



N A R U C  
National Association of Regulatory Utility Commissioners

January 9, 2020

The Honorable Ajit Pai, Chairman  
The Honorable Brendan Carr, Commissioner  
The Honorable Michael O’Rielly, Commissioner  
The Honorable Jessica Rosenworcel, Commissioner  
The Honorable Geoffrey Starks, Commissioner  
Federal Communications Commission  
445 12th Street SW  
Washington, DC 20554

**RE:** *NARUC support U.S. Department of Energy, the Federal Energy Regulatory Commission, and Public Safety officials requests to block unlicensed operations in the 6 GHz band “unless and until” the agency has tested and proven that the proposed AFC system works as intended to protect licensed utilities from harmful interference to crucial communications infrastructure.*

**Written Ex Parte filed in the proceeding captioned: *In the Matters of Unlicensed Use of the 6 GHz Band, ET Docket No. 18-295, Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 34 GHz, GN Docket No. 17-183.***

Mr. Chairman and Commissioners:

In October of 2018, the FCC released a notice of proposed rulemaking<sup>1</sup> to expand the 6 GHz band to include unlicensed operations. That spectrum is used by microwave systems that electric, gas, and water companies to ensure the safe, reliable and secure delivery of essential energy and water services. These utilities, subject to NARUC member’s oversight, operate literally thousands of microwave links to support voice and data communications with personnel and critical assets such as substations and teleprotection systems on the grid.

Teleprotection, which uses the 6 GHz band, is a relay system on transmission and distribution grids which prevents faults from escalating and possibly damaging other elements on the system or causing power outages. These systems must operate in milliseconds to execute their functions properly. Overall, grid operators must match the supply of electricity with demand for electricity instantaneously so it is crucial that these wireless links occur at quickly over long distances. Moreover, these microwave links are also used to backhaul critical voice communications across utility service territories allowing coordinated emergency responses to restore power in the aftermath of outages. Some of these microwave systems are shared with other public safety officials.

---

<sup>1</sup> [\*In the Matters of Unlicensed Use of the 6 GHz Band and Expanding Flexible Use in Mid-Band Spectrum between 3.7 and 34 GHz\*](#), ET Docket No. 18-295, GN Docket No. 17-183 (rel. Oct. 24, 2018).

Radiofrequency interference to these mission-critical communications systems in the 6 GHz band risks causing interruptions of the delivery of essential energy and water services as well as the loss of communications with railroad positive train control systems and police, fire and rescue operations that protect the safety of life, health and property.

State regulators have an obvious and direct tangible interest in the safety, reliability and security of these electric, gas, and water utilities. NARUC's members have authorized utilities to invest billions in SCADA and smart grid systems to promote the safety, reliability and security of these crucial services. Because of that interest, in November, NARUC passed the attached *Resolution on FCC Proposal to Allow Unlicensed Operations in the 6 GHz Spectrum Band*.

That resolution makes clear that NARUC shares the concerns raised directly by the Department of Energy,<sup>2</sup> all three Federal Energy Regulatory Utility Commissioners,<sup>3</sup> public safety officials,<sup>4</sup> and a bipartisan group of 12 Senators.<sup>5</sup>

---

<sup>2</sup> See, *Letter from Assistant Secretary Bruce J. Walker, DOE Office of Electricity to FCC Chairman Pai* (September 3, 2019), at: <https://utc.org/wp-content/uploads/2019/09/FCC-Chairman-Pai-response-letter-9.3.19-003.pdf> (“DOE has concerns regarding the use of the Automated Frequency Coordination system (AFC). As proposed by the FCC, the AFC is designed to control interference issues between unlicensed and licensed users. However, this is a concept that has been neither field-tested nor verified . . . ***If the Commission moves forward with changes to the 6GHz band, it is imperative that adequate testing of AFC and other safeguards be in place before changes to the 60Hz spectrum band occurs.*** The DOE National Laboratories have significant capability to evaluate potential interference scenarios, field test, and make recommendations to improve the use of AFC. The FCC has leveraged the capabilities of the National Labs in the past in analyzing spectrum used by emergency first responders. We would encourage that the AFC be analyzed by the National Laboratories before it is placed into use.”)

