

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of	)	
	)	
Amendment of Part 90 of the Commission's	)	WP Docket No. 07-100
Rules	)	

**REPLY COMMENTS OF THE UTILITIES TECHNOLOGY COUNCIL,
THE EDISON ELECTRIC INSTITUTE, AND
THE NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION**

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SUMMARY

The Commission should provide electric companies and other critical infrastructure industries (“CII”) with access to the 4.9 GHz band as such access to the 4.9 GHz band would advance the Commission’s goals of making more effective use of this spectrum, because electric companies and other CII would use it to support their increasing communications needs to deliver a reliable supply of electricity that is a necessity and which our economy as well as our way of life depends on. Moreover, such access is compatible with public safety because electric companies and other CII design, build and operate their communications systems for similar missions. In fact, electric companies, and CII work in close cooperation with public safety during emergencies, and access to the 4.9 GHz band would promote interoperability during emergency response. As the record also reflects, electric companies are already working with public safety to use the 4.9 GHz band to support unmanned aerial systems (“UAS”), which is another example of how electric companies and public safety have been able to share this spectrum and achieve coexistence. Therefore, the Commission should act to provide access to the 4.9 GHz band by electric companies and other CII entities, and to permit aeronautical mobile services, including UAS.

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THE EDISON ELECTRIC INSTITUTE, AND
THE NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION**

The Utilities Technology Council (“UTC”), the Edison Electric Institute (“EEI”) and the National Rural Electric Cooperative Association (“NRECA”) hereby submit reply comments in response to the *Order on Reconsideration and Eighth Further Notice of Proposed Rulemaking* (“*Eighth FNPRM*”) issued by the Federal Communication Commission (“Commission”).¹ The Commission should allow access to the 4.9 GHz band by critical infrastructure industry (“CII”) entities, and it should permit aeronautical mobile operations, including unmanned aeronautical systems (“UAS”) – which will maximize the use of the spectrum while promoting and protecting public safety operations. Non-public safety access should be limited to CII entities only, and such CII access should be permitted on a co-primary or secondary basis and/or through leasing excess capacity to CII entities. Sharing can be sufficiently managed using traditional frequency coordination coupled with technical rules, although dynamic sharing approaches such as spectrum access systems (“SAS”) may have a role for coordinating certain applications, such as UAS. Finally, the Commission should not permit exclusive use licenses for commercial 5G,

¹ *Amendment of Part 90 of the Commission's Rules*, WP Docket No. 07-100, Order on Reconsideration and Eighth Further Notice of Proposed Rulemaking, FCC 21-106 (rel. Oct. 1, 2021) (“*Eighth FNPRM*”).

unlicensed operations or incentive auctions – all of which would likely interfere with public safety operations in the 4.9 GHz band.

I. INTRODUCTION

UTC is the international association for the telecommunications and information technology interests of electric, gas and water utilities, pipeline companies and other critical infrastructure industries. UTC's members include large investor-owned utilities, who may serve millions of customers in multi-state service territories; and its members include smaller rural electric cooperative and public power utilities, who may serve only a few thousand customers in rural areas or isolated communities. All of these members own, maintain, and operate extensive private internal communications networks that they use to support the safe, reliable, and secure delivery of essential energy and water services to the public at large. These private networks include wireless and wireline communications systems, which provide voice and data to communicate with personnel for routine dispatch and emergency restoration and with smart grid devices to monitor and control the flow of electricity, gas, and water.

EEI is a trade association that represents all U.S. investor-owned electric generation and distribution companies, including all of the major regional electric utilities. Collectively, EEI's members provide electricity for 220 million Americans, operate in all 50 states and the District of Columbia, and directly and indirectly employ more than seven million people in communities across the United States. EEI's members make extensive use of communications as both owners and operators of private communications systems and as end-users of commercial communications networks. EEI's members are among the nation's largest users of communications networks and services and have a growing need for spectrum to carry out the industry's mission of safely, reliability and efficiently delivering electric power to the public.

Spectrum is also key to grid security and modernization. Moreover, UAS play an important role in EEI members' ability to ensure the safety, security, and reliability of the nation's electric grid—and we expect that their importance in our daily operations will only increase.

