Before the
National Telecommunications and Information Administration
Department of Commerce
Washington, DC 20230

In the Matter of	)	
	)	
Development of a National Spectrum Strategy	)	Docket No. NTIA– 2023–0003
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Comments of the Utilities Technology Council

The Utilities Technology Council hereby submits its comments in response to the Request for Comment by the National Telecommunications and Information Administration in the above-referenced proceeding.[1] UTC supports the NTIA's initiative to develop a National Spectrum Strategy, including a plan for spectrum to support the private internal communications needs of electric, gas and water utilities and other critical infrastructure industries ("CII").

Specifically, UTC emphasizes that there needs to be a spectrum pipeline for utilities to meet their current and future spectrum requirements. Utilities lack sufficient spectrum to meet their increasing communications needs to support grid modernization and similar overarching national policies to improve the quality and reliability of the essential services that utilities provide every day. This long-term spectrum plan should be based upon collaboration with both federal and non-federal stakeholders to address the needs of spectrum reliant services and missions, including those of utilities and other CII, which is a big part of the emerging Industrial Internet of Things (IIoT) and which also is a major factor in protecting national defense and homeland security, securing the Nation's critical infrastructure, and safeguarding environmental

[1] Development of a National Spectrum Strategy, National Telecommunications and Information Administration, Docket No. 230308-0068, 88 Fed. Reg. 16244 (2023)(hereinafter "Request for Comment").

quality. While this is a long-term plan, the time is now for utilities to be able to access the spectrum they need, and they're pursuing innovative approaches, including spectrum sharing, that would quickly put spectrum to more effective use without disrupting incumbent operations. There are certain candidate spectrum bands that would be suitable to meet utility requirements for coverage and capacity, and utilities are uniquely capable of sharing these bands with incumbents because they have similar types of operations that can be coordinated and coexist with each other and they share similar missions which can be complemented by sharing spectrum together, opening up further opportunities for shared networks using 5G to support network slicing and other potential benefits. Implementation of this federal spectrum sharing with utilities can be achieved within 12-24 months, and UTC looks forward to working with the NTIA and other federal agencies to develop this particular part of the national spectrum strategy in more detail.

I. Introduction and Background

Founded in 1948, UTC is the international association for the telecommunications and information technology interests of electric, gas and water utilities and other critical infrastructure industries.[2] Its members include all types of utilities, including large investor-owned utilities who may serve millions of customers across multi-state service territories and smaller electric cooperatives and public power utilities who may serve only a few thousand customers in rural areas or isolated communities. All of these utilities own, maintain and operate extensive communications and information technology ("IT") systems that they use in support of

[2] *See* www.utc.org for more information about UTC.

their core utility operations, and they have operated these communications and IT systems for decades.

These communications systems include both wireline and wireless networks. The wireless networks include land mobile radio and point-to-point microwave systems. These communications and IT systems are designed, built and maintained to extremely high standards of reliability and resiliency, because these systems must cover their entire service territory including remote areas where critical assets are located and wherever personnel are working in the field. Moreover, these communications and IT systems must remain operational during emergencies, such as hurricanes, tornadoes, wildfires and other natural disasters, when power may be unavailable and crews are working to restore services.

Utilities need access to spectrum to support increasing demands on their wireless communications systems. Many of their existing wireless communications systems use narrowband channels, and utilities need additional capacity to support a variety of new utility applications related to grid modernization and security to support mobile as well as fixed operations. At the same time, utilities are facing challenges with the existing spectrum they use, which is increasingly subject to interference and congestion from other incompatible co-channel or adjacent channel operations nearby. Some of the spectrum bands they used have been reallocated for commercial services. Finally, utilities face challenges accessing additional spectrum, which is typically auctioned, and the geographic area licenses may be too expensive for what they can afford or too large for what they need. Similarly, some utilities have been able to acquire spectrum through secondary market transactions, but they are not always able to access sufficient spectrum where and when they need it.