<sup>3</sup> See, *Letter from Federal Energy Regulatory Commission Chairman Neil Chatterjee, Commissioner Rich Glick and Commissioner Bernard L. McNamee to FCC Chairman Pai* (December 18, 2019), at <https://ferc.gov/media/headlines/2019/2019-4/FCC-12-18-19.pdf> (“As you consider how the FCC will proceed . . . we ask that you consider the implications for electric reliability . . . Many electric utilities use the 6 GHz spectrum band to support their real-time operations, including supervisory control and data acquisition that is used to monitor and control generating units, transmission lines, and substation equipment as well as system protection. The FCC proposed . . . the Automated Frequency Coordination (AFC) system to guarantee that unlicensed devices do not interfere with incumbent users. ***Therefore, should the proposed rule be adopted, we strongly urge you to consider requests from electric utilities and state regulators for additional testing of the AFC system prior to implementation.***”)

<sup>4</sup> See, *City of New York Notice of Ex Parte Regarding Unlicensed Use of the 6 GHz Band and Expanding Flexible Use in Mid-Band Spectrum between 3.7 and 24 GHz* (Nov. 7, 2019), at: <https://ecfsapi.fcc.gov/file/1107156919404/NYC%20Ex%20Parte%206%20GHz%20November%207%20C%202019.pdf> (“ [W]e do not concur that the Studies presented . . . fully examined all potential interference cases or adequately characterized the potential negative impact that interference would cause to critical public safety communications.”)

<sup>5</sup> See, *Letter from Senators Risch, Crapo, Hirono, Manchin, Purdue, Capito, InHofe, Lankford, Cramer, Feinstein, Kennedy, and King to Chairman Pai* (November 5, 2019): (“We ask that you... not allow unlicensed use of the band unless FCC rules ensure protection against harmful interference to the microwave facilities that these industries depend on for critical services.”)

The FCC simply should “*not allow unlicensed operations in the 6 GHz band unless and until such time that it has tested and proven that its AFC system works as intended to protect license holders, including utility and other CII systems, and it is demonstrated that unlicensed operations will not cause harmful interference to license holders as determined by the FCC.*” NARUC resolution at 2.

It is no coincidence that a November letter signed by a range of 11 utility organizations covering, the gas, electric, nuclear, and water industries, along with the International Fire Chiefs Association, the Government Wireless Technology and Communications Association, and 58 individual utilities expressed similar sentiments:

[T]he Automated Frequency Coordination (AFC) system—is theoretical in nature and has not been tested or proven to work. . . . Given the significant risk that allowing unlicensed operations in the 6 GHz band could have on mission-critical communications networks, ***at the very least, the Commission should consider working with one or more federal laboratories to ensure that the untested interference mitigation measures proposed in the rulemaking will work before unlicensed operations are allowed in the 6 GHz band.***

(Emphasis added.)<sup>6</sup>

If you have any questions about the attached resolution or NARUC’s position, do not hesitate to contact James Bradford Ramsay, NARUC’s General Counsel, at 202.898.2207 or [jramsay@naruc.org](mailto:jramsay@naruc.org).

