

How Energy and Water Utilities Use Drones Issue Brief

SUMMARY

As energy and water utilities modernize their infrastructure, they are becoming more interested in the capabilities of so-called “unmanned aircraft systems” (UASs), more commonly known as drones, can offer to support their maintenance and restoration efforts. Many utilities are using drones to provide aerial views of key infrastructure, such as substations, power lines, transmission towers, and other hard-to-reach pieces of equipment.

Many utilities use drones in connection with, and as a supplement to, existing inspection operations performed by line crews. UAS are also uniquely suited to assess the damage to utility infrastructure in the aftermath of natural disasters. Indeed, utilities have used drones to safely take stock of damaged or flooded systems, instead of sending crews into dangerous locations.

Drones can offer tremendous advantages for these kinds of “Visual Line of Sight” operations—which require drones to be used within the sightline of those operating it. However, to take full advantage of the promise drones can offer, utilities need to be able to operate drones beyond the visual line of sight. Doing so would promote the safety and security of the utility workforce charged with restoring power.

UTC POSITON

In that context, the Utilities Technology

Council (UTC) supports utility efforts to gain access to interference-free licensed spectrum to facilitate the safe, reliable and effective use of drones for utility operations. The radio portion of the electromagnetic spectrum is needed to enable wireless applications such as those used to operate drones.

UTC is working with utilities and industry organizations to support utility applications for drones and influence the regulatory and legislative landscape so that this technology can enhance utility operations and, in turn, the service utilities provide.

BACKGROUND

Federal Aviation Administration (FAA) rules limit small drones (*i.e.* under 55 lbs/25 kg) to operate only at Visual Line of Sight operations. Under these rules, small drones must:

- Stay within Visual Line of Sight of an operator;
- Stay under an altitude of 400 feet; and,
- Avoid flights over people who are not a part of the drone operation.

Utilities can apply for a waiver from these restrictions. Indeed, during the 2017 hurricane season, UTC facilitated a waiver for a utility member to use drones in their service restoration efforts. For example, some utilities have applied for waivers to operate drones for Beyond Visual Line of Sight (BVLOS) applications. A small

number of UTC members have already conducted BVLOS flights in one of the six test sites designated by the FAA.

Several utilities have conducted successful flights under Visual Line of Sight conditions. The data collected from these flights is then incorporated into the utilities' geographic information system (GIS) to facilitate analysis. By incorporating several departments in the analysis of the data, utilities are looking to create synergies and enhance the effectiveness of their operations.

SITUATIONAL AWARENESS

In addition to its efforts to lift these restrictions on drone usage, UTC is also working with utilities and others to promote reliable communications for drones. This will likely require making available interference-free spectrum for drone use for command and control functionality. In addition, licensed or unlicensed spectrum may need to be made available for video applications. UTC looks forward to working with the FAA and other agencies on this important effort.

UTC is also reviewing, in cooperation with other industry associations, what spectrum band or bands would be the most suitable for utility drone operations, especially for BVLOS operations. UTC is concerned about possible interference to drones

that communicate solely using unlicensed spectrum, and it is exploring the opportunities that may exist to access licensed spectrum as a supplement to or as an alternative to the use of unlicensed spectrum. This could also extend the range for communications with drones, which, in turn, could facilitate utility service restoration over a wide area in the aftermath of a hurricane, storm or other natural disaster.

ABOUT UTC

The Utilities Technology Council (UTC) is the global trade association dedicated to serving critical infrastructure providers. Through advocacy, education and collaboration, UTC creates a favorable business, regulatory and technological environment for companies that own, manage or provide critical telecommunications systems in support of their core business.

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