

GUEST EDITORIAL

Drones for Electric Cooperatives:
Ready for Take-off?

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A lineman conducts a detailed inspection of pole attachments without climbing the pole. A cooperative's maintenance supervisor assesses storm damage in real-time from his office before dispatching crews to the exact locations of outages. These aren't visions of the cooperative of the future, these are examples of what is possible through advances in unmanned aircraft systems, more commonly referred to as drones. While a lineman using a small drone to inspect a power pole is possible today, federal regulations don't yet allow the type of autonomous drone-based storm assessments described above. Nevertheless, regulations and technology are both changing quickly and such drone uses could become a reality in the near future. This editorial provides an introduction to drones and their potential use in the electric utility context, and discusses key federal regulatory requirements and state law issues for cooperatives considering this new and evolving technology.

Let's start with some fundamental legal definitions and terminology. Under federal law, an "aircraft" is "any contrivance invented, used, or designed to navigate, or fly in, the air."¹ An "unmanned aircraft" (UA) is "an aircraft that is operated without the possibility of direct human intervention from within or on the aircraft."² The National Transportation Safety Board has determined that the small drones that are

becoming increasingly popular and which are the subject of this editorial are subject to regulation as "aircraft."³ The Federal Aviation Administration (FAA) uses the term "unmanned aircraft system" (UAS) to encompass the aircraft, the sensors or payload installed on the aircraft, and the communications and flight control systems, all of which are required to safely operate the aircraft.⁴ While UA can range in size from a few ounces to several thousand pounds, the focus of the present discussion is on small UAS (sUAS), that is, those weighing less than 55 pounds. These sUAS are very different from the larger UA that the public is generally familiar with from movies and news reports of counterterrorist operations conducted by the military.

The Benefits of Drones

Small UAS offer numerous benefits to the electric utility industry in terms of cost, ease and flexibility of use, data acquisition, and safety. Cooperatives and other electric utilities have substantial experience using manned aircraft for infrastructure patrols and inspections. Depending on whether the utility is flying its own airplane or helicopter or contracting with an aviation services company, manned aircraft operating costs can exceed \$1,000 per hour. An sUAS, however, can be operated typically for less than \$100 per hour.⁵ Small UAS also offer labor and cost savings as

Continued on page 2



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Drones for Electric Cooperatives: Ready for Take-off?

continued from page 1

compared to ground patrols conducted from vehicles or on foot, especially in locations involving difficult terrain or environmentally sensitive areas. Manned aircraft typically must be scheduled well in advance, and the planned operation is vulnerable to weather conditions. By comparison, a utility-owned sUAS may be launched on short notice and may be flown in conditions that would otherwise ground a manned aircraft. From a data acquisition perspective, both manned aircraft and UA can deploy a

variety of equipment such as high definition video and still cameras, infrared cameras, acoustic sensors, and light detection and ranging (commonly referred to as LIDAR). However, the small size and flight capabilities of sUAS allow utilities to acquire more detailed data than may otherwise be available from larger, faster manned aircraft. Finally, sUAS offer the important advantage of eliminating the risks to pilots and crews when conducting airborne patrols and inspections. Recognizing these benefits, cooperatives and other electric utilities have been gaining experience with sUAS in support of various operations such as patrolling transmission lines and rights-of-way, locating and assessing distribution system storm damage, inspecting vertical infrastructure such as stacks and communication towers, examining the insides of boilers, and inspecting solar power and wind power equipment.