Accordingly, EEI members have a strong interest in broad, effective use of the 4.9 GHz band by electric utilities and other CII entities and EEI has supported the Commission's efforts to explore broader and more efficient use of this band without impacting public safety operations.

NRECA is the national trade association representing more than 900 local electric cooperatives operating in 48 states. America's electric cooperatives power over 20 million businesses, homes, schools, and farms across 56 percent of the nation's landmass and serve more than 42 million people. Of the 42 million Americans served by cooperatives, an estimated 4 million live in persistent poverty counties. Rural electric cooperatives serve 88% of the counties of the United States. Rural electric cooperatives were formed to provide safe, reliable electric service to their member-owners at the lowest reasonable cost. Rural electric cooperatives are dedicated to improving the communities in which they serve; management and staff of rural electric cooperatives are active in rural economic development efforts. Electric cooperatives are private, not-for-profit entities that are owned and governed by the members to whom they deliver electricity. Electric cooperatives are democratically governed and operate according to the seven Cooperative Principles.²

² The seven Cooperative Principles are: Voluntary and Open Membership, Democratic Member Control, Members' Economic Participation, Autonomy and Independence, Education, Training and Information, Cooperation Among Cooperatives, and Concern for Community.

II. PERMITTING CRITICAL INFRASTRUCTURE INDUSTRIES ENTITIES TO ACCESS THE 4.9 GHZ BAND WILL INCREASE SPECTRAL EFFICIENCY, ENCOURAGE INNOVATION AND PROMOTE EQUIPMENT DEVELOPMENT AND ECONOMIES OF SCALE.

In the *Eighth FNPRM*, the Commission seeks comment on expanding use of the band to include non-public safety entities, subject to appropriate safeguards to protect public safety operations.³ The best way to allow non-public safety use of the band is to allow CII entities to access the band. This is consistent with support on the record by some public safety stakeholders that have provided qualified support for non-public safety access to the band.⁴ The Commission should allow CII entities to access to the 4.9 GHz band in a way distinct from other classes of non-public safety users.⁵ Specifically, only CII entities should be permitted to share the 4.9 GHz band on either a co-primary or secondary basis with public safety. Furthermore, the Commission should revise its rules so that CII entities have priority over any non-public safety operations if the Commission allows other non-public safety entities to access the band.

A. Only CII Entities Should be Permitted to Share the 4.9 GHz Band on Either a Co-Primary or Secondary Basis with Public Safety, and CII Should be Provided Priority Over Other Non-Public Safety Operations that are Permitted to Share.

Comments on the record—including among public safety entities -- strongly support allowing CII access to the 4.9 GHz band. The National Public Safety Telecommunications Council (“NPSTC”) recommended that CII be the only non-public safety entities allowed to access the band, and it explained that “there is a natural alignment between CII and public safety in preparation and response to certain natural and manmade disasters.”⁶ Similarly, the

³ *Eighth FNPRM* at ¶61.

⁴ *Id.* at ¶63 at n. 146, *citing* NPSTC Oct. 24, 2012 Plan at 2 (supporting utility access to the 4.9 GHz band).

⁵ *Id.* at ¶64, n. 149 (observing that NPSTC proposes to extend CII entities co-primary access to two five-megahertz channels (Channels 6 and 7) immediately but offer CII co-primary status over the entire band after a three-year period.

⁶ Comments of the National Public Safety Telecommunications Council in WP Docket No. 07-100 at 18 (filed Nov. 29, 2021).

International Association of Fire Chiefs agreed with NPSTC to only include CII if the Commission allows non-public safety entities to access the band.⁷ Although APCO opposes co-primary status for any other groups, including CII, it has previously supported secondary status only for CII subject to certain conditions, and it now indicates support for such access for CII, provided that there are demonstrated benefits to public safety.⁸ As Florida Power and Light explains, allowing CII to access the 4.9 GHz band on a secondary basis would be the most administratively efficient way to increase use of the band and it would also provide benefits to public safety by lowering equipment costs and promoting more robust network infrastructure.⁹

The Commission should allow CII entities to access the 4.9 GHz band on either a co-primary or secondary basis. While it would be ideal if CII were co-primary with public safety, it is understandable that public safety needs to ensure communications priority.¹⁰ Therefore, providing access for CII entities on a secondary basis is a sound approach that strikes an appropriate balance of the interests to achieve the overall goal of “maximizing public safety use of the band while exploring options that could spur innovation, improve coordination, and drive down costs in the band.”¹¹ This approach will promote the effective use of the band by CII as well as public safety, and it will provide benefits to public safety, including lower equipment costs consistent with comments on the record. To the extent that the Commission allows other

⁷ Reply Comments of the International Association of Fire Chief in WP Docket No. 07-100 at 3 (filed Dec. 20, 2021).