The National Spectrum Strategy represents a significant opportunity to carefully, thoughtfully and effectively plan today for meeting our nation's wireless communications needs. Utilities should be at the center of this effort because everything they do makes everything else possible. Light, heat, and water are the basic necessities of life and these services affect us all in so many countless and important ways. That is why utilities are critical infrastructure. Communications is increasingly important for utilities to ensure the safe, secure and reliable delivery of essential electric, gas and water services that we all need. Grid modernization, cyber and physical security, electric vehicles, renewable energy resources, and climate change are all increasing the demands on utility communications networks, including wireless communications systems. As a country, we need to provide utilities with access to spectrum to meet these increasing demands now and in the future. UTC thanks the NTIA for recognizing utilities among the various stakeholders included in the National Spectrum Strategy and committing to collaborate with utilities. Utility communications networks have been overlooked for too long, and the National Spectrum Strategy should address the critical spectrum needs of utilities that currently exists and threatens the safety, security and reliability of the essential services these communications networks help to provide us every day.

II. Providing a Spectrum Pipeline for Utilities

In its Request for Comment, NTIA emphasizes that "[a] spectrum pipeline is essential to continue our nation's economic growth, to improve our global competitiveness, and to support critical federal services and missions."[3] It seeks comment generally on what requirements such a

[3] *Id.* at 16245.

pipeline needs to address, and which spectrum bands may be best suited for particular purposes.[4] Specifically, it asks for comment on projected future spectrum requirements and why the amount of spectrum now available will be insufficient to deliver current or future services or capabilities of concern to stakeholders.[5] It also asks what spectrum bands should be studied for potential repurposing for utilities' services over the short, medium, and long term and the factors to be used in identifying potential candidate spectrum bands.[6] Next it asks for the factors that should be considered in identifying spectrum for the pipeline.[7] Finally, it asks whether there are changes that can be made in the government's spectrum management processes, and it invites comment on spectrum sharing, including any barriers or obstacles as well as any incentives or policies that could encourage or facilitate more robust federal and non-federal spectrum sharing arrangements.[8] It also asks how the U.S. compares to other countries, and how it should be thinking regarding international harmonization and allocation disparities in developing the National Spectrum Strategy.[9]

A. Assessing the need for spectrum for utility wireless communications is critical.

It's fair to say that utilities know about pipelines, yet utilities have barely been able to get a slow drip from the spectrum pipeline over the course of the last several decades. There has been no spectrum allocated for private land mobile or microwave services in the last 30 years.

[4] *Id.* at ¶1.

[5] *Id.* at ¶2.

[6] *Id.* at ¶3.

[7] *Id.* at ¶4.

[8] *Id.* at ¶¶5-6.

[9] *Id.* at ¶9.

All new spectrum has been auctioned. That is why it is so important that the National Spectrum Strategy includes utilities in the process and promotes access to spectrum for utilities and other CII to support their missions both here in the U.S. and around the world.[10] The same way that there is a race to 5G in the communications industry, there is a race for utility grid modernization and security around the world which depends on access to spectrum.[11] Other countries are making spectrum available for utility communications systems, including for PLTE. [12] The U.S. is at risk of falling behind in this race, and the spectrum pipeline needs to be turned on and opened wide for utilities, not just commercial wireless service providers and Wi-Fi proponents.

B. Suitable Spectrum for Utility Wireless Communications Systems.

Generally, the National Spectrum Strategy needs to address the needs of utilities for spectrum to provide additional capacity and wide-area coverage to reach remote areas. The spectrum bands that are best suited are below the 2 GHz frequency range, because spectrum in higher bands is subject to line-of-sight limitations including rain/fog, buildings, foliage and terrain which can diminishes its suitability for wide-area coverage and reliability.[13] The challenge is finding spectrum below 2 GHz with enough bandwidth to support the capacity needs of utilities for their field area network (FAN) communications. Although spectrum is scarce, there are some discrete spectrum bands below 2 GHz that are suited to provide utilities with at

[10] *See Id.* at ¶4 (asking "Why should opening or expanding access to [identified spectrum]bands be a national priority.")

[11] *See Id.* at ¶9 (asking "How do allocations and varying spectrum access and governance models in the U.S. compare with actions in other nations, especially those vying to lead in terrestrial and space-based communications and technologies?")

[12] *See Kilbourne, Brett and Nelson, Kathy*, "Global Spectrum Landscape for PLTE for Utilities" *UTC Journal* at 28-30 (1st Quarter 2023)(reporting on PLTE networks for utilities and other CII in Germany, Ireland, the Netherlands, Poland, and Sweden among other countries.) *available at* *https://www.bluetoad.com/publication/frame.php?i=787466&p=29&pn=&ver=html5&view=issueViewer*.

