offices in May 2002 and appealed to her to get on with the rulemaking. We recommended fatigue mitigating regulations based upon flight duty period limitations, not on flight time. We included deadhead time and all non-commercial (Part 91) flying in our proposal, in addition to a regulation for reserve crewmember duty and rest. We were disappointed the SNPRM did not materialize, and we have willingly participated in the current ARC efforts. Representatives from approximately half of our member airlines participated as principals or as observers of one or more ARC sessions.

*However*, we are particularly concerned to now have the FAA witness in these hearings, Ms. Peggy Gilligan, state in her public testimony that they are crafting a “one-size-fits-all” regulatory approach. This is contrary to the recommendations of *all the Nation’s airlines* in strong written statements submitted as final ARC proposals from the Air Transport Association of America, the Cargo Airline Association, NACA and the Regional Airline Association opposing a “one-size-fits all” approach. This is also contrary to the public statements made by the Administrator, in a speech delivered to the Air Line Pilots Association Safety Forum in which, referencing the work of this ARC that was underway and the rulemaking process in general, he stated “Nil rulemaking, not only does one size not fit all, but it’s unsafe to think that it can.” See, “We Can’t Regulate Professionalism,” remarks of Administrator Randy Babbitt before ALFA Safety Forum, August 5, 2009. His statement bears repetition for this Senate Subcommittee, “*one size does not fit all.*” While there was little consensus in the ARC beyond a science-based regulation, “one-size-fits-all”

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<sup>1</sup>NACA carriers include: Air Transport International, Allegiant Air, Atlas Air, Miami Air International, North American Airlines, Omni Air International, Ryan Air International, Southern Air, Sun Country Airlines, USA3000 Airlines and World Airways.

is contrary to the process and advice many participants represented in the ARC. Not only is it “unsafe to think that”, as the Administrator stated, an inflexible set of FAA flight duty period and rest *restrictions*, versus *flexible regulations*, threaten much of today’s nonscheduled all-cargo and passenger operations that are safely operating under 14 CFR 121, Subpart S. Furthermore, it could have significant impacts on national security, as all DOD commercial charter air transportation must operate under the *individual* air carrier’s full DOT and FAA certification; its operation specifications; and the incumbent safety and regulatory standards. More than 90 per cent of the passenger capability and more than 40 per cent of the all-cargo capability for defense mobility is supplied by U.S. air carrier members of the Civil Reserve Air Fleet. Flexibility is critical. Unless the “size” is large and flexible, one-size-fits-all will only support scheduled operations.

This is not about the cost of hiring more pilots or any other financial consideration. This is about safely and prudently sustaining the regulatory infrastructure to conduct these non-scheduled operations on a worldwide basis. It is about continued leadership of U.S. airlines in an extremely competitive environment, where we are already the safest segment of the world’s airline industry. It is also about national security.

Concerning fatigue science, most fatigue scientists state that prescriptive regulations are not the solution to fatigue mitigation in air transportation. A number of those scientists worked together to prepare a position paper for the American Medical Association. It states, “The prescriptive rule-making approach commonly used by regulatory agencies to regulate crew rest and flight and duty times is not derived from the foundational scientific research addressing the interaction of sleep and circadian processes and their effects on performance.”<sup>2</sup>

NACA, with its commitment to resolving safety issues, including those resulting from fatigue, supports a requirement for each airline to have a FAA approved Fatigue Risk Management System (FRMS). That FRMS and strategy should be part of an individual air carrier’s FAA approved safety management system (SMS). To that end, NACA has hired world renowned fatigue scientist Dr. E. Curtis Graber to advise us on those strategies. To date, the program would include a commitment by senior management, schedulers, dispatchers and pilots to FRMS. It would include fatigue training programs for all involved; suggested personal strategies for pilots for sleep and fatigue mitigation; crew scheduling and dispatch strategies for assuring robust sleep opportunities; cockpit resource management training tailored to fatigue mitigation, including a recommendation to FAA to permit controlled rest on the flight deck; and a continuous audit process for identifying fatigue vulnerabilities.

Finally, we want to comment about commuting. We agree with the Committee, that is the unknown in this whole discussion about pilot fatigue. It was virtually taken off the table for discussion in the ARC. We recommend it be formally addressed.

