

ONE HUNDRED FOURTEENTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
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MEMORANDUM

November 17, 2015

To: Subcommittee on Commerce, Manufacturing, and Trade Democratic Members and Staff

Fr: Committee on Energy and Commerce Democratic Staff

Re: Hearing on “The Disrupter Series: The Fast-Evolving Uses and Economic Impacts of Drones”

On Thursday, November 19, 2015, at 10:15 a.m. in room 2123 of the Rayburn House Office Building, the Subcommittee on Commerce, Manufacturing, and Trade will hold a hearing titled “The Disrupter Series: The Fast-Evolving Uses and Economic Impacts of Drones.”

I. BACKGROUND

The term “drone” is used to refer to unmanned aerial vehicles (UAV), aircraft operated remotely without a pilot on board, or unmanned aircraft systems (UAS), which comprise the UAV, the ground-based controller, and the communications connection that connects the two.¹ Drones have long been used in military and hobbyist settings, but developments in technology and federal regulation are paving the way for expanded commercial drone use.² In 2015, 300,000 nonmilitary drones are estimated to be sold worldwide.³ Consumer and commercial

¹ Congressional Research Service, *Unmanned Aircraft Systems (UAS): Commercial Outlook for a New Industry* (Sept. 9, 2015) (R44192); “Drones” vs “UAVs”—What’s Behind a Name?, American Civil Liberties Union (May 20, 2015) (online at www.aclu.org/blog/drones-vs-uavs-whats-behind-name).

² Congressional Research Service, *Unmanned Aircraft Systems (UAS): Commercial Outlook for a New Industry* (Sept. 9, 2015) (R44192).

³ *Id.*

sales of drones are expected to generate roughly \$125 million of revenue in the United States in 2015.⁴

II. GROWING CONSUMER AND COMMERCIAL USE OF DRONES

Drones for private consumer use are relatively inexpensive to purchase, some under \$100, and can be customized with a wide range of additional features.⁵ The Federal Aviation Administration (FAA) predicts that about a million drones will be sold during the holiday season.⁶

In addition to consumer use, drones are being considered by many businesses for use in commercial activity.⁷ Amazon, Google, and WalMart, among others, have announced plans to explore the use of drones for home product deliveries.⁸ WalMart is also planning to test drones for checking inventories and performing other tasks aimed at making its distribution system more efficient.⁹ In July 2015, an Australian company conducted the first demonstration of delivery by drone in the U.S.¹⁰

A role for drones has been suggested in a number of non-retail industries as well, including agriculture, advertising, and home security.¹¹ Drones have also been suggested as a tool for emergency responders, particularly in the case of a natural disaster when infrastructure like roads and electricity may be unavailable.¹²

⁴ *Id.*

⁵ *Best Drones 2015*, Tom's Guide (Nov. 2, 2015) (online at www.tomsguide.com/us/best-drones,review-2412.html).

⁶ *A Million Drones for Christmas? FAA Frets the Threat for Planes*, Forbes (Oct. 1, 2015) (online at www.forbes.com/sites/danielreed/2015/10/01/drones-faa-christmas/).

⁷ *The Future of Drones: Uncertain, Promising and Pretty Awesome*, Live Science (Nov. 5, 2015) (online at www.livescience.com/52701-future-of-drones-uncertain-but-promising.html).

⁸ *Exclusive: Wal-Mart Seeks to Test Drones for Home Delivery, Pickup*, Reuters (Oct. 27, 2015) (online at www.reuters.com/article/2015/10/27/us-wal-mart-stores-drones-exclusive-idUSKCN0SK2IQ20151027#PcK6gTykrAPb7QrD.97).

⁹ *Id.*

¹⁰ *Flirtey Demos World's First Drone Delivery Tech in U.S.*, Forbes (Jul. 23, 2015) (online at www.forbes.com/sites/jlim/2015/07/23/flirtey-demos-worlds-first-drone-delivery-tech-in-u-s/).

¹¹ *Commercial Drones May Disrupt the Retail and E-Commerce Industries First*, Business Insider (Apr. 2, 2014) (online at www.businessinsider.com/commercial-drones-will-disrupt-the-retail-and-e-commerce-industries-first-2014-4).

¹² *American Red Cross Takes Serious Look at Using Drones for Disaster Relief, Holds Off for Now*, Washington Post (Apr. 21, 2015) (online at www.washingtonpost.com/news/innovations/wp/2015/04/21/american-red-cross-takes-serious-look-at-using-drones-for-disaster-relief-holds-off-for-now/).