[13] *See Id.* at ¶4 (asking "What factors should be considered in identifying spectrum for the pipeline?")

least some of the capacity they need to support fixed and mobile broadband for their FAN communications.[14] In addition to the spectrum below 2 GHz for wide area communications, utilities also need access to spectrum in higher frequency ranges for point-to-point microwave wireless communications for backhaul over long distances. There are certain spectrum bands that appear suitable to support utility needs for microwave wireless communications to provide highly reliable, long-distance links with sufficient capacity.

It is widely known and has been understood for a long time that utilities have increasing spectrum needs. In 2002, NTIA itself published a study on current and future spectrum use by energy, water and railroad industries.[15] In it NTIA stated, "[t]he events of September 11, 2001, have underlined the importance of these industries and the role they play not only in our daily lives, but in times of disaster response and recovery. When the World Trade Center collapsed, utilities needed to be shut off or restored. It was important for sufficient water pressure to be continuously available for firefighting, and when the airlines were grounded, people and commerce relied more on the railroad industry for transportation."[16] The NTIA went on to state that "it is of utmost importance that the Federal Communications Commission revisit these critical issues in order to accommodate the increasing role these industries play in maintaining quality of life."[17] The ensuing FCC report noted the problems associated with interference and

[14] *See Id* at ¶3 (asking "What spectrum bands should be studied for potential repurposing for the services or missions of interest or concern to you over the short, medium, and long term?")

[15] Marshall W. Ross and Jeng F. Mao, Current and Future Spectrum Use by the Energy, Water, and Railroad Industries, Response to Title II of the Departments of Commerce, Justice, and State, Judiciary, and Related Agencies Appropriations Act, 2001 Public Law 106-553, U.S. Dept. of Commerce, NTIA (Jan. 2002), *available at* https://www.ntia.gov/report/2002/current-and-future-spectrum-use-energy-water-and-railroad-industries.

[16] *Id.* at xxi.

[17] *Id.* at xxii.

congestion in existing spectrum bands used by utilities, including the 800 MHz band, and it stated that some of utilities' increasing spectrum needs could be addressed if utilities were provided access to spectrum in certain other bands, including the 4.9 GHz band.[18] Twenty years later, the 800 MHz band is still undergoing rebanding, and the 4.9 GHz band is still not generally open to access by utilities.

In 2010, the Department of Energy spearheaded a comprehensive effort to collect information and publish a report about the communications needs of utilities to support smart grid (i.e., grid modernization).[19] Forty-seven comments and ten reply comments were filed by utilities, equipment providers and other stakeholders with the DOE in response to its Request for Information, and eight panelists from utilities, regulators and other stakeholders presented additional information on this issue during a public meeting hosted by DOE.[20] Among other things, the DOE Report recommended that DOE work with both the Federal Communications Commission (FCC) and National Telecommunications and Information Administration (NTIA) to review possibilities for spectrum access to accommodate Smart Grid needs, either through sharing frequencies with other users, leasing spectrum, or other alternatives."[21]

The National Spectrum Strategy represents an opportunity to carry forward this work on utility spectrum access together with industry stakeholders as well as various federal agencies, including DOE, FCC and NTIA. UTC urges the National Spectrum Strategy to focus on

[18] FCC Staff Report on NTIA's Study of Current and Future Spectrum Use by the Energy, Water and Railroad Industries, *available at* https://www.fcc.gov/document/fcc-staff-report-ntias-study-current-and-future-spectrum-use.

[19] Communications Requirements of Smart Grid Technologies, Department of Energy (Oct. 5, 2010), *available at* https://www.energy.gov/gc/articles/communications-requirements-smart-grid-technologies.

[20] *Id.* at Appendix B.