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PREPARED STATEMENT OF CAPTAIN PAUL ONORATO, PRESIDENT,  
COALITION OF AIRLINE PILOTS ASSOCIATIONS

Chairman Dorgan, members of the Committee, on behalf of the 28,000 pilots who fly for the member associations of the Coalition of Airline Pilots Associations (CAPA), we want to thank you for the opportunity to comment on the issue of pilot fatigue. CAPA has been working on fatigue and flight and duty time issues since its inception in 1997 and we appreciate your holding this important hearing to lay the issues on the table.

The National Transportation Safety Board (NTSB) puts fatigue near the top of its most wanted list. “The Safety Board has long been concerned about the effects of fatigue on persons performing critical functions in all transportation industries including flight crews.” We agree wholeheartedly with NTSB. The need to address pilot fatigue is long overdue. There is no more critical safety issue before the FAA and the time to address it is now.

CAPA recently held three seats on the FAA Aviation Rulemaking Committee (ARC) on Flight and Duty time and Rest Requirements, which focused on reducing fatigue for pilots in commercial aviation. As such, CAPA supports the adoption of

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<sup>2</sup> Caldwell, J. A., Mallis, M. M., Caldwell, J. L., Paul, M. A., Miller, J. C., Neri, D. F., Aerospace Medical Association Aerospace Fatigue Countermeasures Subcommittee of the Human Factors Committee. *Fatigue Countermeasures in Aviation*. Aviat Space Environ Med 2009; 80:29–59, p. 33.

a science based approach to new regulations on duty time, the primary factor in fatigue and flight time, a secondary factor related to time on task and workload.

We have worked closely with the FAA on these issues and look forward to seeing the new regulations shortly. While we have made very specific recommendations to the ARC regarding flight and duty limitations, one important principal stands out for the pilot members of CAPA—An increase in the current flight or duty times in any given block of time throughout the day is simply unacceptable. CAPA cannot agree to any policy change that would claim to address fatigue by allowing pilots to fly more hours in any in a scheduled duty day time than current rules stipulate.

CAPA strongly supports a minimum 8 hour sleep opportunity in a rest period that includes travel time. A rest period that includes travel time should not be confused with actual sleep opportunity and needs to be 11 to 12 hours at a minimum to provide a real opportunity for 8 hours of sleep. A minimum of 10 hours at the rest facility would be another good way to define the minimum rest period. We also believe that regulations that include adequate recovery rest after “disruptive duty” which includes daytime rest, night flying, time zone crossings, and circadian instability. Essentially, any work schedule that does not allow a pilot to sleep during his normal sleep cycle is “disruptive duty.”

CAPA supports adequate prescriptive preflight rest for all operations, which would include prescriptive rest for all reserve crewmembers as well as relief pilot/augmentation guidelines that consider the quality of the onboard rest facility in determining the allowable extension to flight and duty times.

CAPA has thousands of cargo pilots amongst its members and does not support any carve out for cargo operations. CAPA is firm in its belief in “One Level of Safety” for all commercial flight operations and no science supports different regulations based on what the aircraft are carrying *i.e.*, passengers or cargo.

CAPA does not support cockpit napping and believes that properly regulated flight and duty time limits will eliminate the need for naps. Complex commercial aircraft are certified for two pilots that require more multi-tasking than one pilot can safely accomplish on a regular basis. A second pilot is also part of the greatest safety protection—redundancy. Everything on the aircraft has redundant back-up systems in the event of failure and backup systems are not “rested” but are ready to go at a moment’s notice. In any emergency the flying pilot continues to fly while the monitoring pilot accomplishes procedures required by an emergency checklist including shutting down failed engines in the event of fire or catastrophic failure. If a pilot is needed to go from napping to performing, science has proven that approximately 20 minutes is needed to overcome “sleep inertia.” A napping pilot would not know if the other pilot has become incapacitated.