FAA Regulations and Exemptions

So, let's say you're sold on these potential benefits and want to add sUAS to your cooperative's operations and maintenance capabilities. Before you start flying, you need to obtain permission from the FAA. The FAA has stated, "No person may operate a UAS in the National Airspace System without specific authority."⁶ As of this date, the primary means to obtain such authority for commercial UAS operations is to apply for an exemption under Section 333 of the 2012 FAA Modernization and Reform Act (FMRA).⁷ The FMRA directed the Secretary of Transportation to develop a comprehensive plan and undertake a rulemaking to "provide for the safe integration of civil unmanned aircraft systems into the national airspace system as soon as practicable, but not later than September 30, 2015."⁸ Until the

required plan and rules are in effect, FMRA authorizes the Secretary to determine whether certain civil UAS can be operated safely in the national airspace system and, if so, to approve such operations subject to appropriate conditions.⁹

In general, a Section 333 exemption petition requires information concerning the specific sUAS to be used, a description of how and where the sUAS will be used, a discussion of the specific Federal Aviation Regulations from which an exemption is sought, and an explanation of why the exemption would not harm public safety.¹⁰ If granted, the exemption will typically specify conditions and limitations on sUAS operations, including: the UA must weigh less than 55 pounds; it must be flown no higher than 400 feet above the ground and may not fly faster than 100 MPH; the UA may only be flown during the day; sUAS operations may not be conducted within five miles of an airport and must remain 500 feet from all persons not involved in the sUAS operation; and the sUAS may only be flown over controlled access property or private property with the permission of the property owner. Most importantly, the exemption will require the sUAS to remain at all times within the visual line of sight (VLOS) of the operator, and the operator must hold a valid pilot's license and either a current FAA medical certificate or a driver's license.¹¹

Of the typical conditions included in Section 333 exemptions, the VLOS and pilot's license requirements may present the most significant obstacles to cooperatives seeking to deploy sUAS. Requiring the sUAS to remain within the VLOS of the operator at all times prohibits cooperatives from using sUAS to inspect transmission or distribution lines beyond the short distance that

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the operator can see the sUAS. Similarly, requiring the sUAS operator to have a pilot's license limits the number of cooperative employees who would be able to operate the sUAS. Despite these challenges, electric utilities across the country have obtained or are seeking Section 333 exemptions to deploy sUAS for commercial purposes, including Sho-Me Power Electric Cooperative, San Diego Gas & Electric, Commonwealth Edison, Southern Company, Arizona Public Service, Duke Energy, NextEra, PPL Electric Utilities, Consumers Energy, Idaho Power, Pacific Gas & Electric, Dominion Resources, and Xcel Energy.¹²

Okay, now that you've obtained your Section 333 exemption, are you ready to fly? Not yet. You must still obtain an FAA Certificate of Waiver or Authorization (COA). The COA is used to inform the local air traffic control authority of your planned sUAS operations. As of March 23, 2015, the FAA issues automatically a "blanket" COA with the Section 333 exemption. The blanket COA authorizes sUAS flights at or below 200 feet in any location the UA is otherwise authorized to fly. While the 200-foot altitude allowed under the blanket COA may be sufficient for most electric cooperative purposes, if you intend to operate the sUAS above this altitude or want to depart from the other blanket COA parameters, a separate COA must be obtained.¹³

As of February 15, 2015, only 20 Section 333 exemptions had been granted. Since then, the FAA has granted more than 800 additional exemptions with several hundred additional petitions pending. What prompted the sudden increase in Section 333 exemptions? On February 23, 2015, the FAA issued a Notice of Proposed Rulemaking related to per-

manent rules governing the "Operation and Certification of Small Unmanned Aircraft Systems."¹⁴ The proposed rules incorporate many of the same requirements, conditions and limitations set forth in the Section 333 exemptions, with two notable exceptions: sUAS operations would be permitted up to an altitude of 500 feet, and the sUAS operator would not be required to possess a pilot's license but would be required to obtain an FAA UAS Certification.¹⁵ Similar to concerns raised with regard to the Section 333 exemption limitations and conditions, many comments filed in connection with the proposed rules focused on the continuing VLOS requirement, the prohibition on autonomous sUAS operations, the restriction to daytime flights only, and the prohibition on flights over persons unrelated to the sUAS operation.¹⁶ At this time, the final sUAS rules are not expected until mid-2016.

