

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
)
Facilitating Access to Spectrum for Offshore Uses) WT Docket No. 22-204
and Operations)

REPLY COMMENTS OF THE UTILITIES TECHNOLOGY COUNCIL

The Utilities Technology Council (“UTC”) hereby submits its reply comments in response to the Commission’s *Notice of Inquiry* in the above-referenced proceeding.¹ UTC supports the Commission’s inquiry to promote access to spectrum for offshore communications, including for applications supporting critical infrastructure industries (“CII”), such as windfarms and offshore oil and gas platforms.

Comments on the record underscore the need for spectrum to support these and a variety of other offshore communications related to CII.² These comments agree that CII need access to reliable communications to ensure operational integrity and safety of life and property. UTC echoes these comments and supports the call to develop policies that will promote access to licensed spectrum for offshore communications by CII. Providing access to spectrum for clean energy facilities will substantially advance the Biden Administration’s overarching energy policy goals to reduce carbon emissions by using more renewable energy resources.³

While UTC supports access to licensed spectrum for CII offshore communications, it does not

¹ Facilitating Access to Spectrum for Offshore Uses and Operations, *Notice of Inquiry*, WT Docket No. 22-204 (rel. June 9, 2022)(hereinafter “*NOI*”)

² *Id.* at ¶11 (describing windfarms as one possible use case for offshore communications). *See also* Comments of the American Clean Power Association in WT Docket No. 22-204 (filed Jul. 27, 2022); Comments of the American Petroleum Institute in WT Docket No. 22-204 (filed Jul. 28, 2022); Comments of Dominion Energy in WT Docket No. 22-204 (filed Jul. 27, 2022); Comments of Ericsson in WT Docket No. 22-204 at 12-13 (filed Jul. 27, 2022); Comments of Nokia in WT Docket No. 22-204 (filed Jul. 27, 2022); Comments of Midland Communications, Inc. in WT Docket No. 22-204 (filed Jul. 28, 2022); Comments of Motorola Solutions, Inc. in WT Docket No. 22-204 at 2 (filed Jul. 27, 2022); Comments of the Enterprise Wireless Alliance in WT Docket No. 22-204 at 2 (filed Jul. 27, 2022); Comments of Tampnet, Inc. in WT Docket No. 22-204 (filed Jul. 27, 2022); and Comments of Orsted Wind Power North America, LLC in WT Docket No. 22-204 (filed Jul. 27, 2022).

³ *See* “FACT SHEET: Biden Administration Launches New Federal-State Offshore Wind Partnership to Grow American-Made Clean Energy” available at <https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/23/fact-sheet-biden-administration-launches-new-federal-state-offshore-wind-partnership-to-grow-american-made-clean-energy/>

support unlicensed use of the 6 GHz band for offshore communications and it strenuously opposes proposals to change the 6 GHz rules, which will increase the potential that unlicensed operations will cause harmful interference to licensed operations, including utility and CII mission critical microwave systems.⁴ As a general matter, although CII does use unlicensed spectrum, it is not appropriate for all CII applications, and UTC echoes the comments stating that the shortcomings of unlicensed spectrum underscore the urgent need for licensed spectrum to be made available to support CII’s offshore mission critical communications needs.⁵ UTC also agrees with the Commission’s observation in the *NOI* that unlicensed devices must operate at low power and on a non-interference basis, which will limit their range and reliability for offshore communications purposes.⁶

The restrictions on unlicensed operations are there for good reason, because the Commission has recognized that restricting unlicensed operations is necessary to prevent interference, particularly in offshore environments where the potential for interference is greater due to reflection and other factors.⁷ Moreover, the interference concerns associated with unlicensed use of the 6 GHz band are well-documented,⁸ and UTC and other parties on the record in this proceeding are extremely concerned that unlicensed use of the 6 GHz band would interfere with CII licensed microwave systems in the 6 GHz

⁴ See Comments of the American Petroleum Institute in WT Docket No. 22-204 at 6 (filed Jul. 28, 2022)(opposing 6 GHz unlicensed operations for offshore communications.) *But see* Comments of Cisco Systems, Inc. in WT Docket No. 22-204 (filed Jul. 27, 2022)(supporting unlicensed mobile standard power access operations in the 6 GHz band); Comments of the Wi-Fi Alliance in WT Docket No. 22-204 at 4-7 (filed Jul. 27, 2022)(supporting using unlicensed operations for offshore communications generally and urging the Commission to change the 6 GHz rules to allow mobile and transportable devices, higher power for fixed point-to-point operations, client-to-client communications, and unlicensed operations on ships and offshore oil platforms.)

