February 11, 2026

Via Electronic Submission at www.regulations.gov

Docket No. FAA–2025–1908
United States Department of Transportation Federal
1200 New Jersey Avenue, SE
Room W12-140, West Building Ground Floor
Washington, DC 20591

Re: Edison Electric Institute (EEI), American Public Power Association (APPA), National Rural Electric Cooperative Association (NRECA), and Large Public Power Council (LPPC) Comments on the Federal Aviation Administration, Transportation Security Administration Notice of Proposed Rulemaking "Normalizing Unmanned Aircraft Systems Beyond Visual Line of Sight Operations" [Docket No. FAA-2025-1908]

To Whom It May Concern:

The Edison Electric Institute (EEI), the American Public Power Association (APPA), the National Rural Electric Cooperative Association (NRECA), and the Large Public Power Council (LPPC) (collectively, "the Associations") appreciate the opportunity to comment on the FAA's request for input on electronic conspicuity (EC), Automatic Dependent Surveillance-Broadcast (ADS-B), and alternative detectability technologies that support safe integration of all airspace users into the National Airspace System (NAS).[1]

America's electric utilities operate and maintain millions of miles of transmission and distribution lines that keep communities safe, healthy, and productive.[2] Unmanned aircraft systems (UAS) are now indispensable to this mission, enabling inspections, wildfire-mitigation patrols, storm damage assessments, and rapid restoration across vast and often remote rights-of-way (ROWs). These missions occur predominantly below 500 feet above ground level (AGL) and increasingly Beyond Visual Line of Sight (BVLOS), in the same wire-rich environment

[1] Normalizing Unmanned Aircraft Systems Beyond Visual Line of Sight Operations: Reopening of Comment Period, 91 Fed. Reg. 3695 (proposed Jan. 28, 2026)
[2] "How UAS Tech is Revolutionizing Utility Inspections," Matt Zafuto, Cyberhawk (July 23, 2025) (According to North American Electric Reliability Corporation (NERC), there are more than 500,000 miles of high-voltage transmission lines in the United States plus 5 million miles of distribution lines). https://www.renewableenergyworld.com/power-grid/outage-management/how-uas-tech-is-revolutionizing-utility-inspections/

where low-flying manned aircraft also operate. The common denominator for safety at scale is cooperative detectability where every aircraft can "detect and be detected."[3]

The Associations urge the FAA to adopt a framework that: (1) requires universal EC below 500 feet AGL for all aircraft (manned and unmanned; public, commercial, and recreational) interoperable with Unmanned Aircraft System Traffic Management (UTM) and legacy surveillance, with unequipped access limited to true emergencies; (2) replaces duplicative non-cooperative detect-and-avoid (DAA) mandates in EC-required low-altitude airspace with cooperative EC as the foundational layer, using sensors only where risk-analysis shows need; and (3) codifies shielded operations and utility corridors by defining shielded airspace 200 feet around critical infrastructure and clarifying right-of-way expectations. This approach aligns safety, operational scalability, and economic efficiency.

I. Background

Utilities must inspect, maintain, and rapidly restore a network that will expand substantially in coming decades to support electrification and reliability. BVLOS UAS dramatically improves the frequency, coverage, and quality of these inspections while keeping workers out of harm's way and reducing helicopter exposure. The FAA's own data show that BVLOS operations are increasing rapidly (from 1,229 approvals in 2020 to 26,870 in 2023),[4] underscoring the need for standardized detect-and-be detected framework at low altitude so this growth proceeds safely and efficiently.