[21] *Id.* at 6-7.

meeting the increasing spectrum needs of utilities, including to support the six key priority Smart Grid functionalities identified by the DOE in its 2010 Report: (1) advanced metering infrastructure; (2) demand response; (3) electric vehicles; (4) wide-area situational awareness; (5) distributed energy resources and storage; and, (6) distribution grid management.[22] In addition, the National Spectrum Strategy should also account for utilities' increasing spectrum needs to protect the physical and cybersecurity of their electric, gas and water critical infrastructure. Finally, the National Spectrum Strategy should also address the increasing spectrum needs of utilities to support reliability and resiliency during and after hurricanes, tornados, wildfires and other natural disasters, which requires communications for a variety of utility applications including unmanned aircraft systems (UAS), Advanced Distribution (ADMS), Fault Location Isolation and Service Restoration (FLISR), and Falling Line Conductor detection systems generally.[23]

C. Why Utilities Need Additional Spectrum.

As explained above, utilities lack sufficient spectrum to meet their increasing communications needs, based a variety of factors.[24] First, they need access to a nationwide allocation of spectrum assigned by exclusive licenses of sufficient spectrum blocks and geographic areas to provide the capacity and coverage for utilities to support a variety of applications across their service territories using standardized equipment that can operate in the

[22] *Id.*

[23] When Power Lines Break, a New Control System Keeps the Sparks from Flying, Sn Diego Gas & Electric (Oct. 24, 2018) *available at* https://www.sdgenews.com/article/when-power-lines-break-new-control-system-keeps-sparks-flying#:~:text=A%20broken-line-detection%20and%20control%20system%20became%20the%20utility%E2%80%99s,and%20thus%20greatly%20reduce%20the%20risk%20of%20fire.

[24] *See* Request for Comment at 16245-16246 at ¶2.

spectrum. The existing narrowband licenses they use for their private land mobile radio systems are simply insufficient to carry the amount of traffic utilities from all the smart grid devices, video monitoring systems and mobile data systems that are being implemented all across utility service territories. Not only do utilities need more capacity, they need to extend their communications deeper into their infrastructure so they can communicate with distribution substations and with distributed energy resources (DERs), which may be located in remote locations or near customer premise locations.[25] Finally, utilities need access to additional spectrum because they face interference and congestion in some of their existing spectrum bands they use, including interference from unlicensed operations in the 6 GHz band (5925-7125 MHz).[26]

Utilities need to balance the flow of power onto the grid from DERs in real-time, and they need to be able to constantly monitor and control substations and other critical assets to support synchrophasors and other technologies that improve power quality and reliability.[27] Wireless is the most suitable technology to communicate with these utility applications across

[25] *See generally Abrahamsen, Fredrik Ege and Ai, Yun and Cheffena, Michael* "Communication Technologies for Smart Grid: A Comprehensive Survey" *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8659758/. (stating that "fast acting smart sensing and protection equipment, as well as fast reliable communication become more important to maintain system balance and to monitor and coordinate DERs in the grid"). *See also* Field Area Networks for Utilities, Nokia, *available at* https://www.nokia.com/networks/solutions/field-area-network-for-power-utilities/.

[26] *See e.g.*, Letter from Coy Trosclair, Director of Telecom Services, Southern Company Services, Inc., to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295 at 2 (filed March 21, 2021)("Southern *Company* Study"). *See also* Letter from Greg Kunkle, Counsel to FirstEnergy Corp., to Marlene H. Dortch, Secretary, Federal Communications Commission (filed Oct. 12, 2022) and Attachment: EPRI, "FirstEnergy 6 GHz Additive Interference Study – Public," 2022 Technical Report ("FirstEnergy Study"). *And see* Letter from Michael Bennet, Counsel to Evergy, to Marlene H. Dortch, Sec'y, FCC, ET Docket No. 18-295 (filed Dec. 8, 2022), attaching Wi-Fi 6E and 6 GHz Microwave Testing ("Evergy Study")(documenting real-world testing which found potential for significant widespread interference to utility microwave systems from unlicensed 6 GHz low-power indoor devices.)

[27] *See* Request for Comment 16245 at ¶2 (asking "why the amount of spectrum now available will be insufficient to deliver current or future services or capabilities of concern to stakeholders.")

their service territories, and utilities need to use their own private wireless communications systems. It is not feasible to deploy fiber and other wireline technologies to the multitude of smart grid devices all over utility infrastructure. Similarly, utilities cannot rely on commercial networks to remain operational during power outages and other emergencies, nor do these networks typically provide the coverage utilities need in remote areas. Finally, utilities have had only limited success accessing broadband spectrum, either through spectrum auctions or on the secondary market. They can't afford to compete at auction for broadband spectrum in all areas where they need it, and often there isn't any such spectrum available to acquire on the secondary market in certain parts of their service territories either. For all these reasons, utilities lack sufficient spectrum to support their communications needs for various current and future utility applications.