⁵ See Comments of the American Petroleum Institute in WT Docket No. 22-204 at 6 (filed Jul. 28, 2022) (hereinafter “Comments of API”) (emphasizing that “a minimum level of licensed spectrum rights must be made for critical infrastructure” and adding that “although CII entities make wide use of the unlicensed bands, such bands are not appropriate for all applications.”).

⁶ *NOI* at ¶34.

⁷ See *NOI* at ¶35, *citing* § 15.407(d)(1) (prohibiting specified 6 GHz unlicensed devices from operating on oil platforms, cars, trains, boats, and aircraft...) See *also Id.* at ¶17 (encouraging commenters to consider not only the circumstances and needs of offshore operations (including incumbent operations requiring protection), but also the unique characteristics of radio transmissions over open water.)

⁸ See Letter from Larry Butts, Manager, Telecom Engineering, Southern Company Services, Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission in ET Docket No. 18-295 and GN Docket No. 17-183 (filed June 23, 2021); *and see* Attachment A: Test Report on the Effects of 6 GHz Unlicensed RLAN Units on Fortson to Columbus Microwave Link June 21, 2021, *available at* <https://www.fcc.gov/ecfs/filing/106231367519302>.

band, many of which are located along coastal areas and waterways and also communicate with CII offshore facilities.⁹ Therefore, UTC supports comments stating that “[i]nterference to the 6 GHz communications systems could, at a minimum, cause significant harm to the business operations of the energy industry and result in costly expenditures and unplanned resource allocations [and;] at worst, ... could jeopardize environmental protection and safety of life.”¹⁰ Conversely, UTC strongly opposes comments that ask the Commission to change its rules to reduce restrictions and remove prohibitions on certain 6 GHz unlicensed operations because such rule changes will only increase the potential for harmful interference, which real-world tests have shown is certain to occur from unlicensed operations in the 6 GHz band.¹¹

I. Demand for Offshore Spectrum

The comments on the record uniformly report that there is increasing demand for spectrum for offshore communications, and the primary drivers for this demand are wind farms and oil and gas platforms.¹² Drilling down further, comments on the record note that wind farms and oil and gas platforms have different spectrum requirements.¹³ Wind farms require wide area coverage over a large

⁹ Comments of API at 6

¹⁰ Comments of API at 6.

¹¹ Comments of the Wi-Fi Alliance in WT Docket No. 22-204 (filed Jul. 27, 2022).

¹² See Comments of the American Clean Power Association in WT Docket No. 22-204 (filed Jul. 27, 2022); Comments of the American Petroleum Institute in WT Docket No. 22-204 (filed Jul. 28, 2022); Comments of Dominion Energy in WT Docket No. 22-204 (filed Jul. 27, 2022); Comments of Ericsson in WT Docket No. 22-204 at 12-13 (filed Jul. 27, 2022); Comments of Nokia in WT Docket No. 22-204 (filed Jul. 27, 2022); Comments of Midland Communications, Inc. in WT Docket No. 22-204 (filed Jul. 28, 2022); Comments of Motorola Solutions, Inc. in WT Docket No. 22-204 at 2 (filed Jul. 27, 2022); Comments of the Enterprise Wireless Alliance in WT Docket No. 22-204 at 2 (filed Jul. 27, 2022); Comments of Tampnet, Inc. in WT Docket No. 22-204 (filed Jul. 27, 2022); and Comments of Orsted Wind Power North America, LLC in WT Docket No. 22-204 (filed Jul. 27, 2022).