II. Universal EC below 500 AGL is necessary and cost-effective

A. Low-altitude risk is concentrated and "see-and-avoid" is insufficient

Low-altitude airspace is where collision risk concentrates and traditional "see and avoid" is not capable of sufficiently managing that risk. Wire-strike accidents remain one of the most persistent and well documented hazards in this environment, with FAA data showing approximately 76 such accidents annually over a 13-year period and fatalities in nearly 30 percent of them.[5] Many occur in daylight visual meteorological conditions, underscoring that even highly experienced pilots cannot reliably detect electric wires in utility corridors. Electric

[3] "FAA Has Made Progress in Advancing BVLOS Drone Operations but Can Do More to Achieve Program Goals and Improve Analysis," U.S. DOT OIG, Report AV2025034 (June 30, 2025) (FAA OIG BVLOS approvals growth and explaining need for scalable detectability below 500 ft AGL). https://www.oig.dot.gov/sites/default/files/library-items/FAA%20BVLOS%20Drone%20Operations%20Final%20Report_6.30.2025.pdf

[4] Id.

[5] US Dept. of Transportation, Federal Aviation Commission, Safety Alert for Operators, SAFP 10015 (Aug. 6, 2010). https://www.faa.gov/sites/faa.gov/files/other_visit/aviation_industry/airline_operators/airline_safety/SAFO10015.pdf

wires simply cannot be detected consistently, early, or at sufficient distance to ensure safe maneuvering.

Accident investigations, particularly those involving fatal helicopter collisions with lines along transmission corridors, demonstrate that see-and-avoid fails precisely where utilities and low-flying aircraft operate.[6] These are the same corridors where utility UAS conduct inspections at low altitude, and in close proximity to energized infrastructure. Without universal cooperative means of detectability, both manned pilots and remote pilots face unacceptable uncertainty about who is in the airspace and where they are.

The economic consequences of wire-strike accidents further strengthen the safety case for universal detectability. Each collision carries substantial direct and indirect costs, including loss of aircraft, fatalities or severe injuries, litigation exposure, higher insurance premiums, and damage to electric infrastructure that can trigger outages, wildfires, and costly emergency restoration. Because these accidents disproportionately occur at the lowest altitudes, reducing collision risk in this specific airspace produces immediate and substantial safety and economic benefits. Universal cooperative detectability is therefore not just an operational improvement, it is a cost-effective, system-level intervention to reduce high-consequence risks in low altitude airspace.

B. Electronic Conspicuity as the foundational safety layer

EC provides a scalable and practical method for improving safety in low-altitude airspace. ADS-B/978 MHz Universal Access Transceiver (UAT) and related radio frequency (RF)-based technologies offer a near-term, low-cost way to make all aircraft electronically visible without relying on heavy, power-intensive sensors.[7] These EC solutions are lightweight, affordable, and readily scalable, making them well-suited for widespread use below 500 feet AGL, where manned aircraft, commercial UAS, public safety operators, and utility BVLOS missions increasingly converge. International regulators, including the UK Civil Aviation Authority (UK CAA), have likewise concluded that EC is essential to "detect-and-be-detected"

[6]National Transportation Safety Board (NTSB), Aviation Investigation Final Report, ERA21LA269 (June 25, 2021) (helicopter wire strike near transmission line). https://data.ntsb.gov/carol-repgen/api/Aviation/ReportMain/GenerateNewestReport/103346/pdf

[7] UAT is the 978 MHz component of ADS-B and is designed specifically for U.S. low-altitude aviation. It supports both ADS-B Out (broadcasting position) and ADS-B In (receiving traffic and weather), making it particularly useful for general aviation and other low-altitude users. See Highly Automated Systems Safety Center of Excellence and U.S. Department of Transportation, "Electronic Conspicuity: Exploring the Use of Advanced Radiofrequency Technologies to Enable Unmanned Aircraft Systems Integration," Christopher M Nassiff, Senior Scientist, USDOT, at 14 (Nov. 2024) (near-term, lower-cost detectability at low altitude via ADS-B/UAT and related broadcast). https://www.transportation.gov/sites/dot.gov/files/2024-11/Electronic-Conspicuity_White-Paper_11.18.24.pdf

operations, and that its safety benefits depend on broad and consistent adoption.[8] This experience is directly relevant to the increasingly mixed low altitude environment in the United States.

A standardized, interoperable EC framework—rather than today's patchwork of bespoke detect-and-avoid systems—provides a predictable and harmonized basis for both strategic deconfliction and real-time situational awareness, eliminating duplicative technologies and improving safety across all low-altitude users.