Respectfully submitted,

Brandon Presley  
NARUC President

Karen Charles Peterson  
Chair, NARUC Telecommunications Committee

---

<sup>6</sup> See, *Letter from American Gas Association, American Petroleum Institute, American Water Works Association, Association of American Railroads, American Public Power Association, Edison Electric Institute, International Association of Fire Chiefs, Government Wireless Technology & Communications Association, National Rural Electric Cooperative Association, Nuclear Energy Institute, Utilities Technology Council, ALLETE, Alliant Energy, Ameren, American Electric Power, Avangrid, Basin Electric Power Cooperative, Berkshire Hathaway Energy, Black Hills Energy, Bluebonnet Electric Cooperative, CenterPoint Energy, Central Electric Power Cooperative, Central Iowa Power Cooperative, Consolidated Edison Company of New York, Corn Belt Power Cooperative, Dairyland Power Cooperative, Dominion Energy, DTE Energy, Duke Energy, East River Electric Power Cooperative, Edison International, El Paso Electric Company, Entergy Services, LLC, Exelon, Evergy, FirstEnergy, Hawaiian Electric, Holy Cross Energy, Idaho Power, Imperial Irrigation District, Kiamichi Electric Cooperative, LG&E and KU, Los Angeles Department of Water and Power, MidAmerican Energy Company, Modesto Irrigation District, National Grid, NextEra Energy, Nebraska Public Power District, Northern Indiana Public Service Co., NorthWestern Energy, NV Energy, OGE Energy Corp., Orange & Rockland Utilities, Pacific Gas & Electric, PacifiCorp, Portland General Electric, Puget Sound Energy RigNet, Salt River Project, Sempra Energy, Southern California Public Power Authority, Southern Company, TECO Energy, Tri-State Generation & Transmission Association, Turlock Irrigation District, Tucson Electric Power Company, UNS Electric, Inc., Xcel Energy, WEC Energy Group to FCC Chairman Pai (November 8, 2019), at 1, online at: [https://utc.org/wp-content/uploads/2019/11/Risch\\_FINAL-FCC-Letter-re-6-GHz.pdf](https://utc.org/wp-content/uploads/2019/11/Risch_FINAL-FCC-Letter-re-6-GHz.pdf)*

## **APPENDIX**

### ***Resolution on FCC Proposal to Allow Unlicensed Operations in the 6 GHz Spectrum Band***

*Whereas* electric, gas, and water utilities under State commission regulation rely on extensive communications networks to underpin the delivery of these essential services to the public; those communications networks are for the most part built, owned, and maintained by the utilities themselves, with a few relying on third-party telecommunications, wireless, internet, or broadband providers for specific portions of their networks;

*Whereas* these communications networks (independent of ownership) rely on both wireless and wireline technologies in order to bolster the resilience of these networks — and, therefore, electricity, water, and gas infrastructure — against natural disasters, cyber and physical attacks, and other hazards;

*Whereas* these communications networks (when owned or operated by electric utilities) play a vital role in integrating new distributed energy resources into the grid which assists utilities in meeting federal and State reliability, efficiency and emissions standards; when owned by the telecommunications, wireless, Internet, or broadband providers, the communications networks are used both to facilitate the provision of broadband, Wi-Fi, VoIP, and other communications services, and to support the internal communications needs of the electric, gas, and water utilities;

*Whereas* utilities and other critical-infrastructure industries (“CII”) use wireless communications technologies that are reliant on radiofrequency spectrum, a naturally occurring phenomenon required for any wireless transmission; electric, gas, and water utilities need access to adequate interference-free radiofrequency spectrum to underpin the delivery of the essential services these entities provide;

*Whereas* telecommunications, wireless, Internet, or broadband providers, use wireless communications technologies that rely on radiofrequency spectrum, to provide telecommunications, wireless, broadband, and Internet services, which are also considered extremely high priorities, both during times of natural disasters or terrorist incidents, as well as other times;

*Whereas* companies operating in the U.S. Department of Homeland Security (“DHS”) “Communications” and “Information Technology” critical infrastructure sectors are also considered critical infrastructure entities by DHS and, by implication, under Presidential Policy Directive PPD-21 (“Critical Infrastructure and Resilience”);

*Whereas* the 5.925-7.125 GHz spectrum band is used by many different types of entities – including, but not necessarily limited to, utilities, transportation systems, pipeline companies, long distance telephone service providers, commercial wireless service providers, satellite service providers, and public safety enterprises to support mission-critical voice and data communications to remotely and automatically monitor and control systems that are essential for safe, secure and reliable operations and to talk with personnel during system maintenance and service restoration;

*Whereas* electric utilities, for example, use the 6 GHz band for teleprotection, a relay system on transmission and distribution grids which acts to prevent against faults from escalating and possibly damaging other elements on the system or causing power outages; teleprotection systems must operate in milliseconds to execute their functions properly;