¹³ See Comments of Dominion Energy in WT Docket No. 22-204 at 5-7 (describing its Coastal Virginia Offshore Wind (“CVOW”) project in terms of a use case for offshore communications needs for wind farms). See also Comments of American Petroleum Institute in WT Docket No. 22-204 at 2-3 (describing offshore spectrum use in the oil and gas industry, including the use of low frequency range for communications to provide the range needed for real-time drilling information from the drilling platform to an independent team on the shore, as well as communications for semi-autonomous and remote-controlled for maintenance and inspection (including UAS and robotics) and backhaul microwave communications for cost-effective communications to the shore where the facilities are closer to shore.) See also Comments of Nokia in WT Docket No. 22-204 at 6 (focusing on energy platforms beyond the reach of commercial carrier licenses, and stating that “these operations urgently need robust, reliable connectivity that can support ongoing platform operations as well as high-bandwidth office and consumer services for construction and maintenance crews.”) And see Comments of Tampnet in WT Docket No. 22-204 at 5-11 (emphasizing that “the demand for offshore spectrum is growing significantly” and concluding that “between the forecasted demand and spectrum efficiency gains, there is a 4-times greater need for spectrum over the next five

geographic area, while oil and gas platform are smaller and do not need to cover as much area.¹⁴ Apart from that, they have similar communications needs. They require high reliability, which generally requires the use of licensed spectrum.¹⁵ But, they also need additional capacity, which is one reason why they use unlicensed spectrum or shared spectrum to support broadband applications.¹⁶ Nokia reported in its comments that “[b]eyond the critical communications unique to construction and operation of energy platforms, there are the day-to-day broadband needs of a large workforce at sea.”¹⁷ It further explained that “[a] large ship and crew at sea for long durations require robust connectivity for video conferencing and other office functions that all large businesses require, not to mention broadband needs for non-operational uses, such as entertainment, communicating with friends and family onshore, and other high-bandwidth needs such as telehealth.”¹⁸

But unlicensed spectrum bands are no substitute for access to licensed spectrum, and the comments uniformly agree that additional licensed spectrum “must be made available to meet increasing demand to support offshore wind and oil and gas facilities.¹⁹ Demand is exceeding capacity, and the American Petroleum Institute reported that “[i]n our current environment, even a 40 Mbps connection via LTE to a drill ship, flotel, or offshore platform has bandwidth limitations.”²⁰ Similar concerns are expressed in other comments.²¹ Therefore, UTC joins the comments on the record that urge the

years.”)

¹⁴ Comments of Dominion Energy at 6.

¹⁵ Comments of the American Petroleum Institute at 3 (noting that offshore operations using unlicensed spectrum is being congested by corporate data, bandwidth for crew welfare, sensor data, and other potentially critical safety applications, which highlights the need for the industry to have dedicated spectrum for safety and safety related applications.)

¹⁶ See e.g., Comments of the American Petroleum Institute at 3. See also Comments of Motorola Solutions, Inc. at 2 (stating “[w]hile narrowband networks provide effective mission-critical or business-critical communications in many situations, MSI is seeing greatly increased interest in broadband data solutions for these applications, in addition to; or augmentation of, narrowband networks.”)

¹⁷ Comments of Nokia at 5.

¹⁸ *Id.*

¹⁹ Comments of the American Petroleum Institute at 6 (stating that “[a]lthough unlicensed spectrum is an important tool, a minimum level of licensed spectrum rights must be made for critical infrastructure.”)

²⁰ *Id.* at 5.

²¹ See e.g., Comments of Tampnet at 11 (stating “Tampnet’s current operations and transmissions of voice and data over its wireless network has doubled every two years since 2018 as we acquired more spectrum to expand our capacity. We expect this significant growth to continue as we serve more users and applications.”)

Commission to make more licensed spectrum available to meet increasing demand for reliable high capacity communications for offshore facilities, including windfarms and oil and gas platforms. Access to additional spectrum will advance overarching policies designed to promote clean energy and infrastructure reliability.²²

II. Spectrum Rights Models and Assignment Mechanisms for Initial Licensing

The Commission invites comment on what kinds of spectrum rights should be conveyed to meet expected demand, based upon three models: shared spectrum rights, authorizations for secondary operations, and authorizations with primary rights.²³ It also invites comment on several possible licensing mechanisms, including licensing by rule and licensed light approaches; ongoing demand-driven, site-by-site licensing; negotiated access to spectrum and geographic-area licensing.²⁴ It also invites comments on other considerations, such as the possible FCC adoption of multiple licensing mechanisms.²⁵