⁸ Comments of APCO International in WP Docket No. 07-100 at 8 (filed Nov. 29, 2021). *See also* Comments of APCO International in WP Docket No. 07-100 at 12-13 (filed Jul. 6, 2018).

⁹ Comments of Florida Power & Light in WP Docket No. 07-100 at 5-8 (filed Nov. 29, 2021).

¹⁰ *See* Joint Comments of the Telecommunications Subcommittee of the American Petroleum Institute and the Regulatory and Technology Committee of the Energy Telecommunications and Electrical Association in WP Docket No. 07-100 at 2 (filed Nov. 29, 2021)(urging the Commission to offer CII entities co-primary status within the entire 4.9 GHz band.) (hereinafter API and ENTELEC Comments). *Compare* Comments of APCO International in WP Docket No. 07-100 at 7 (filed Nov. 29, 2021)(stating that “APCO is not opposed to a sharing approach provided that public safety is guaranteed priority and preemption over other users.”)

¹¹ *See e.g., Eighth FNPRM* at ¶27.

non-public safety use of the band, CII should be provided primary status over other such other non-public safety operations, consistent with NPSTC's comments.¹²

Comments on the record recommend that the Commission limit the scope of access to CII entities only, rather than other groups.¹³ These comments explain that opening the band to other potential types of entities and operations, including commercial mobile and unlicensed operations, increases the potential that such operations will cause interference and congestion in the 4.9 GHz band. As NPSTC states, "CII access is far preferable to opening the band for commercial wireless use to serve the general public," adding that "[s]uch commercial wireless use would predictably increase the demand for the spectrum beyond the band's capabilities, especially during a disaster or other event."¹⁴ Comments on the record also explain that limiting sharing to CII as defined in Section 90.7 of the Commission's rules is also consistent with the plan that was submitted by NPSTC in 2013, and which NPSTC continues to support in its comments in response to the *Eighth FNPRM*.¹⁵ Therefore, the Commission should limit

¹² See Comments of NPSTC at 18-19 (filed Nov. 29, 2021)(stating that "we recognize the role CII plays during emergencies and thus would also support CII having next priority and preemption rights over any other non-public safety use that may be permitted now or in the future.")

¹³ See e.g. Comments of the Commonwealth of Pennsylvania in WP Docket No. 07-100 at 8 (filed Nov. 29, 2021)(stating that "any expansion should be limited to critical infrastructure, such as energy, water and wastewater, healthcare and public health, transportation, chemicals and biosciences.")

¹⁴ Comments of the National Public Safety Telecommunications Council in WP Docket No. 07-100 at 19 (filed Nov. 29, 2021). See also *Id.* (observing that commercial 5G would consume at least 40 MHz of the 50 MHz of spectrum in the 4.9 GHz, leaving insufficient spectrum for public safety and CII operations.)

¹⁵ Section 90.7 of the Commission's rules defines CII as "State, local government and non-government entities, including utilities, railroads, metropolitan transit systems, pipelines, private ambulances, volunteer fire departments, and not-for-profit organizations that offer emergency road services, providing private internal radio services provided these private internal radio services are used to protect safety of life, health, or property; and are not made commercially available to the public.") See Comments of API/ENTELEC at 2, citing *Eighth FNPRM* at n. 149 (supporting CII access as defined in Section 90.7 and incorporating by reference the 2013 NPSTC band plan), and Comments of the National Public Safety Telecommunications Council in WP Docket No. 07-100 at 17-21 (filed Nov. 29, 2021)(supporting CII access to the band as recommended under the NPSTC 2013 band plan, provided that utilities are secondary to public safety but have priority over other non-public safety users – and that no commercial services are permitted in the 4.9 GHz band).

spectrum sharing with only CII entities in order to preserve the 4.9 GHz band for first responders for their private internal communications, consistent with the comments on the record.