*Whereas* radiofrequency interference to these mission-critical communications systems in the 6 GHz band risks causing interruptions of the delivery of essential energy and water services as well as the loss of 5 communications with railroad positive train control systems and police, fire and rescue operations that protect the safety of life, health and property;

*Whereas* in 2018, Congress addressed the critical need for additional mobile and fixed wireless broadband spectrum by directing the Federal Communications Commission (“FCC”) and the National Telecommunications and Information Administration to specifically identify at least 255 megahertz (“MHz”) of federal and non-federal spectrum for mobile and fixed broadband use – including, but not limited to, at least 100 MHz below the 8000 MHz frequency for unlicensed uses and at least 55 MHz below the 8000 frequency “for use on either a licensed or unlicensed basis, or a combination of licensed and unlicensed”;

*Whereas* the FCC initiated a rulemaking proceeding in October 2018 to allow unlicensed operations in the 6 GHz band, which raised widespread concerns about the potential for interference to utility and other CII-licensed systems in the band. The FCC’s proposal represents one way to implement the congressional directive to increase the amount of spectrum available for wireless broadband, but to implement the proposal without robust and rigorous testing of the incidence and significance of interference that may be caused by such authorization, and without assurance that interference to utility and CII-licensed systems can be prevented, is premature if not irresponsible;

*Whereas* the FCC has proposed to use automated frequency coordination (“AFC”) to mitigate potential interference by outdoor unlicensed operations; however, it proposed to allow indoor unlicensed operations without any use of AFC to mitigate potential interference to licensed systems in the band, despite engineering studies submitted on the record in the rulemaking concluding that there is a significant risk of interference to licensed systems from the deployment of unlicensed devices in the 6 GHz band, including some studies which have demonstrated that indoor use is just as problematic as outdoor use;

*Whereas* the U.S. Department of Energy, in a September 2019 letter, has urged the FCC to use the U.S. national laboratories to test the AFC system before proceeding with its proposal;

*Whereas* the FCC relocated utilities in the early 1990s from the 2 GHz band to the 6 GHz band. As a result of this relocation, utilities have invested considerable ratepayer money into developing systems suitable to the 6 GHz band;

*Whereas* the 6 GHz band satisfies the unique needs of utilities due to its ability to transmit data quickly over long distances. If forced out of the band, utilities and other CII licensees have few, if any, reasonable alternatives; meanwhile, there are other spectrum bands that are currently available or that could be made available that would more efficiently serve the needs for unlicensed operations and more efficiently than the 6 GHz;

*Whereas* State regulators have a direct and tangible interest in the safety, reliability and security of electric, gas, and water utilities and other CII, and they have authorized utilities to invest billions of dollars (including funds derived from federal grants from the U.S. Department of Energy) in SCADA and smart grid systems in order to promote, among other public interest objectives, the safety, reliability and security of utilities and other CII, many of which were authorized pursuant to State statutory mandates and deadlines;

*Whereas* many State regulators, legislators, and other government officials also have an interest in promoting the deployment of broadband infrastructure – including, but not limited to, mobile and fixed broadband wireless infrastructure, for both public safety and other purposes;

*Whereas* the National Association of Regulatory Utility Commissioners in previous resolutions has acknowledged the need for utilities to have access to spectrum to promote public safety, and smart grid systems needed for protecting the safe, reliable, and secure delivery of essential public services including energy, water, communications, transportation, and public safety; now, therefore be it

*Resolved* that the National Association of Regulatory Utility Commissioners, gathered at its Annual Meeting in San Antonio, in recognizing the criticality of utility and other CII communications in the 6 GHz spectrum band, recommends the Federal Communications Commission modify its proposal to not allow unlicensed operations in the 6 GHz band unless and until such time that it has tested and proven that its AFC system works as intended to protect license holders, including utility and other CII systems, and it is demonstrated that unlicensed operations will not cause harmful interference to license holders as determined by the FCC.

*Passed by the NARUC Committees on Critical Infrastructure, Telecommunications and Water Adopted by the NARUC Board of Directors, November 19, 2019*