To ensure reliability, safety and security of critical communications for industrial applications, such as energy, the comments generally favor adoption of a model that authorizes spectrum with exclusive (i.e., primary) rights.²⁶ As one comment explained, “[t]here is too great a potential for interference in a license-by-rule or ‘licensed light’ model to satisfy their operational and oftentimes legally mandated responsibilities.”²⁷ UTC agrees that interference would jeopardize mission critical communications, which in turn would threaten the safety, reliability and security of CII operations. In addition, unlicensed or shared spectrum models may not provide access to communications that would meet industry specifications and standards for safety and reliability.²⁸ Comments on the record also

²² Comments of the National Telecommunications and Information Administration in WT Docket No. 22-204 (filed Jul. 29, 2022)(stating that “NTIA and federal agencies support the FCC’s efforts to augment offshore spectrum access, particularly for connectivity that supports renewable energy projects,” adding that “the promotion of offshore wind energy production is a significant initiative of this Administration.”)

²³ *NOI* at ¶16.

²⁴ *Id.* at ¶¶24-29.

²⁵ *Id.* at ¶30.

²⁶ *See e.g.*, Comments of Midland Communications, Inc. at 2 (urging the Commission to authorize primary rights to offshore wind).

²⁷ Comments of the Enterprise Wireless Alliance at 2.

²⁸ *See* Comments of the American Petroleum Institute at 6 (stating that “[s]hared spectrum does not guarantee availability and does not allow CII to follow ISA99 / IEC 61511 standards for Safety Instrumented Systems (“SIS”), including wireless risk reduction for fire and gas systems.”) *See also* Comments of T-Mobile at 18 (stating that “the

express similar concerns about their ability to meet safety requirements using secondary market transactions to negotiate access to spectrum, which can also be limited in availability and expensive in practice.²⁹ As such, the Commission should make available licensed spectrum through an exclusive use model that will ensure the reliability of mission critical communications.

While exclusivity is necessary for certain types of offshore communications applications, comments on the record also support adoption of a flexible licensing regime that allows expansion of geographic boundaries of the original service area as operations expand in and around offshore facilities, such as windfarms and oil and gas platforms.³⁰ These comments also support allowing licensees to operate using a variety of spectrum bands that are available so that licensees can choose the appropriate spectrum band to support different types of applications, which may require different capabilities, such as distance and capacity. Moreover, the comments recommend extending construction deadlines as necessary as another form of flexibility to account for factors related to site accessibility, including weather, bed space limitations, etc.³¹ This makes sense considering the different characteristics of the various types of offshore communications applications that are reported in comments on the record.

Accordingly, UTC echoes the comments on the record that encourage the Commission to adopt multiple

Commission should refrain from using a shared use model,” and explaining that spectrum access systems (SAS) in the 3.5 GHz band and automated frequency coordination (AFC) systems in the 6 GHz band are nascent or still under development and it is uncertain whether they will prove effective when deployed at sea.)

²⁹ See Comments of Orsted Wind Power of North America at 12 (“The secondary user model could assist the deployment of some systems but will not satisfy requirements for others. In conjunction with the previous questions, systems deployed for mission critical communications and safety cannot compromise their functionality. Secondary systems, such as the LTE system, could benefit from secondary user frequency sharing. LTE frequencies are mostly held by Mobile Network Operators, at no small expense. Offshore wind developers cannot acquire such frequencies at market prices, nor are they in the business of reserving large blocks of LTE frequencies.”) See also Comments of the American Clean Power Association at 1 (expressing concerns about lack of certainty regarding spectrum rights, which has reportedly resulted in postponing the purchasing of multi-million dollar, non-fungible, and crucial equipment) See also *Id.* at 3 (recommending that the Commission “avoid an open market scenario, where the license is acquired by a primary rights holder, for any mission critical system since monetary or other considerations may result in the license not being renewed,” and explaining that “aside from the financial implications to offshore wind developers, acquiring a new license could necessitate an exchange of radio equipment.”)