III. LEASING EXCESS CAPACITY OR LICENSING SPECTRUM TO CII WILL PROMOTE NON-PUBLIC SAFETY USE WHILE PROTECTING PUBLIC SAFETY AND PROVIDE OTHER BENEFITS; BUT COMMERCIAL WIRELESS EXCLUSIVE USE LICENSES, UNLICENSED OPERATIONS AND INCENTIVE AUCTIONS WILL IMPAIR PUBLIC SAFETY USE OF THE 4.9 GHZ BAND.

In the *Eighth FNPRM*, the Commission invites comment on possible sharing mechanisms, if it decides to allow non-public safety use of the band.¹⁶ In that regard, the Commission should permit public safety to lease excess capacity to CII and coordinate CII operations with public safety. While use of a Spectrum Access System (“SAS”) may be appropriate to manage shared access for some operations, such as aerial, UAS or robotics operations; in general, manual frequency coordination coupled with technical rules is sufficient and preferable for protecting public safety operations from interference in the 4.9 GHz Band.

If the Commission decides to allow non-public safety use of the band, then it should not grant exclusive use licenses for commercial wireless services nor permit unlicensed operations or incentive auctions in the 4.9 GHz band. Instead, the Commission should grant non-exclusive licensed access, similar to site-by-site Part 90 licensing in the PLMR bands as well as the lightly-licensed and generally authorized access (“GAA”) approaches that have been used in 3650-3700 MHz band and the rest of what is now the Citizens Broadband Radio Service spectrum at 3550-3700 MHz.¹⁷ To license non-public safety operations on an exclusive basis would be challenging given that incumbent public safety systems are currently licensed on a non-exclusive

¹⁶ *Id.* at ¶66.

¹⁷ *Id.* at ¶78.

basis in the 4.9 GHz band, as well as the fact that these systems are important and are deployed over nearly all of the U.S.¹⁸

A. The Commission Should Permit Public Safety to Lease Excess Capacity to CII and Coordinate CII Operations with Public Safety.

In terms of sharing mechanisms, the Commission should allow public safety licensees to lease spectrum to CII and use microwave and base/mobile frequency coordination as an efficient, safe, and effective way of making more intensive use of the spectrum that would provide benefits to public safety and CII entities. As Florida Power & Light explains, “[s]pectrum leasing arrangements are eminently feasible,” and it describes how it is negotiating with the Florida state Department of Transportation (“FDOT”) to lease 4.9 GHz spectrum and provide FDOT with the LiDAR and visual imaging data that FDOT typically seeks in response to severe weather events. Moreover, Florida Power & Light explains that the lease would specify frequency coordination procedures to ensure that FDOT and other state public safety agencies do not experience harmful interference and retain their primary use of the band. Thus, leasing the spectrum would create a win-win scenario that would provide direct benefits to FDOT and Florida Power & Light, while at the same time rely on traditional frequency coordination to protect public safety operations from harmful interference. Excess capacity leasing is both well-understood and well-suited to the 4.9 GHz band, and it is proven to facilitate significant non-public safety use of the band by CII entities.¹⁹

Florida Power & Light also explains how sharing spectrum with utilities and other CII would provide indirect benefits that would “expand the band’s user base and, by extension,

¹⁸ *Id.* at ¶79.

¹⁹ *Id.* at ¶78 (asking if a non-exclusive licensing approach such as excess capacity leasing could be well-suited to the 4.9 GHz band, and if it could facilitate significant non-public safety use in the band while protecting important public safety operations.)

increase demand for equipment that can operate in the band,” which would in turn, “incentivize equipment manufacturers to scale production and increase equipment supply, lowering the equipment’s cost.” Moreover, sharing the band with CII would promote more robust network infrastructure, which would also provide benefits back to public safety to leverage this infrastructure, particularly in remote areas that lack existing infrastructure. In sum, leasing spectrum to CII entities “could be the most administratively efficient way to increase use of the 4.9 GHz band and lower equipment costs for public safety incumbents.”²⁰ As such, leasing excess capacity to CII entities has spurred technological innovation, including in the equipment marketplace for the benefit of public safety and non-public safety users.²¹