A recent industry report showed investments in drone technology from January 2015 through May 2015 totaled \$172 million, which was more than the previous five years combined.¹³ That funding came from venture capital investments as well as from established technology companies such as GE, Qualcomm, and Intel.¹⁴ One report predicted that by 2019, the commercial small drone sector will generate more than \$5.1 billion in revenue.¹⁵

III. PRIVACY AND SAFETY

As the domestic use of drones has increased, so has attention to the possible safety and privacy issues involved.¹⁶ Drones can be equipped with high-powered cameras, infrared devices, and listening devices.¹⁷ These capabilities combined with the relatively low cost of consumer drones raise concerns that use of the technology by individuals and law enforcement could invade privacy rights and property rights.¹⁸ Privacy advocates and some legal scholars assert that current privacy law is insufficient with respect to drones.¹⁹

Concerns about the safety risks posed by small drones have also been raised.²⁰ Pilots in particular have expressed concerns about drones flying into airspace already occupied by airplanes.²¹ According to the FAA, pilots have reported unsafe drone activity about 100 times a month so far in 2015.²² And pilot sightings of drones doubled between 2014 and 2015.²³

IV. REGULATING DRONES

¹³ See note 7.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *As Drone Use Grows, So Do Privacy, Safety Concerns*, USA Today (Mar. 7, 2013) (online at www.usatoday.com/story/news/nation/2013/03/07/drone-use-raises-privacy-safety-concerns/1969653/).

¹⁷ *Id.*

¹⁸ *Id.*; *If I Fly a UAV Over My Neighbor's House, Is It Trespassing?*, The Atlantic (Oct. 10, 2012) (online at www.theatlantic.com/technology/archive/2012/10/if-i-fly-a-uav-over-my-neighbors-house-is-it-trespassing/263431/).

¹⁹ See note 16.

²⁰ *U.S. Announces Task Force Aimed at Mandatory Drone Registration*, CNN (Oct. 19, 2015) (online at www.cnn.com/2015/10/19/politics/drone-registration-task-force-announced/).

²¹ *Drones are Good, Yet Safety is 'Paramount': Former FAA Chief*, CNBC (Mar. 22, 2015) (online at www.cnbc.com/2015/03/20/drones-are-good-yet-safety-is-paramount-former-faa-chief.html).

²² See note 20.

²³ Department of Transportation, *U.S. Transportation Secretary Anthony Foxx Announces Unmanned Aircraft Registration Requirement* (Oct. 19, 2015).

A. Current Regulation of Drones

Any aircraft operating in U.S. national airspace must be certified and registered, operated by a licensed pilot, and have the requisite operational approvals.²⁴ Commercial drones must be approved for use by the FAA.²⁵ FAA approval is not required, however, to fly a model aircraft for recreational use.²⁶ For a drone to qualify as a model aircraft, it must be operated purely for recreational or hobby purposes, and stay within the visual line of sight of the operator.²⁷

Currently, there are two ways to gain FAA approval for commercial drone use.²⁸ The first is by obtaining a UAS Special Airworthiness Certificate, which requires applicants to describe how their drone is designed, constructed, and manufactured, as well as how and where the applicant intends to fly it.²⁹ The second method is to petition for an exemption under Section 333 of the FAA Modernization and Reform Act of 2012 and obtain a civil Certification of Waiver or Authorization.³⁰ This exemption allows a drone to perform commercial operations in low-risk, controlled environments.³¹ As of November 2015, the FAA granted more than 2,000 Section 333 exemptions to companies representing a broad range of industries, including real estate, energy, and agriculture.³²

B. Regulatory Developments

In February 2015, the FAA announced a notice of proposed rulemaking for small drones, as an alternative to the current process. Under the alternative process, non-recreational, non-governmental drone use would be permissible under limited conditions, opening the door for increased commercial use.³³ The rule would limit flights of commercial drones to daylight hours

²⁴ Federal Aviation Administration, *Section 333* (online at www.faa.gov/uas/legislative_programs/section_333/) (accessed Nov. 9, 2015).

²⁵ Federal Aviation Administration, *Unmanned Aircraft Systems (UAS) Frequently Asked Questions* (online at www.faa.gov/uas/faq/#qn4) (accessed Nov. 9, 2015).