Equally important, EC can be deployed at scale immediately. Utilities cannot wait for sensor-heavy detect-and-avoid architectures that will take years to mature and remain too costly or power-intensive for many UAS platforms. An ADS-B-based EC network delivers the fastest, most affordable path to enabling BVLOS missions critical for wildfire mitigation, storm response, and routine grid reliability work. As detailed in Appendix A, universal EC paired with BVLOS operations reduces helicopter-related risks and costs, increases inspection frequency and data quality, improves early detection of equipment defects, and reduces wildfire ignition and liability exposure. These efficiencies grow as the grid expands to meet electrification and resilience needs, making universal EC the most cost-effective and operationally sound foundation for safe, routine BVLOS at national scale.

C. Protection of line crews and utility work zones

Utilities also face significant risks from UAS operating near elevated work platforms, bucket trucks, cranes, and line crews working 50–120 feet above ground. Although EC does not identify stationary objects, it reduces airborne uncertainty by ensuring that all aircraft are electronically visible to one another. This allows UAS manufacturers and operators to focus detect-and-avoid resources on the hazards that require them the most, namely obstacles, structures, and workers, rather than duplicating airborne deconfliction functions. Universal EC therefore provides the foundational layer of awareness needed to enhance both aviation safety and the safety of line crews working in one of the nation's most hazardous environments.

III. Recommendations

A. Universal EC below 500 Feet AGL

Requiring all aircraft operating below 500 feet AGL to meet a performance-based EC standard, which is interoperable with UTM and existing surveillance, is the simplest and most effective means of ensuring cooperative deconfliction in the low altitude environment. Access for unequipped aircraft should be limited to true emergencies. This approach focuses on the

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[8] UK CAA (detect-and-be-detected and effectiveness with universal equipage). https://www.caa.co.uk/General-aviation/Aircraft-ownership-and-maintenance/Electronic-Conspicuity-devices/

airspace where collision risk is highest, aligns with international practice, and provides utilities a predictable, scalable safety architecture.[9]

Universal EC is not a technical upgrade; it is the foundation for any BVLOS framework capable of supporting the nation's growing operational needs. Today's BVLOS missions span commercial, public safety, and the utility sector relies on waiver-based models that are costly, difficult to scale, and leave much of the low-altitude environment effectively unmanaged. A universal EC requirement below 500 feet AGL creates the shared situational awareness needed for predictable, repeatable operations across all aircraft types—manned and unmanned public and private.

For utilities, universal EC unlocks routine BVLOS inspections across millions of miles of transmission and distribution lines. Current inspection practices rely heavily on helicopters and trucks, which are expensive, slower to deploy, and carry higher safety risks. EC-enabled BVLOS operations increase inspection frequency, improve hazard detection, and reduce both accident exposure and cost per mile, which are benefits that become even more important as the grid expands to meet electrification and resilience needs.

Ultimately, universal EC below 500 feet AGL is the central enabler of BVLOS at scale. It enhances safety, lowers system-wide costs, accelerates modernization of critical-infrastructure inspection, and provides the regulatory certainty needed for sustained investment. Without universal EC, BVLOS remains a limited, waiver-dependent activity, whereas with it, BVLOS becomes a safe, routine, and economically viable capability that strengthens both the NAS and the nation's critical infrastructure.

B. Replace redundant non-cooperative DAA mandates in EC-required airspace

Where universal EC is required, mandating non-cooperative DAA systems adds cost, complexity, and performance penalties without providing proportional safety benefits. These sensors can be useful for addressing specific residual risks, but they are not an efficient or scalable substitute for a cooperative detection layer in low-altitude airspace. Requiring every aircraft to carry non-cooperative DAA in an environment where all aircraft are already electronically visible duplicates capability, fragments the safety architecture, and consumes payload, power, and processing capacity that operators need for mission performance.