The Commission should allow for leasing excess capacity with CII entities only and it should not allow leasing capacity to other groups. A number of comments on the record by public safety entities oppose allowing public safety to lease excess capacity to non-public safety operations.²² By limiting leasing to CII, the Commission would therefore avoid the concerns among public safety entities that lessees would interfere with the operational usefulness of the spectrum to support public safety purposes. To the contrary, leasing spectrum in this manner would promote public safety use of the spectrum by enabling CII to work together with public safety, as described for example by Florida Power & Light, which is partnering with the Florida Department of Transportation to use UAS in response to weather events.²³ The Commission should therefore allow CII to lease excess capacity from public safety entities as a way of

²⁰ Comments of Florida Power & Light at 6.

²¹ *Eighth FNPRM* at ¶78 (asking if “a non-exclusive licensing approach [could] help to promote technological innovation in the band, including the equipment marketplace, to the benefit of public safety and non-public safety users?”)

²² See e.g., Reply Comments of the International Association of Fire Chiefs in WP Docket No. 07-100 at 6 (filed Dec. 20, 2021), *citing* Comments of APCO International in WP Docket No. 07-100 at 8 (filed Nov. 29, 2021)(opposing allowing public safety entities leasing excess capacity to non-public safety operations).

²³ See Comments of Florida Power & Light in WP Docket No. 07-100 at 4 (filed Nov. 29, 2021).

promoting innovation and maximizing the use of the spectrum by public safety and non-public safety operations.

B. Licensing CII Using Manual Frequency Coordination is Sufficient and Preferable for Protecting Public Safety Operations from Interference in the 4.9 GHz Band, but it May be Appropriate to Use Spectrum Access Systems to Manage Shared Access for Certain Operations, Such as Aerial, Drone or Robotics Operations.

Comments on the record provide varying support for implementing SAS managed shared access. Some public safety entities express interest in working with SAS operators on a state-controlled system with priority access for public safety users, if the Commission decides to adopt SAS technology to manage spectrum sharing.²⁴ API and ENTELEC envision using automated frequency coordination (“AFC”), such as a Federal Aviation Administrations “B4UFLY” solution or a more flexible version of a SAS to coordinate certain applications, including Manned Aerial Systems (“Aerial”); Unmanned Aerial Systems (“UAS”) and Robotic Systems (“Robotics”)(collectively, “ADR”).²⁵ Finally, Nokia and other SAS operators support implementing an SAS managed spectrum access approach, but it would not support making any particular sharing system mandatory.²⁶

While use of a SAS may be suitable to manage shared access for certain operations, in general alternative methods of sharing are preferable to dynamic sharing.²⁷ NPSTC comments that manual frequency coordination combined with other technical rules should be sufficient to

²⁴ See e.g., Comments of the Commonwealth of Pennsylvania in WP Docket No. 07-100 at 9-10 (filed Nov. 29, 2021) and Comments of State of Maryland, District of Columbia Statewide Interoperability Coordinator, Pennsylvania State Police, Iowa Statewide Interoperable Communications System Board, State of South Carolina Department of Administration, and the State of Washington in WP Docket No. 07-100 at 10-11 (filed Nov. 29, 2021).

²⁵ See Comments of the American Petroleum Institute and ENTELEC in WP Docket No. 07-100 at 3 (filed Nov. 29, 2021).

²⁶ Comments of Nokia in WP Docket No. 07-100 at 3-4 (filed Nov. 29, 2021).