Property Rights and Privacy

Despite concerns with the proposed rules and their limitations on the potential uses of sUAS, commercial interest in sUAS is growing rapidly, as evidenced by the number and variety of companies and individuals applying for Section 333 exemptions and stories in the public press related to the many beneficial uses of sUAS. This interest, however, has also prompted public concerns related to the privacy and property rights implications of drones as well as law enforcement uses of sUAS. According to the National Conference of State Legislatures, 45 states considered 153 drone-related bills in 2015, and 26 states so far have enacted some form of drone-related legislation.¹⁷ Given that FMRA did not include an express preemption provision with regard to regulation of sUAS, there is a question of where the

FAA's authority ends and permissible state and local regulation begins. As a result, it is not sufficient for electric cooperatives to simply obtain the necessary FAA approvals for sUAS operations; cooperatives must also be aware of and comply with applicable state laws and local ordinances.

Property rights issues related to drone flights center on the extent of a landowner's rights in the airspace above his or her property. The U.S. Supreme Court (Court) has made clear that, in the context of modern aviation and public airspace, the historic doctrine of *cujus est solum, ejus est usque ad coelom* (whose is the soil, his it is up to the sky) no longer applies.¹⁸ The Court stated, "The landowner owns at least as much of the space above the ground as he can occupy or use in connection with the land."¹⁹ Given that the Court did not establish a specific altitude for the extent of a landowner's airspace rights, the question of when an aircraft commits a trespass is often a case-by-case factual determination. With the proliferation of small recreational and commercial drones and the public concerns they have engendered, some states are pursuing legislation to specifically define the altitude below which a drone flight would be trespassing on private property.²⁰ Electric cooperatives operating sUAS must be aware of, and comply with, applicable state laws concerning airspace rights to avoid inadvertently committing a trespass. Similarly, cooperatives should review existing easements to determine whether use of sUAS for inspection and maintenance activities is consistent with the rights granted by the landowner.

Drone-related privacy issues are of equal concern to many members of the public and state legislators. These concerns focus generally on an individual's

Continued on page 4

Drones for Electric Cooperatives: Ready for Take-off?

continued from page 3

reasonable expectation of privacy. There are numerous court decisions addressing this issue in the context of Fourth Amendment challenges to law enforcement use of manned aircraft.²¹ While these cases dealt specifically with law enforcement operations, the courts' discussions of airspace and privacy are likely to help inform future court decisions and legislation related to drones and privacy. Recognizing the public's privacy concerns, President Obama issued a Presidential Memorandum establishing certain privacy protections related to federal government UAS operations, and directing the National Telecommunications Information Administration (NTIA) to undertake a multi-stakeholder process "to develop and communicate best practices for privacy, accountability, and transparency issues regarding commercial and private UAS use."²² While the voluntary NTIA process continues, several states have enacted laws specifically addressing drones and privacy.²³ This is another area where electric cooperatives will need to be mindful of state laws concerning the use of drones and inadvertent privacy-related liabilities.

With regard to both property rights and privacy issues, cooperatives should appreciate that the idea of an sUAS flying over private property will be new to most people. A landowner may associate a helicopter hovering near a power line with legitimate utility activities, however, the small size and practical anonymity of a drone can create understandable anxiety on the landowner's part. Cooperatives should consider a public education campaign to inform members that sUAS are being added to the cooperative's operation and main-

tenance activities, explain how the drones will be used, and emphasize the cost and reliability benefits afforded by this new technology.

Finally, a word about insurance. Do not assume that your cooperative's existing general liability policy covers sUAS operations. A growing number of insurers are offering UAS-specific policies and riders. Cooperatives are well-advised to consult with their insurer concerning risks related to the sUAS itself, third party injury and property damage, cybersecurity, and worker's compensation.