Non-cooperative DAA also imposes significant operational burdens, particularly on small UAS used in utility and other low-altitude missions. Added weight reduces battery life, limits payload flexibility, and drives up acquisition and maintenance costs. For BVLOS operations that must cover long linear corridors, these penalties translate directly into fewer miles inspected, less data collected, and slower detection of potential hazards. Imposing redundant sensor requirements undermines the very efficiency and scalability that BVLOS is intended to deliver.

[9] Supra at n.5.

A universal cooperative EC layer below 500 feet AGL provides the shared situational awareness needed for safe operations while allowing non-cooperative sensors to be reserved for targeted, risk-based applications, such as work near obstacles, in cluttered environments, or in degraded RF conditions. This approach is consistent with performance-based regulation because it avoids unnecessary equipage mandates, optimizes sensor use where it is most effective, and ensures that operators can focus resources on the risks that matter. Reducing redundant non-cooperative DAA requirements in EC-enabled airspace is therefore not a reduction in safety, it is a rational alignment of regulatory obligations with actual risk, enabling BVLOS to scale efficiently, economically, and safely.

C. Codify shielded operations and utility corridors to enable scalable BVLOS

1. Shielded operations near infrastructure

Shielded operations near fixed infrastructure represent one of the most well-understood, lowest-risk environments for BVLOS flight, and recognizing this formally in regulation is essential to creating a workable, economically viable BVLOS framework. Manned aircraft rarely operate intentionally in close proximity to wires, poles, towers, or other fixed obstacles associated with electric utility corridors. This significantly reduces conflict likelihood and provides a natural buffer that can be leveraged to enable safe, repeatable BVLOS operations without imposing unnecessary equipment or procedural burdens. The FAA's own BVLOS Aviation Rulemaking Committee (ARC) identified infrastructure-shielded airspace as a validated, data-supported means of reducing operational risk,[10] and utilities have repeatedly demonstrated through existing waivers and operational experience that shielded BVLOS can be conducted safely, efficiently, and with far lower detect-and-avoid requirements than unshielded operations.

Codifying shielded operations, defined as airspace extending 200 feet in all directions around critical infrastructure,[11] including transmission and distribution infrastructure,[12] would improve safety predictability and materially reduce the cost and complexity of obtaining BVLOS authority for routine utility missions. This would provide operators with the regulatory certainty required to scale BVLOS across long linear networks and would also harmonize expectations between manned and unmanned aircraft, clarify right-of-way responsibilities, and reduce operational ambiguity that currently forces utilities into conservative, labor-intensive procedures. By establishing consistent dimensions for shielded airspace, the FAA would allow utility operators to plan, automate, and standardize inspection routes, reducing manual

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[10] Unmanned Aircraft Systems Beyond Visual Line of Sight Aviation Rulemaking Committee, Final Report, at 36 (March 10, 2022) (Infrastructure shielding as low-risk BVLOS pathway) ("BVLOS ARC Report).
[11] This would provide a prudent margin for conductor sway, terrain variation, and vegetation.
[12] See id. The BVLOS ARC Report proposed that shielded operations would be defined as "a volume of airspace that includes 100' above the vertical extent of an obstacle or critical infrastructure and is within 100 feet of the lateral extent of the same obstacle or critical infrastructure as defined in 42 U.S.C. 5195(c)."

oversight, improving response times, and strengthening the reliability and resilience of the electric grid.

Formal recognition of utility corridors as designated low-risk BVLOS environments also carries important economic benefits. Without a clearly defined shielded regime, utilities must pursue individual waivers, conduct duplicative safety analyses, and adapt operations to inconsistent local interpretations, adding cost, delay, and administrative burdens that scale poorly across millions of miles of infrastructure. A codified framework streamlines these processes, allowing utilities to deploy BVLOS at scale, reduce helicopter flight hours, expand preventive maintenance, and improve situational awareness during wildfire and storm response conditions. In short, shielded operations are not a niche accommodation, but rather they are an essential, risk-proportionate regulatory tool that enables the FAA to unlock substantial safety, economic, and infrastructure resilience benefits while preserving the safety expectations of manned aviation.