The issue of commuting has come into the public’s eye as a result of the Continental Connection Flight 3407 accident investigation. While commuting is an unusual situation to those outside of the aviation industry, it has become an accepted and normal practice within the industry. One of the root causes of the increase in commuting is the result of the extreme instability of airline employment. A junior pilot literally waits on each month’s system bid to find out where he/she will be based next. Moving every time the airline decides to change your domicile is an impossible situation both from a financial and practical viewpoint. Airline pilots have learned how to adapt to these conditions. In CAPA’s view, the perceived problem with commuting is another symptom of the race to the bottom in pilot compensation, qualification and experience. The primary reason commuting hasn’t come under fire until recently is that airlines have dramatically reduced the qualifications and compensation of new hire pilots, and prior to those economic measures, commuting was done by choice—not necessity, and thus was not as widespread, nor as much of a problem. These changes have brought inexperienced pilots to the industry who do not possess the judgment, experience, or the means to self police their own rest needs.

Rather than trying to legislate a new lifestyle for aviation professionals, CAPA supports another approach. We strongly support the requirement that all pilots working in Part 121 commercial aviation—Captains and First Officers alike, have an FAA Airline Transport Pilot’s certificate (ATP). This would require a minimum of 1,500 hours of flight time in a myriad of conditions and would assure that professionalism in the cockpit is increased. Senator Charles Schumer has introduced S. 1744, which would require that all pilots have an ATP as a minimum condition for employment with commercial Part 121 carriers. We strongly support Sen. Schumer’s bill and urge this committee to consider it as a part of the FAA Reauthorization package. If we take such steps to ensure that professional pilots are flying in both seats in the cockpit, we can solve the key problems with commuting and many other issues within the industry.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN D. ROCKEFELLER IV  
TO MARGARET GILLIGAN

*Question 1.* In what ways should the new flight and duty time rules be changed to reflect modern fatigue research?

Answer. In developing the new flight and duty time rules, the FAA tasked its Aviation Rulemaking Committee (ARC) with considering current fatigue science and information on fatigue, as well as international standards for flight time limitations. The ARC considered human physiology, including the biological requirement for sleep; the effect of task-related factors, such as workload or duration of the duty period, on fatigue; and the effect of circadian rhythm on fatigue.

Other international standards have already addressed these issues and provided the ARC with examples of fatigue countermeasures that address them. The ARC is specifically considering:

- Structuring rest periods so crewmembers receive 8 hours of sleep opportunity in each 24 hours;
- Providing an extended rest period weekly to recover from cumulative fatigue;
- Limiting the length of a duty period;
- Considering other duties that may contribute to fatigue as part of the duty period;
- Reducing the length of a duty period, based on encroachment into a crewmember's Window of Circadian Low (WOCL) or the number of flight segments flown during the duty period;
- Extending the length of a duty period, based on the quality of an in-flight rest opportunity;
- Providing cumulative limits on flight time and duty periods to prevent cumulative fatigue.

*Question 2.* Do you believe that training and repositioning flights should count toward a pilot's flight time under the rule regulating the number of flight hours a pilot may perform in a day?

Answer. Yes. Training and repositioning flights should count toward a pilot's flight time under the rule regulating the number of flight hours a pilot may perform in a day. Fatigue science identifies "time on task" as one of the factors likely to affect a person's fatigue. "Time on task" is the length of time a person has been continuously performing a job without a break. Additionally, "time awake" since a last major sleep opportunity contributes to fatigue. Both "time on task" and "time awake" could be affected by including training and repositioning flights in a pilot's schedule. Other international standards do consider other duties, such as training and repositioning flights, toward total flight duty period or duty period limitations; but not daily flight time limitations.

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

*Question 1.* In what ways should the new flight and duty time rules be changed to reflect modern fatigue research?

Answer. The rules should be updated in two specific areas. First the rules have to reflect human performance and the time of day. We now know that it is radically different dealing with fatigue when a pilot is operating on the "backside of the clock" or his nighttime cycle. Second, it is critical that the regulation address the overall work period that may extend across several days. We now know for a fact that fatigue is cumulative, so we must guard against cumulative effects of things such as multiple early morning wake-ups and so on.

*Question 2.* Do you believe that training and repositioning flights should count toward a pilot's flight time under the rule regulating the number of flight hours a pilot may perform in a day?

Answer. Yes, fatigue is not tied to revenue. A pilot gets just as tired when he or she is flying for free as when they are on the clock.