

# United States Air Force



Testimony Before the House Armed Services Committee, Subcommittee on Tactical Air and Land Forces (Field Hearing)

## **Post Iraq and Afghanistan: Current and Future Roles for Unmanned Aircraft Systems and the Fiscal Year 2014 Budget Request**

Witness Statement of:  
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Policy Board on Federal Aviation

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# BIOGRAPHY



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### MR. STEVEN PENNINGTON

Mr. Steven Pennington is the Director of Bases, Ranges, and Airspace, and Executive Director for the Department of Defense Policy Board on Federal Aviation, Headquarters Air Force, Washington, DC. He leads 221 Airmen and civilians in the Aviation Integration Division, Air Force Range and Airspace Division, Department of Defense Notice to Airman Office, the Air Traffic Control Services Cell, and the Air Force Flights Standards Agency. His broad portfolio includes integrating remotely piloted aircraft into the national airspace system and internationally, leading the Department of Defense Next Generation Air Transportation System office, facilitating global civil/military aviation integration, liaising with the Federal Aviation Administration, and leading the Air Force energy operations and encroachment initiatives.



Mr. Pennington was born in Honolulu, HI and entered active duty in 1977 through the Reserve Officer Training Corps program at the University of North Carolina. Prior to his current assignment, Mr. Pennington held a number of leadership positions to include Director of Staff, Air Force Directorate of Operations, and Commander, Air Force Operations Group, the Pentagon, Washington, DC.

Mr. Pennington is married to Lorraine S. Gravley of Billings, MT, with seven children.

#### EDUCATION:

- 1977 Bachelor of Arts, University of North Carolina, Chapel Hill, NC
- 1981 Squadron Officer School, Air University, Maxwell Air Force Base, AL
- 1981 NATO Tactical Leadership School, Jever Air Base, Germany
- 1982 Electronic Warfare Officer School, Mather Air Force Base, CA
- 1985 Air Command and Staff College by correspondence, Air University, Maxwell Air Force Base, AL
- 1998 Air War College by correspondence, Air University, Maxwell Air Force Base, AL

#### ASSIGNMENTS:

1. August 1977 – November 1985, Flying Training and Operations, Numerous Locations
2. November 1985 – February 1989, Commander, Electronic Combat Flight, Tyndall AFB, FL
3. February 1989 – August 1990, Electronic Warfare Officer, Lindsey Air Station, GE
4. August 1990 – February 1993, Commander, 7100 Transportation Squadron, Lindsey Air Station, GE

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5. February 1993 – August 1995, Director of Operations, 563d Flying Training Squadron, Randolph AFB, TX
6. August 1995 – July 1996, Commander, 607th Air Support Squadron, Camp Red Cloud, Korea
7. July 1996 – July 1998, Commander, Combat Operations Squadron, Osan AB, Korea
8. July 1998 – Mar 2002, Chief, Experimentation & Wargaming Division, HQ Air Force, Washington, DC
9. Mar 2002 – Mar 2004, Joint Operations & Exercises, HQ Air Combat Command, Langley AFB, VA
10. Nov 2002 – July 2003, Chief, Current Operations, Tampa, FL & Camp As Saliyah, Qatar, Iraq
11. September 2004 – May 2007, Commander, Air Force Operations Group, HQ Air Force, Washington, DC
12. August 2007 – January 2010, Director of Staff, Directorate of Operations, HQ Air Force, Washington, DC
13. February 2010 – Present, Director of Bases, Ranges, and Airspace, HQ Air Force, Washington, DC

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Chairman Turner, Ranking Member Sanchez, and distinguished members of the subcommittee, I appreciate the opportunity to appear before you today to discuss Current and Future Roles for Unmanned Aircraft Systems and the Fiscal Year 2014 Budget Request.

As you are aware, the United States Air Force has employed Unmanned Aircraft systems (UAS) in support of operations in Iraq and Afghanistan, as well as other theaters around the world in increasing numbers. Unmanned Aircraft Systems provide a critical component to the necessary intelligence, surveillance, and reconnaissance required to maintain continuing advantage over potential adversaries. As some of those operations draw down, UAS will return to home station. This increase in U.S. based aircraft will drive the need for integration into the National Airspace System (NAS) to enable initial qualification and sustain combat readiness training.