²⁶ *Id.*

²⁷ Federal Aviation Administration, *Interpretation of the Special Rule for Model Aircraft* (Jun. 18, 2014).

²⁸ Federal Aviation Administration, *Civil Operations (Non-Governmental)* (online at www.faa.gov/uas/civil_operations/) (accessed Nov. 9, 2015).

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *See* notes 2 and 24.

³³ Federal Aviation Administration, *Small UAS Notice of Proposed Rulemaking (NPRM)* (Feb. 15, 2015) (online at www.faa.gov/regulations_policies/rulemaking/recently_published/media/2120-AJ60_NPRM_2-15-2015_joint_signature.pdf).

and would require a visual line of sight between the drone and its operator.³⁴ It also would specify height restrictions, operator certification requirements, aircraft registration and marking requirements, and other limits on drone operation.³⁵ The agency is expected to announce final rules on small commercial drone use by June 2016.³⁶

Despite calls for this rulemaking to include consideration of individual privacy interests, the FAA asserted that it is not required to issue regulations to protect privacy.³⁷ The Administration, however, is aware of the privacy concerns. On February 15, 2015, President Obama issued a Presidential Memorandum addressing privacy and civil liberties issues associated with the growing domestic use of drones.³⁸ The memorandum establishes a process for stakeholders to develop best practices for privacy, accountability, and transparency issues with respect to commercial and private use of drones in U.S. airspace.³⁹ The forum is managed by the Department of Commerce through the National Telecommunications and Information Administration (NTIA).⁴⁰ NTIA held three public stakeholder meetings since August 2015, and is scheduled to hold another on November 20, 2015.⁴¹

In addition to the small UAS rulemaking, on October 19, 2015, DOT and the FAA announced a task force to develop a registration process for drones.⁴² The task force is composed of 25 representatives of the drone and manned aviation industries, the federal government, and other stakeholders, including major retailers such as Best Buy, Amazon, and WalMart.⁴³ On November 5, the task force reportedly agreed to recommend registration of recreational drones weighing more than 250 grams, which would cover most consumer drones

³⁴ *Id.*

³⁵ *Id.*

³⁶ *FAA Expects to Clear U.S. Commercial Drones Within a Year*, Reuters (Jun. 17, 2015) (online at www.reuters.com/article/2015/06/17/us-usa-drones-congress-idUSKBN0OX1P020150617#74ewuHfRWSf5CMHa.97).

³⁷ Brief for Respondents (Nov. 4, 2015), *Electronic Privacy Information Center v. Federal Aviation Administration*, D.C. Cir. (No. 15-1075).

³⁸ White House Office of the Press Secretary, *Presidential Memorandum: Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems* (Feb. 15, 2015).

³⁹ *Id.*

⁴⁰ National Telecommunications and Information Administration, *Multistakeholder Process: Unmanned Aircraft Systems* (Oct. 19, 2015).

⁴¹ *Id.*

⁴² See note 23.

⁴³ *FAA Announces Drone Registration Task Force Members; Wal-Mart, Best Buy and Amazon Included*, Forbes (Oct. 29, 2015) (online at www.forbes.com/sites/johngoglia/2015/10/29/faa-announces-drone-registration-task-force-members-walmart-best-buy-and-amazon-included/).

other than toys.⁴⁴ It also plans to recommend that users register their drones for free by entering their names and addresses into a government-sanctioned website or app.⁴⁵

As of October 2015, 26 states have enacted laws addressing drone issues and an additional six states have adopted resolutions.⁴⁶ The state legislation generally addresses the definition of a drone and the use of drones by both law enforcement and the public, in many cases addressing individual privacy and surveillance concerns.⁴⁷

V. WITNESSES

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⁴⁴ *U.S. Task Force to Recommend Drone Registration, Sources Say*, Wall Street Journal (Nov. 6, 2015) (online at www.wsj.com/articles/u-s-task-force-to-recommend-drone-registration-sources-say-1446788167).

⁴⁵ *Id.*

⁴⁶ National Conference of State Legislators, *Current Unmanned Aircraft State Law Landscape* (Oct. 8, 2015) (online at www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx).

⁴⁷ *Id.*; *State Legislation Governing Private Drone Use*, Washington Post (Sept. 25, 2015) (online at www.washingtonpost.com/news/volokh-conspiracy/wp/2014/09/25/state-legislation-governing-private-drone-use/).