Conclusion

Now that you've obtained your FAA approvals, complied with applicable state

and local laws, checked your cooperative's insurance, and lined-up an experienced drone pilot, you're ready for take-off. Small UAS offer significant benefits for electric cooperatives and, in time, may be as common as the bucket truck. Realizing these benefits, however, will require cooperatives to stay informed regarding the evolving federal and state UAS regulatory framework, manage public perceptions and concerns, and learn how to integrate this new technology into existing operations. For now, when it comes to electric cooperatives' use of sUAS, the sky's the limit. If you have questions, please contact me at 303-628-9524 or TDougherty@LRRLaw.com.

¹ 49 U.S.C. § 40102(a)(6).

² P.L. 112-95, Section 331(8).

³ *Huerta v. Pirker*, N.T.S.B. Opinion and Order (November 18, 2014), Docket CP-217.

⁴ P.L. 112-95, Section 331(9).

⁵ See generally Chris Mailey, *Are UAS More Cost Effective than Manned Flights*, (Oct. 24, 2013), <http://www.auvsi.org/hamptonroads/blogs/chris-mailey/2013/10/24/are-uas-more-cost-effective-than-manned-flights>.

⁶ FAA Notice No. 07-01, Policy Statement, *Unmanned Aircraft Operations in the National Airspace System*, (Feb. 13, 2007) Docket No. FAA-2006-25714.

⁷ Separate authorities and regulations apply to the recreational use of model aircraft and UAS operations by government agencies. See P.L. 112-95, Section 336, Special Rule for Model Aircraft, and Section 334, Public Unmanned Aircraft Systems. A discussion of these UAS operations is beyond the scope of this editorial.

⁸ P.L. 112-95, Section 332(a).

⁹ P.L. 112-95, Section 333.

¹⁰ The FAA's Guidelines for Submitting a Petition for Exemption are available at: <http://aes.faa.gov/Petition>.

¹¹ An example of a Section 333 exemption granted for electric utility purposes, including applicable conditions and limitations may be found at: https://www.faa.gov/uas/legislative_programs/section_333/333_authorizations/media/Duke-Energy-Business-Services-LLC-12106.pdf.

¹² The Sho-Me Power Electric Cooperative request for Section 333 exemption is available at: <http://www.regulations.gov/index.jsp#!documentDetail;D=FAA-2015-2830-0001>.

¹³ Further information concerning the COA requirement and the blanket COA is available at: https://www.faa.gov/uas/legislative_programs/section_333/how_to_file_a_petition.

¹⁴ Docket No. FAA-2015-0150; Notice No. 15-01; available at: https://www.faa.gov/regulations_policies/rulemaking/recently_published/media/2120-AJ60_NPRM_2-15-2015_joint_signature.pdf.

¹⁵ A summary of the major provisions of the proposed rules is available at: https://www.faa.gov/regulations_policies/rulemaking/media/021515_sUAS_Summary.pdf.

¹⁶ For example, see the April 24, 2015 rulemaking comments filed by the National Rural Electric Cooperative Association (NRECA), available at: <http://www.regulations.gov/#!documentDetail;D=FAA-2015-0150-4248>. If you have questions about NRECA's comments, please contact Paul Breakman, NRECA Associate Director Regulatory Counsel, at paul.breakman@nreca.coop or 703-907-5844.

¹⁷ See <http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx>.

¹⁸ *United States v. Cauby*, 328 U.S. 256, 260-61 (1946); Black's Law Dictionary 378 (6th ed. 1990).

¹⁹ *Id.* at 264.

²⁰ See, e.g., S.B. 142, 2015-2016 Regular Session (Ca. 2015).

²¹ See, e.g., *California v. Ciraolo*, 476 U.S. 207 (1986), and *Florida v. Riley*, 488 U.S. 445 (1989).

²² *Presidential Memorandum: Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems* (Feb. 15, 2015), <https://www.whitehouse.gov/the-press-office/2015/02/15/presidential-memorandum-promoting-economic-competitiveness-while-safegua>.

²³ See, e.g., H.B. 1349, 90th General Assembly (Ar. 2015)(use of a UAS to commit voyeurism), S.B. 766, 2015 Legislature (Fl. 2015)(prohibiting drone surveillance when a reasonable expectation of privacy exists).

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