²⁷ See *Eighth FNPRM* at ¶75 (asking for comment on whether alternative methods of sharing are preferable to dynamic sharing).

protect public safety from interference by non-public safety operations.²⁸ As NPSTC observes, one of the ancillary benefits of using manual frequency coordination would be to collect more granular information about licensed use of the band, which should improve overall management of the 4.9 GHz spectrum.²⁹ Similarly, APCO supports multiple approaches using manual frequency coordination depending on whether base and mobile operations or fixed point-to-point or point-to-multipoint systems are being licensed.³⁰ APCO also recommends that coordination should be limited to public safety coordinators in the band.³¹ Such an approach is consistent with the framework suggested by Florida Power & Light in its comments that support allowing CII and public safety to work together to coordinate spectrum sharing.³² It is also consistent with the band plan that NPSTC has submitted in this proceeding.³³ Moreover, manual frequency coordination may be more cost-effective than dynamic sharing, which will be more complex and likely more expensive and time consuming to implement and manage going forward. However, dynamic sharing through SAS may be appropriate to coordinate certain operations, such as aerial, drone and robotics operations, consistent with the comments of API and ENTELEC – but

²⁸ See Comments of NPSTC at 7 (filed Nov. 29, 2021)(stating that a “combination of the ULS data base maintained by the Commission on a nationwide basis, specific rules applicable nationwide on what granular data is required, the requirement for frequency coordination, and availability of accredited and knowledgeable coordinators, has worked well in other bands.”)

²⁹ *Id.* (stating that “If the right rules are adopted, such an approach with more granular data and required frequency coordination should provide greater confidence in the band, a higher level of spectral efficiency, improved protection against interference and more transparency on the degree of actual spectrum use.”)

³⁰ See Comments of APCO International at 3 (filed Nov. 29, 2021).

³¹ *Id.* at 3-4.

³² See Comments of Florida Power & Light in WP Docket No. 07-100 at 7 (filed Nov. 29, 2021). See also Reply Comments of Florida Power & Light in WP Docket No. 07-100 at 6 (filed Jan 11, 2022).

³³ Comments of the National Public Safety Telecommunications Council in WP Docket No. 07-100 at 17-21 (filed Nov. 29, 2021)(supporting CII access to the band as recommended under the NPSTC 2013 band plan). See also Letter from Ralph Haller, Chair, National Public Safety Telecommunications Council to Marlene H. Dortch, Secretary, Federal Communications Commission in WP Docket No. 07-100 at 12 (recommending that only the public safety coordinators be used for coordination of the band, and explaining that they have the best understanding of public safety needs and the importance of protecting public safety licensees from harmful interference.)

SAS should not be required if such operations are operating using excess leased capacity from public safety licensees.

C. The Commission Should Not Grant Exclusive Use Licenses for Commercial Wireless Services, Nor Permit Unlicensed Operations or Incentive Auctions in the 4.9 GHz Band.

Comments on the record generally agree with the Commission that exclusive use licensing of non-public safety operations will be challenging, and they oppose unlicensed access or incentive auction approaches, which would threaten incumbent public safety operations in the band.³⁴ As Florida Power & Light explains, “an incentive auction of the 4.9 GHz band could easily price out public safety-adjacent entities from obtaining exclusive use licenses,” and “an incentive auction would reduce public safety licensees’ footprint within the band, negatively impacting their ability to tailor their use of the spectrum or accommodate evolving use cases.”³⁵ Similarly, NPSTC agrees and warns that “[i]f the Commission allows commercial wireless use at 4.9 GHz, it is unlikely that public safety would maintain any realistic ability going forward to expand systems as operational requirements dictate,” adding that “[s]uch a lock-in would be

³⁴ Comments of Florida Power & Light in WP Docket No. 07-100 at 6. *See also* Comments of NPSTC in WP Docket No. 07-100 at 19-20 (stating “In NPSTC’s view, providing for commercial mobile wireless access to the band to serve the general public is counter to the Commission’s caveat regarding not causing interference,” adding that “driving public safety users out of a band that was allocated to help meet their communications needs is the ultimate form of harmful interference.”) *And see* Comments of the American Association of State Highway Transportation Officers (AASHTO) in WP Docket No. 07-100 at 3 (filed Nov. 29, 2021)(stating “[w]e oppose unlicensed use of the 4.9 GHz spectrum as this does not allow a formal mitigation process should harmful interference occur between licensed and unlicensed users. Additionally, pursuing and resolving interference from unlicensed sources can be complex and lengthy, which requires cooperation and additional resources from the spectrum users.”); Comments of State of California Department of Transportation (Caltrans) in WP Docket No. 07-100 at 6 (stating that “Caltrans opposes unlicensed use of the 4.9 GHz spectrum,” because “[u]nlicensed use does not allow for a formal mitigation process if harmful interference occurs between licensed and unlicensed users.”); Comments of the International Association of Fire Chiefs (IAFC) in WP Docket No. 07-100 at 10 (filed Nov. 29, 2021)(opposing unlicensed access because it provides no benefits to public safety and threatens to cause interference to public safety); *and* Comments of the Public Safety Spectrum Alliance in WP Docket No. 07-100 at 10 (explaining that it opposes unlicensed operations in the 4.9 GHz band “because of the significant risk of interference,” including the difficulty of tracing the source and location of interference and the length of time it would take eliminate such interference, as well as the manner in which interference is removed. The PSSA also explained that the potentially large number of unlicensed devices would also raise the radio-frequency noise floor in a manner that would degrade public safety’s signal.”)