The estimates of the amount of spectrum utilities need will vary, depending on a variety of factors, including the applications each utility is trying to support as well as the coverage of the spectrum that is being used.[28] Higher frequency spectrum may not cover as much geographic area, which would tend to reduce the amount of capacity needed to carry traffic in the area covered by each site. Given that utilities need to cover large areas, they may prefer to use lower frequency ranges, which would tend to increase the amount of bandwidth required to carry the traffic in those larger areas covered by each site. Some of these capacity requirements can be managed through system design and segmentation of the network. However, it may not be economically or practically feasible to deploy additional sites in certain areas, particularly in urban areas, where siting and permitting can be challenging. As a result, it is likely that utility

[28] *Id.* at ¶1 (asking "What are projected future spectrum requirements of the services or missions of concern to you in the short (less than 3 years), medium (3–6 years) and long (7–10 years) term.")

spectrum requirements will need to be met using various different spectrum bands, including the bands identified as follows. Moreover, the amount of spectrum needed will vary depending on the utility, the applications it is supporting on the network, and the network design and the frequency range of the wireless system it is operating.

D. Identifying Additional Spectrum for Utility Wireless Communications Systems

Specifically, UTC recommends that NTIA start with two potential candidate bands for utilities: the 7125-8500 MHz band (7/8 GHz) and the 400 MHz bands (388-399 and 406-420 MHz). Importantly, UTC believes that these spectrum bands could be shared with utilities – not reallocated or "repurposed"—and this would avoid disruption of incumbent systems and put the spectrum to more effective use on a timely basis. This should be a national spectrum priority because these bands would help to address the near-term need for alternative interference-free spectrum for point-to-point microwave as well as the need for higher capacity wide area communications to support smart grid across utilities' field area networks. UTC believes that this approach would be far better for incumbents and utilities alike compared to alternative approaches such as reallocation and relocation of incumbents or dynamic sharing with unlicensed operations that would entail significant cost, disruption and delays to implement.

i. The 7/8 GHz band

Utilities need to transition some of their fixed point-to-point links in the 6 GHz band to avoid interference that is expected from the advent of unlicensed operations that the FCC has recently authorized for both outdoor and indoor operations in the 6 GHz band, and which it is considering authorizing for unlicensed mobile operations in the band as well. The 7/8 GHz band appears to offer many of the same propagation characteristics as the 6 GHz band, such that it would represent a potential candidate band as an alternative to avoid interference from

unlicensed operations in the 6 GHz band. Utilities would likely transition gradually, starting with links passing over areas where unlicensed operations are most likely to occur first, mainly population centers. So, this process would be an incremental transition and not wholesale relocation of utility systems. UTC believes that the 7/8 GHz could be shared with utilities using traditional frequency coordination approaches that are well-understood. The process of prior coordination of fixed point-to-point microwave systems is well-understood, and UTC is authorized to coordinate non-federal microwave systems, which operate similar to those federal incumbent systems that are currently authorized to operate in the 7/8 GHz band.

ii. The 400 MHz Bands

Utilities need access to spectrum in the 400 MHz band, which would support private long-term evolution (PLTE) and 5G wireless broadband. Utilities should be able to share this band with federal government incumbent operations using a predefined spectrum sharing approach (static or predefined sharing of locations, frequency, time). This approach would be appropriate for this spectrum band because it is reportedly lightly used and operations are reportedly limited to certain parts of the country, such that utilities should be able to use this spectrum in other parts of the country without causing interference to federal government incumbents. This spectrum possesses the characteristics utilities need in terms of capacity and coverage. Moreover, this spectrum is aligned with spectrum that utilities are using in other countries around the world. This would enable utilities in the U.S. to leverage existing standardized equipment that is available in those countries and could be modified to operate in the U.S. In turn, this would accelerate deployment and make it cost effective for utilities to operate PLTE systems. It would also potentially provide a migration path for utilities to transition to 5G services in the future.

III. Long-term Spectrum Planning.

In the Request for Comment, the NTIA stated that "[t]he key to addressing spectrum needs across sectors is a long-term planning process in which affected stakeholders work together openly and transparently in an ongoing manner."[29] UTC agrees and fully supports an open, transparent and collaborative process that includes all stakeholders and takes a whole-of-government approach that includes the Department of Energy along with other agencies that work with electric, gas and water utilities.[30] Although the NTIA is planning for a long-term process, utilities need access to spectrum now, and UTC believes that the National Spectrum Strategy could make spectrum available for utilities in the near-term by adopting a spectrum sharing approach for making certain candidate spectrum bands available for utility wireless communications systems.[31] If sufficient data is made available about incumbent use of these candidate bands, it would likely confirm that these bands can be shared with utilities and that frequency coordination will enable coexistence without harmful interference.