2. ROW expectations and safe distance requirements

ROW rules must be clear, practicable, and anchored in real-world operational realities. Utilities cannot reliably yield to aircraft they cannot detect, and any framework that presumes they can will fail in exactly the environments where the risk is greatest. Accordingly, any aircraft, manned or unmanned, operating below 500 feet AGL within or near utility corridors should be required to meet EC standards so that all airspace users share a common, cooperative visibility baseline. Within this framework, UAS operators, particularly those conducting utility missions, should yield to manned aircraft whenever feasible, but only within a system where both parties have the situational awareness necessary to do so safely.

All non-utility aircraft operating near electric infrastructure must also maintain appropriate safe-distance buffers to minimize the risk of conflicts with line crews, elevated platforms, or UAS engaged in inspection or restoration activities. Specially trained and qualified utility UAS operators may operate at different, mission-specific separation tolerances due to their specialized procedures, certification, and understanding of grid infrastructure. Clear separation expectations reduce both collision probability and the risk of equipment-related wildfire ignitions, events that have historically caused devastating human, economic, and infrastructure losses. Instituting predictable ROW and separation rules within EC-enabled corridors therefore enhances safety for all airspace users while allowing utilities to perform essential reliability and emergency-response missions efficiently and without unnecessary operational uncertainty.

IV. Conclusion

Universal EC below 500 feet AGL is an effective, affordable, and interoperable method to make low-altitude, mixed operations safe at scale. It enables routine BVLOS for electric utility missions that directly enhance wildfire prevention, storm response, and grid reliability, while reducing collision risk, litigation exposure, and unnecessary equipage burdens. An EC-centric, performance-based framework aligns aviation safety with national infrastructure resilience and economic efficiency. The Associations respectfully urge the FAA to adopt this approach.

Respectfully submitted,

The Edison Electric Institute (EEI)
The American Public Power Association (APPA)
The National Rural Electric Cooperative Association (NRECA)
The Large Public Power Council (LPPC)

APPENDIX A:
ECONOMIC IMPACTS OF UNIVERSAL EC AND ENABLING BVLOS.

Universal EC unlocks safe, routine BVLOS operations at scale and delivers substantial economic benefits:

- **Avoided costs from reduced helicopter operations:**
  - Universal EC enables routine BVLOS UAS operations has the potential to reduce helicopter flights, delivering immediate reductions in operational cost and aviation risk. With a cooperative detect-and-be-detected environment, utilities can shift recurring inspection and patrol work from manned aircraft to BVLOS UAS, lowering exposure in the most wire-dense portions of the NAS.
  - Reducing helicopter flight hours directly lowers fuel, maintenance, and labor expenses.
  - EC-enabled BVLOS UAS operations allows for the potential of repeatable inspection routes with higher data quality and far lower operating costs than manned aircraft.
  - Routine BVLOS missions improve inspection coverage, standardize data collection, and reduce the marginal cost of each additional circuit inspected. These efficiencies only scale when EC provides predictable cooperative awareness at low altitude.
- **Wildfire loss avoidance and reliability protection:**
  - EC-enabled BVLOS UAS inspections allow for more frequent, lower-cost inspections that improve early detection of defects and encroachment conditions that can lead to ignition.[13] By providing a predictable cooperative detect-and-be-detected environment, EC makes these higher-frequency BVLOS inspections routine and scalable across large service territories.
  - Delayed detection of equipment defects significantly increases wildfire risk and EC-enabled BLVOS directly mitigates this by expanding inspection coverage and reducing intervals between patrols.
  - The 2018 California wildfire attributed to transmission equipment failure, which caused approximately $16 billion in damages and 85 fatalities, illustrates the

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[13] See Ulrich Amberg, An FAA Rule will Revolutionize Energy Infrastructure Inspections. It Just Got a Big Boost, Utility Dive (Aug. 5, 2025) (Camp Fire ~$16B damages) (Utility Dive). https://www.utilitydive.com/news/faa-uav-drones-utility-inspection-bvlos/756610/;

severe human and economic stakes involved. Scaling EC-enabled BVLOS inspections reduces the likelihood of these high-consequence events.