³⁰ Comments of Dominion Energy at 10 (stating that “it would be preferable for the Commission to adopt a flexible licensing regime that enables Dominion Energy to expand the boundaries of its original service area for future expansion of the windfarm, as necessary.”) *Id.* (recommending that the Commission “implement a licensing model that enables Dominion Energy to rely on its knowledge and experience to forecast any expansion of the windfarm and the ability to access additional spectrum to support such expansion and incorporate spectrum to support additional use cases not yet contemplated.”)

³¹ Comments of the American Petroleum Institute at 8.

assignment mechanisms that provide maximum flexibility to license various available spectrum bands that are suited to different types of offshore operations in different geographic areas according to their spectrum needs.³²

III. Unlicensed spectrum use

UTC opposes comments on the record that suggest that the Commission should promote 6 GHz unlicensed operations for offshore communications by changing the rules to relax restrictions and remove prohibitions designed to prevent unlicensed devices from causing interference to licensed microwave systems in the band. At the outset, UTC emphasizes that utilities and other critical infrastructure industries rely on 6 GHz licensed microwave systems to support the safe, reliable and secure delivery of essential energy and water services. Interference from unlicensed devices to utility microwave systems could result in outages or accidents that would threaten the safety of personnel and the public. It is critical that the Commission protect these microwave systems against interference from unlicensed operations, and it should not be relaxing restrictions or eliminating prohibited operations, which would increase the risk of interference to these mission critical communications systems.

While comments claim that 6 GHz unlicensed devices will support the needs of offshore operations,³³ the opposite is true and comments from offshore energy industry entities specifically object to any potential use of 6 GHz unlicensed operations for offshore communications. At the outset, there is no need for 6 GHz unlicensed operations for offshore communications because utilities and oil and gas companies already use other unlicensed spectrum bands to meet their needs. Moreover, comments from utilities and oil and gas clearly express their preference for access to licensed spectrum for their mission critical communications and challenge the premise that 6 GHz unlicensed operations are needed for

³² Id. at 5 (concluding that “CII requires multiple options, including RF at various frequencies, for communications.”)

³³ Comments of the Wi-Fi Alliance at 2-6 (claiming that Wi-Fi and other unlicensed technologies play a key role in offshore communications, and urging the Commission to make certain rule changes for operations in the 6 GHz band to make unlicensed operations in the band more productive both onshore and offshore.) Comments of Cisco at 2-4 (arguing that the Commission should permit mobile standard power operations for offshore communications).

offshore communications.³⁴ To be sure, they use unlicensed spectrum bands for some of their communications needs, but CII really needs access to *licensed* spectrum. There is no need for the Commission to be changing its rules to promote unlicensed operations in the 6 GHz band, and there are sufficient alternatives available for unlicensed spectrum for offshore communications.

UTC echoes the comments on the record expressing concerns about the interference potential of 6 GHz unlicensed operations on licensed microwave systems.³⁵ As the Commission notes, the current rules prohibit 6 GHz unlicensed operations on oil platforms, and they provide other limitations designed to reduce the potential of interference to licensed systems in the band.³⁶ Comments on the record ask the Commission to relax these limitations on 6 GHz unlicensed devices.³⁷ Moreover, they request that the Commission expand 6 GHz unlicensed operations by allowing mobile standard power operations, increasing the power for standard power access operations when they are used for point-to-point communications, and permitting client-to-client communications. These comments barely address the potential that such operations would pose an interference threat, let alone provide any technical justification with regard to interference protection. One comment argued that it would be easier for the Commission to permit unlicensed 6 GHz operations in offshore environments,³⁸ which ignores the fact that the propagation characteristics in an offshore environment actually increase the potential for interference due to various factors such as reflection and atmospheric ducting. Given the lack of technical support within these comments, the Commission should reject any requested changes to the rules for 6

³⁴ See Comments of the American Petroleum Institute at 7 (stating 6 GHz unlicensed operations for offshore communications is “unnecessary due to the sparse nature of offshore operations in comparison to a use case in a large metropolitan area.”)

³⁵ See e.g., Comments of the American Petroleum Institute at 6-8 (opposing 6 GHz unlicensed operations due to interference concerns, stating that “[t]he Commission’s decision to introduce unlicensed operation in the 6 GHz band does not include sufficient protection to incumbent licensed operations.”).