These initial candidate bands are just a start, and the National Spectrum Strategy should consider making available other spectrum bands for utilities and other CII as part of a broader strategy to provide a spectrum home that would support utilities' long-term wireless communications needs into the future. The NTIA can serve an important role as a convenor for a dialog between federal and non-federal entities, such as utilities and CII. Moreover, NTIA can help to facilitate information sharing that will help to inform the National Spectrum Strategy

[29] *Id.* at 16246, Pillar #2 "Long Term Spectrum Planning".

[30] *Id.* 16246 at ¶1.

[31] *Id.* at ¶2 (asking "What type of timeline would be defined as a 'long-term' process.")

generally and utilities specifically regarding potential spectrum sharing opportunities and approaches to use for other candidate bands.[32] This dialog will help to foster trust among spectrum stakeholders and help drive consensus among all parties regarding spectrum allocation decisions,[33] and UTC believes that utilities and federal government incumbents will be able to develop trust with each other because they already share similar missions, communications requirements and a common interest in partnering with each other. Moreover, UTC looks forward to working with federal government to engage in demonstration projects for spectrum sharing to ensure coexistence with each other. The success of these demonstrations should pave the way for broader spectrum sharing between utilities and federal government incumbents, and it would open up potential opportunities for partnerships between utilities and federal agencies to share networks. UTC looks forward to exploring these opportunities together with federal government incumbents.

IV. Unprecedented Spectrum Access and Management Through Technology Development; and the Implementation Plan

The Request for Comment on the National Spectrum Strategy seeks input on "what categories of new or emerging technologies could best help to ensure the U.S. continues to innovate and maintain its global leadership in spectrum-based services."[34] Among other things, it asks about innovations and next-generation capabilities for spectrum that could be employed as well as policies that could be developed to promote such new and innovative uses of spectrum.[35]

[32] *Id*. at ¶3.

[33] *Id.* at ¶4.

[34] Id. at 16247, Pillar #3 "Unprecedented Spectrum Access and Management Through Technology Development".

[35] *Id.* at ¶¶1-2.

In that context it asks for comment on dynamic spectrum sharing and other technologies and methodologies that are currently being used or could be researched and developed.[36] Finally, it asks about the implementation plan for the National Spectrum Strategy, including specific steps that could be taken in the next 12-24 months.

UTC believes that sharing spectrum with utilities and federal government operations can be accomplished relatively easily because they operate similar systems and they use communications to support similar missions. Accordingly, UTC believes that traditional frequency coordination approaches could be used to enable spectrum sharing between utilities and CII with federal government operations. As noted above, utilities are interested in sharing the 7/8 GHz band, and the point-to-point microwave systems that utilities operate in the 6 GHz band are similar to the microwave systems that federal government incumbents operate in the 7/8 GHz band. UTC does not believe it would be necessary to use dynamic spectrum sharing technologies, because the systems can be effectively coordinated based on frequencies of operation and geographic distance from each other. Moreover, the shared use of the spectrum by utilities could open up opportunities for additional investments by utilities and partnerships with federal government incumbents. In terms of implementation, UTC believes that spectrum sharing should be conducted together with federal government incumbents as soon as possible once the candidate bands have been identified and the processes have been established for coordinating systems with each other. Assuming the demonstration stage of the process is successful, the band could be made available more widely within 12-24 months.

[36] *Id.* at ¶5.

CONCLUSION

UTC thanks NTIA for the opportunity to provide its comments on the National Spectrum Strategy. We believe there are significant opportunities for utilities to share spectrum with federal government operations in the near term. Moreover, we believe there are broader opportunities to make other spectrum bands available as a home for utility wireless communications systems. This would ensure that the U.S. utility and CII sectors are able to support increasing communications demands brought on by grid modernization, physical and cyber security threats, and extreme weather events. This is an exciting time and we look forward to working with NTIA and all the federal agencies and other stakeholders on this process.

Respectfully submitted,

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