

**SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION:
QUESTIONS FOR THE RECORD**

**HEARING ON
UNMANNED AIRCRAFT SYSTEMS: KEY CONSIDERATIONS REGARDING SAFETY, INNOVATION,
ECONOMIC IMPACT, AND PRIVACY
TUESDAY, MARCH 24, 2015**

**Questions for Dr. Gerald Dillingham, Director of Civil Aviation Issues, U.S. Government
Accountability Office**

From Chairman Thune

1. What can Congress do now to help the FAA and other stakeholders facilitate the integration of UAS in a safe and secure manner?

Answer. Congress could help by encouraging FAA to consider a number of efforts that stakeholders suggested could help facilitate the integration of UAS into the national airspace. These include:

- Consider if the position of the UAS Integration Office within FAA and if the office has enough authority to ensure integration of UAS;
- Develop an implementation plan that would identify the means, necessary resources, and schedule to safely and expeditiously integrate civil UAS into the NAS; and
- Expand its UAS public education campaign to increase the safety on the national airspace.

2. How can we ensure that the test sites are used more effectively? Are there other areas in terms of research that need attention from the FAA and other stakeholders?

Answer. There are a number of mechanisms to ensure that the test sites are used more effectively:

- Increased R&D direction from FAA: According to some of the test site operators we spoke to as part of our ongoing work, there is uncertainty about what research and development should be conducted at the test sites to support the integration process. However, FAA states it does provide support through weekly conference calls and direct access for test sites to FAA's UAS office. FAA is also working with MITRE Corporation (MITRE), DOD, and the test sites to define what safety, reliability, and performance data are needed and develop a framework, including procedures, for obtaining and analyzing the data. However, FAA has not yet established a time frame for developing this framework.

- Clear path from research and development to commercial applications: The FAA’s implementation of its Section 333 exemption authority provides an avenue for companies to engage in commercial applications without the need for an airworthiness certificate. Officials at one test site said that it would be helpful if there was a route that would allow the university and test site to be able to apply for the equivalent of the section 333 exemption, enabling the university to conduct research that crosses over into commercial applications. The university could also work with smaller companies, such as a precision agriculture consulting group. These companies may not feel quite as comfortable with applying for a section 333 exemptions directly through FAA, due to the lack of legal resources, and could instead work with the university under the umbrella of the test site.

From Senator Wicker

1. Is the U.S. falling behind other countries in allowing for UAS development and commercial use? If so, why?

Answer. While other countries have been allowing UAS operations for years, recent actions by FAA has moved the United States towards allowing greater UAS operations, and proposed rules are similar to rules in other countries. Foreign countries are also experiencing an increase in UAS use, and some have begun to allow commercial entities to fly UASs under limited circumstances. According to industry stakeholders, easier access to testing in these countries’ airspace has drawn the attention of some U.S. companies that wish to test their UASs without needing to adhere to FAA’s administrative requirements for flying UASs at one of the domestically located test sites, or obtaining an FAA COA. It has also led at least one test site to partner with a foreign country where, according to the test site operator, UAS test flights can be approved in 10 days.

As part of our ongoing work, we identified a number of countries that allow commercial UAS operations and have done so for years. According to a MITRE study, the speed of change can vary based on a number of factors, including the complexity and size of the airspace and the supporting infrastructure. In addition, according to FAA, the legal and regulatory structures are different and may allow easier access to the airspace in other countries for UAS operations. While UAS commercial operations can occur in some countries, there are restrictions controlling their use.

If UASs were to begin flying today in the national airspace system under the provisions of FAA’s proposed rules, their operating restrictions would be similar to regulations in other countries. For example, FAA proposes altitude restrictions of below 500 feet, while Australia, Canada, and the United Kingdom restrict operations to similar altitudes. However, there would be some differences in the details. Other proposed regulations require that FAA certify UAS pilots prior to commencing operations, while Canada and France do not require pilot certification.

2. What will be the biggest markets for UAS uses? What types of UAS will do that work?

Answer. According to a study by a UAS industry group, precision agriculture and public safety are the most promising commercial and civil markets and are thought to comprise approximately 90 percent of the known potential markets for UAS.

3. How soon will the FAA integrate UAS?

Answer. FAA has identified a broad three-phase approach to FAA’s UAS integration plans—Accommodation, Integration, and Evolution—with associated priorities for each phase that provide additional insight into how FAA plans to integrate UAS into the national airspace system. This phased approach has been supported by both academics and industry. FAA plans to use this approach to facilitate further incremental steps toward its goal of seamlessly integrating UAS flight into the national airspace.

While limited operations continue through these means of FAA approval in the accommodations phase, FAA has been planning for further integration. Currently, FAA has authority to authorize all UAS operations in the national airspace—military; public (academic institutions and federal, state, and local governments including law enforcement organizations); and civil (non-government including commercial). Currently, since a final rulemaking is not completed, FAA only allows UAS access to the national airspace on a case-by-case basis. FAA provides access to the airspace through three different means:

- **Certificates of Waiver or Authorization (COA):** Public entities including FAA-designated test sites may apply for COA. A COA is an authorization, generally for up to 2 years, issued by the FAA to a public operator for a specific UAS activity.
- **Special Airworthiness Certificates in the Experimental Category (Experimental Certificate):** Civil entities, including commercial interests, may apply for experimental certificates, which may be used for research and development, training, or demonstrations by manufacturers.
- **Section 333 exemptions:** Since September 2014, commercial entities may apply to FAA for issued exemptions under section 333 of the 2012 Act, Special Rules for Certain Unmanned Aircraft Systems. This exemption requires the Secretary of Transportation to determine if certain UASs may operate safely in the national airspace system prior to the completion of UAS rulemakings.