³⁵ Comments of Florida Power & Light in WP Docket No. 07-100 at 8.

contrary to good public policy... [and] would have the effect of being a completely unwarranted punitive measure toward public safety.”³⁶ Finally, Regional Planning Committee Twenty explains that any incentive auction should only be voluntary and would require significant time to resolve a litany of issues for incumbent licensees to consider.³⁷

The Commission should not adopt exclusive use licensing for 5G commercial services or allow unlicensed operations or conduct incentive auctions in the 4.9 GHz band. Commercial wireless licensed services and unlicensed operations and incentive auctions would threaten to disrupt incumbent public safety operations. In addition to increasing radiofrequency interference to public safety operations, the introduction of unlicensed operations and other commercial services would also constrain capacity for the expansion of incumbent public safety operations. Finally, there are ample alternative opportunities for unlicensed operations and commercial wireless services in other spectrum bands, and there is no need nor is it appropriate for the Commission to expand the use of the 4.9 GHz band to authorize these types of non-public safety operations. Likewise, incentive auctions increase the risk of disrupting public safety communications systems, while raising a variety of complex issues and potential costs with only speculative benefits for public safety licensees. Therefore, the Commission should not allow unlicensed operations and should only permit incentive auctions, if at all, only on a voluntary basis.

³⁶ Comments of NPSTC at 21.

³⁷ Comments of Regional Planning Committee Twenty in WP Docket No. 07-100 at 6-7 (filed Nov. 29, 2021)(explaining that incumbent licensees would need to consider alternative technologies, alternative spectrum (e.g., 6 GHz and 11 GHz), tower siting and permitting, and additional costs when evaluating whether to participate in an incentive auction of their licenses).

IV. PERMITTING UAS OPERATIONS WILL PROMOTE MORE EFFECTIVE USE OF THE 4.9 GHZ BAND

In the *Eighth FNPRM*, the Commission asks for comment on its proposal to “allow manned aeronautical mobile, not including unmanned aeronautical systems UAS, and robotic use in the lowest five megahertz of the band with altitude and other technical limitations.”³⁸ While aeronautical mobile operations are currently prohibited under the Commission’s rules, the Commission has granted numerous waiver requests of this restriction.³⁹ Moreover, the Commission has proposed removing this restriction several times previously in this proceeding.⁴⁰ Comments on the record have overwhelmingly supported lifting this restriction and they continue to support removing the restriction now. As Florida Power & Light explained in its comments, “there is no legitimate reason to prohibit UAS communications in the 4.9 GHz band,” and “[p]ermitting UAS operations in the 4.9 GHz band, including autonomous or ground-piloted UAS operations, would help achieve this goal [of maximizing the use of the 4.9 GHz band] without sacrificing the Commission’s other priorities in this proceeding (e.g., ‘facilitat[ing] robust public safety access in the 4.9 GHz band’).”⁴¹

There is a compelling need to lift the restriction on aeronautical mobile operations in the 4.9 GHz band. As NPSTC explained “unfortunately UAS operate primarily on unlicensed spectrum,” and “[a]llowing for public safety UAS uses in a portion of the 4.9 GHz spectrum would provide a more secure band for payload information communicated from UAS to ground-

³⁸ *Eighth FNPRM* ¶ 60; see also *Amendment of Part 90 of the Commission’s Rules*, Sixth Further Notice of Proposed Rulemaking, 33 FCC Rcd 3261, ¶¶ 15-16 (2018).