³⁶ See *NOI* at ¶35, citing § 15.407(d)(1) (stating that operation of specified devices in the 5.925-7.125 GHz band. . . is prohibited on oil platforms, cars, trains, boats, and aircraft . . .”).

³⁷ Comments of the Wi-Fi Alliance at 6 (requesting among other rule changes that “the Commission should relax the blanket prohibition on the operation of 6 GHz unlicensed devices on oil platforms and ships.”)

³⁸ Comments of Cisco at 3-4 (stating that “even if the Commission is not yet ready to authorize mobile standard power 6 GHz operations in general, the agency could easily move forward now with authorizing such use on offshore energy platforms,” because offshore energy sites exist in well-defined and isolated geographic areas that are likely to be under the control of the licensee of any nearby fixed microwave systems.

GHz unlicensed operations, which would only increase the potential for interference to mission critical licensed microwave communications systems in the area.

UTC continues to urge the Commission to address the concerns of utilities and other CII as well as public safety and other incumbent licensees and stakeholder organizations that the current rules do not provide sufficient interference protection from unlicensed 6 GHz operations. Real-world studies have demonstrated that 6 GHz unlicensed devices are certain to cause significant and widespread interference, and that even a single 6 GHz unlicensed device can cause complete loss of communications between microwave links. These tests were conducted in compliance with the Commission's rules based upon likely use cases. Moreover, these tests revealed that the actual duty cycles of these unlicensed devices were orders of magnitude greater than the modeling upon which the Commission's rules were based, which significantly increases the potential that these devices will cause interference to licensed microwave systems. Given the history of unlicensed operations in other bands, it is likely that consumers will use these devices outdoors or otherwise out of compliance with the Commission's rules, which will increase the potential for interference even more.

The National Telecommunications and Information Administration has emphasized the need to protect important coastal and offshore operations against interference, adding that the protection criteria must reflect the unique concerns of offshore operations.³⁹ UTC supports the comments of NTIA, which urge the Commission to consider that radio waves will generally tend to propagate farther over the open ocean, without the clutter and terrain of land, and that other factors such as atmospheric ducting are greatly increased over oceans or other large bodies of water and will increase the potential for interference.⁴⁰ UTC also echoes other comments on the record that emphasize the need to protect against interference, including protection of 6 GHz licensed microwave systems.⁴¹

³⁹ Comments of the National Telecommunications and Information Administration in WT Docket No. 22-204 at 7 (filed Jul. 29, 2022).

⁴⁰ *Id.*

⁴¹ *See e.g.*, Comments of Orsted Wind Power North America at 3 (recommending that “[d]ue to low protection over interference, a shared spectral rights approach should be prohibited”) *See also Id.* at 5 (stating that “[w]hile indoor frequencies can be shared with adjacent wind farms, proper isolations and interference management is required for

CONCLUSION

UTC supports the Commission's *NOI* in this proceeding to promote spectrum access for offshore communications, including windfarms and oil and gas platforms. There is an increasing demand for spectrum to support offshore communications and these communications are critical for the construction and operation of offshore facilities. By promoting access to spectrum for certain offshore communications the Commission can advance overarching national policy goals related to clean energy and infrastructure reliability. UTC urges the Commission to promote access to licensed spectrum for use by CII for energy infrastructure projects such as windfarms and oil and gas platforms. While utilities and other CII can and will use unlicensed spectrum for some of their needs, they really need access to licensed spectrum for mission critical operational reliability, safety, and security. Finally, the Commission should reject comments requesting that it change the rules for unlicensed 6 GHz operations to promote offshore communications, which claim a false premise that there is a need for unlicensed 6 GHz operations and which ignore the significant potential for interference to mission critical communications that exists under the current rules. As it proceeds with its *NOI*, the Commission must protect against interference, including 6 GHz licensed microwave systems that utilities and CII use to support mission critical operations. UTC looks forward to working with the Commission on this important issue and appreciates the opportunity to provide its reply comments in response to the *NOI*.

Respectfully submitted,

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the outdoor frequencies. Interference on the TETRA frequencies that disrupt or limit its capabilities can have both safety and financial implications”)