- Utility wildfire-related costs are now a significant, recurring component of revenue requirements and universal EC helps control these cost pressures.[14] By lowering ignition risk through more consistent BVLOS inspections, EC reduces potential liability exposure, avoids catastrophic losses, and improves overall system reliability.

- **Increased efficiency and inspection productivity:**

  - UAS-based inspections, enabled by routine BVLOS operations supported by universal EC, identify significantly more defects than traditional foot patrols, improving maintenance targeting and asset performance.

  - A recent utility study (Xcel Energy, PAU, eSmart Systems) found that virtual inspections using UAS and AI analytics detected 60% more defects than foot patrols, demonstrating the operational and economic value of scalable BVLOS enabled by reliable cooperative detectability.[15]

  - As the U.S. transmission and distribution network expands significantly over the coming decades,[16] universal EC is essential to scaling BVLOS inspections cost-effectively.

  - BVLOS UAS operations reduce per-mile inspection costs, but these efficiencies are only scalable with a cooperative detect-and-be-detected environment. EC provides the predictable low-altitude safety architecture needed to automate large-scale inspections, maintain reliability, and manage cost growth across an expanding grid.

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[14] Id.; see also CPUC Public Advocates Office, 2023-2024 Wildfire-Related Cost Increase of California Investor-Owned Utilities (June 14, 2024) (wildfire-related revenue requirement shares). https://www.publicadvocates.cpuc.ca.gov/-/media/cal-advocates-website/files/press-room/reports-and-analyses/240613-public-advocates-office-electric-ious-wildfire-cost-increases.pdf

[15] Assessing the Value and Efficiency of Virtual Inspections, a Comparative Study of Foot Patrol and Virtual Inspections, Xcel Energy, eSmart Systems, EDM Reliability & Innovation, Phoenix Air Unmanned, and Phase One at 8, https://www.esmartsystems.com/wp-content/uploads/2023/09/Assessing-the-value-and-efficiency-of-virtual-inspections.-A-comparative-study-of-foot-patrol-and-virtual-inspections..pdf.pdf

[16] "Global Net Zero Will Require $21 Trillion Investment in Power Grids," BloombergNEF (BNEF) (March 2, 2023). https://about.bnef.com/insights/finance/global-net-zero-will-require-21-trillion-investment-in-power-grids/#:~:text=This%20future%20grid%20needs%20to,lead%20author%20of%20the%20report.

- **Additional benefits: reliability, restoration, and litigation:**
  - EC-enabled BVLOS operations accelerate fault location and damage triage across multiple circuits simultaneously, improving restoration speed and reducing overtime, mobilization demands, and shortening customer interruptions.
  - FAA's BVLOS framework and industry analyses consistently highlight these efficiency gains for surveying and emergency response at or below 400 feet AGL.[17] These gains depend on a predictable, cooperative detect-and-be-detected environment.
  - Utilities face significant liability exposure when aircraft collide with power lines, even when utilities have met applicable marking requirements. Universal EC reduces this exposure by lowering the likelihood of airspace conflicts in wire-rich environments.
  - Wire strikes account for a significant share of all general aviation accidents, with many occurring below 100 ft AGL.[18] By ensuring that all low-altitude aircraft are electronically visible, EC lowers collision probability and the associated litigation, insurance, and infrastructure-repair costs.[19]

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[17] FAA BVLOS Fact Sheet at 1. https://www.faa.gov/newsroom/fact_sheets/Fact_Sheet_BVLOS.pdf; see also Utility Dive (infra n. 13).

[18] Peter Andrew Warrick, The Aviation Wire Strike Problem: The Duty to Warn of This Aerial Hazard, 54 J. Air L. & Com. 857, at 858 (1989) https://scholar.smu.edu/cgi/viewcontent.cgi?article=1863&context=jalc

[19] Id. at 869.