The United States military has been the vanguard for numerous aviation advancements, from the introduction of jet engines to the use of Global Positioning Systems. Unmanned aircraft are now part of this legacy. In order to fully exploit new system capabilities, preserve our airmen's training edge and fully capitalize on the commercial potential, it is imperative we achieve commercial, civil and public UAS integration into the NAS and not merely selective access to small segments of it.

The Department of Defense (DoD) engages with the Federal Aviation Administration (FAA) and other federal agencies in a variety of separate but interconnected bodies to collaboratively advance public UAS access to the NAS in a safe and efficient manner. The primary coordinating organization is the UAS Executive Committee (ExCom), mandated in the Fiscal Year 2009 National Defense Authorization Act (NDAA). While the 2009 NDAA called for the DoD and FAA to standup the ExCom, it was agreed to expand membership to include National Aeronautics and Space Administration (NASA) and the Department of Homeland Security (DHS). Those two organizations, along with DoD represent the preponderance of public UAS operators. The ExCom was formally chartered in 2010 and is comprised of senior members from DoD, NASA, DHS and FAA. Advances in public UAS access to the NAS are the building blocks that will form the policies, procedures and regulations that will provide access for all sectors of the aviation community.

In addition to the ExCom, the DoD works with the FAA and other UAS stakeholders

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through the Next Generation Air Transportation System Joint Planning and Development Office, DoD's Policy Board on Federal Aviation, and RTCA special committees. These organizations have collaborated on a variety of issues and have made slow but steady progress toward NAS integration.

Current unmanned aircraft lack the technology to fully comply with 14 CFR Part 91 General Operating Rules, Part 91.113 "see and avoid" which limits unrestricted UAS operations to Restricted and Warning areas. Any operations outside that airspace requires FAA approval and typically requires the use of ground observers or chase aircraft to satisfy the see and avoid requirement. We are developing technology that fulfills this "see and avoid" requirement and will provide the foundation for UAS integration into the NAS. Ground Based Sense and Avoid (GBSAA) is a mid-term solution that eliminates ground observer and chase aircraft requirements and expands our ability for night operations.

The Services are working a variety of GBSAA solutions to safely increase UAS NAS access. The DoD has worked closely with the FAA during the development process. While progress in the early years was limited, recent meetings with the FAA have shown great promise. We look forward to working with the FAA on a GBSAA implementation plan. GBSAA is a vital component in increasing NAS integration and will have immediate impact at several Air Force locations.

The USAF GBSAA solution is looking to leverage existing radars and fusion-tracker hardware components currently certified to provide Air Traffic Control (ATC) services for the FAA and some DoD operating locations. A very promising Proof-of-Concept aimed at providing accurate separation and altitude estimation was accomplished at Gray Butte Field. We are leveraging that work to field an Air Force certified GBSAA system supporting Air Force Special Operations Command unmanned aircraft operating out of Cannon Air Force Base, New Mexico. Contingent on successful deployment, the Air Force will build upon this prototype to implement similar GBSAA capability at other Air Force installations. GBSAA provides the avenue for safe integration into the NAS with manned aircraft and will serve as a complimentary component with Airborne Sense and Avoid (ABSAA)

Airborne Sense and Avoid is a far-term NAS access solution for larger unmanned aircraft. It promises to provide autonomous, pilot-on-the-loop conflict and collision

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avoidance for all classes of airspace and is critical to achieve unrestricted access to the NAS and ensure military capability and effectiveness. The Air Force is the primary operator of the larger unmanned aircraft that require access to multiple classes of airspace, including Class A airspace. Air Force employment of unmanned systems drives a requirement for Sense and Avoid.

While much work remains to be done, significant advances and the pace of progress toward NAS integration has accelerated in recent months. Of note, the recent efforts of Mr. James Williams and Mr. Douglas Gould of the FAA's Unmanned Aircraft Integration Office have been particularly noteworthy and forward looking.

In closing, I would like to add that given the revolutionary nature of this challenge, a constrained fiscal environment, but most importantly, the promise of this technology, it is imperative that all stakeholders in unmanned aviation – government, industry and academic institutions – collaborate as much as possible. This is needed to maximize resources and develop the necessary rules, procedures and technologies to quickly and safely enable the full integration of unmanned aircraft systems into the NAS.

Thank you for your time and your unwavering support of the men and women of the United States Air Force. That concludes my statement, and I welcome your questions.