³⁹ See 47 C.F.R. §90.1205(c)(prohibiting aeronautical mobile operations in the 4.9 GHz band). See also *Amendment of Part 90 of the Commission’s Rules*, Sixth Report and Order and Seventh Further Notice of Proposed Rulemaking, 36 FCC Rcd 1958, ¶ 73 (2020) (“The Commission . . . has granted numerous waivers of the section 90.1205(c) prohibition on aeronautical use.”) (“*Seventh FNPRM*”).

⁴⁰ See Comments of NPSTC at 11 (filed Nov. 29, 2021)(observing that “The Fifth, Sixth, Seventh and Eighth Further NPRMs in this docket have all addressed potential changes to the public safety aeronautical use restriction.”)

⁴¹ See Comments of Florida Power & Light in WP Docket No. 07-100 at 2, 4-5 (filed Nov. 29, 2021), citing *Eighth FNPRM* at ¶¶1 and 4.

based public safety personnel.”⁴² Moreover, NPSTC described how public safety entities use aeronautical operations with video cameras to help locate missing persons and to assess accident scenes and natural disasters, as well as to support the fire service in viewing or mapping the extent of wildland fires and certain details on structure fires as they progress.⁴³ Likewise, Florida Power & Light explained that it has deployed its Percepto Sparrow System (also known as “drone in a box” technology) to conduct daily, automated checks of its power lines, solar panels, and other infrastructure, which allows FPL to “(1) efficiently conduct inspections or surveys, including in areas employees or state officials cannot see from the ground or otherwise easily access following a storm; (2) more quickly identify potential or existing problems; (3) increase personnel safety; and (4) reduce the number of outages or outage time experienced by Floridians.”⁴⁴ Accordingly, commenters overwhelmingly support permitting UAS in the 4.9 GHz band.⁴⁵

CONCLUSION

The Commission should permit CII entities to access the 4.9 GHz band on a co-primary or secondary basis with public safety and/or to lease excess capacity from public safety entities. Permitting CII entities to access the band will maximize the use of the spectrum while protecting and promoting public safety use of the band. Frequency coordination coupled with technical restrictions should be the primary approach for managing spectrum sharing between public

⁴² See Comments of NPSTC in WP Docket No. 07-100 at 13 (filed Nov. 29, 2021)(adding that “Cyber security concerns are on the rise, increasing the need for more secure options that allow the use encryption.”)

⁴³ *Id.* at 12.

⁴⁴ Comments of Florida Power & Light in WP Docket No. 07-100 at 3-4 (filed Nov. 29, 2021).

⁴⁵ See, e.g., APCO Comments at 4-5 (“[T]he Commission should . . . [a]llow Unmanned Aerial System use.”); API/ENTELEC Comments at 3 (“strongly agree[ing]” that the 4.9 GHz band should be allocated for UAS); Comments of the Digital Decision, WP Docket No. 07-100, at 3 (Nov. 29, 2021) (identifying UAS as a “next-generation public safety use” that should be allowed); Comments of the Enterprise Wireless Alliance, WP Docket No. 07-100, at 9 (Nov. 29, 2021) (“Designating specific 4.9 GHz channels for UAS, for robotics, and for IoT technologies will further promote efficient use of this spectrum.”); NPSTC Comments at 22 (recommending “modifying the rules to allow . . . unmanned aeronautical operations”).

safety and non-public safety operations, and dynamic sharing such as SAS may have a role in coordinating certain applications, such as ADR (*i.e.* Aerial, Drone and Robotics operations) The Commission should not adopt licensing mechanisms such as exclusive use licenses for commercial 5G or unlicensed operations and incentive auctions to increase non-public safety use of the 4.9 GHz band. Consistent with the overwhelming number of comments on the record, commercial 5G and unlicensed use of the band and incentive auctions would interfere with public safety operations. Conversely, CII use of the band would complement public safety operations and promote public safety use of the band, as described in comments on the record demonstrating how electric companies and other CII are already partnering with public safety to support each other in the 4.9 GHz band. Finally, the Commission should lift the restriction on aeronautical mobile operations in the 4.9 GHz band, including UAS.

Respectfully,

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