Edison Electric
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Via Electronic Filing
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

Re: Implementation of the National Spectrum Strategy; Notice of Opportunity for Public Input

The Edison Electric Institute ("EEI") submits these comments in response to the Notice of Opportunity for Public Input issued by the National Telecommunications and Information Administration ("NTIA"), which seeks comment on an Implementation Plan for the National Spectrum Strategy ("Strategy") for the nation. EEI applauds NTIA for its leadership in having developed the Strategy so that the U.S. may effectively plan for its current and future spectrum needs and for collaborating with the Federal Communications Commission ("FCC") and coordinating with its other federal partners to identify at least 1,500 megahertz ("MHz") of spectrum for in-depth study to determine whether that spectrum can be repurposed to allow more intensive use.

EEI supports the goal of increasing spectrum access for all users and submits these comments to underscore that a sustainable spectrum strategy must recognize the electric power industry's needs and missions, including fixed and mobile wireless broadband services, industrial and commercial applications, Internet of Things, climate monitoring and forecasting, long-rang inspections using unmanned aerial systems, and securing the nation's electric grid. It is more critical than ever to develop a robust, transparent spectrum management framework to meet the industry's clean energy goals and to integrate smarter energy infrastructure and renewable and distributed energy sources. This must be grounded in a well-coordinated pipeline of future spectrum availability, a mix of spectrum access models (licensed, unlicensed, shared, or hybrid), and rules that increase predictability of spectrum access. EEI looks forward to working with NTIA as it develops then executes the Implementation Plan.

Introduction

EEI is the trade association representing U.S. investor-owned electric generation and distribution companies, including all the major regional electric companies. Collectively, EEI's members provide electricity for nearly 250 million Americans, operate in all fifty states and the District of Columbia, and directly and indirectly employ more than seven million people in communities across the U.S.

Electric companies are among the nation's largest users of communications services and operate some of the largest private communications networks in the nation. Electric companies are investing in communications networks to help make the electric grid stronger, more reliable, more secure, and more resilient to help transition the nation to cleaner energy resources. Accordingly, EEI and its members have an ongoing interest in ensuring that this nation's electric companies have sufficient communications capabilities to meet their duty to provide safe, reliable, secure, resilient, cost-effective, and cleaner power to the public.

Sound spectrum policy is important for the electric power industry to develop a wide range of next-generation applications that will improve the reliability, safety, security, and resiliency of the electric grid. The drive to advanced automation requires access to spectrum capable of supporting the increasing communications requirements to proliferate millions of devices across electric company transmission and distribution networks.

The Implementation Plan should address the urgent need among critical infrastructure industries ("CII"), including electric companies, for access to licensed, interference-protected radio spectrum for private wireless networks. For decades, electric companies operated private wireless networks to support their operations. These networks are designed, built, and maintained to exacting standards of reliability because they support mission-critical communications ensuring operational integrity and the safety of life, health, and property for the public. Moreover, these networks must remain operational during emergencies such as severe storms, when commercial networks can become overwhelmed due to congestion or completely fail due to damage. For this reason, it is important that the Implementation Plan addresses the spectrum needs of electric companies because the private wireless networks they use must maintain grid reliability. Without the electric grid, there are no wireless services, no internet, no voice, or data communications.

The effective implementation of the Strategy is also critical to America's global competitiveness. Without sufficient access to spectrum, America's electric power industry will not have the tools needed to modernize, much less maintain, their wireless networks high performance, efficiency, resiliency, security, and reliability in the manner electric companies in other nations around the world are increasingly able to achieve. If America's power industry falls behind, then the nation's progress toward greater energy independence, efficiency, security, and resiliency will be impeded.

Comments

EEI supports the effort to accelerate United States' leadership in wireless communications and other spectrum-based technologies and to unlock innovations that benefit the American people, while ensuring necessary access to spectrum for agencies and private-sector users, such as for scientific, public safety, critical infrastructure, and national security uses, now and into the future. EEI commends NTIA for undertaking the effort to manage these diverse, and at times competing, spectrum demands through careful planning and coordination. EEI appreciates the opportunity to provide input on NTIA's Implementation Plan as discussed below.

I. Recommendations

A. The Implementation Plan should prioritize ensuring licensed spectrum is directly available to support the nation's critical infrastructure.

Any spectrum pipeline should account for the wide range of spectrum access approaches, including licensed, unlicensed, and shared spectrum solutions, to enable efficient, effective, and innovative uses of spectrum. The Implementation Plan should prioritize the electric power industry's access to interference-protected, exclusive-use spectrum to provide reliable, safe, secure, and resilient power to the public. Any failure in these electric company communications systems could have significant adverse consequences, owing to the essential nature of the services they support and the hazardous environments in which personnel in these industries work.

To support these increasing communications needs, CII need fair opportunities to access licensed, interference-protected spectrum that is allocated in sufficient channel bandwidths and sufficiently lower frequency range to support wide area coverage and higher throughput/lower latency. Unlicensed spectrum is subject to harmful interference and congestion, potentially threatening the reliability of essential electric company communications. Additionally, unlicensed spectrum has a limited range because of power restrictions. By comparison, licensed spectrum permits higher power and better coverage, particularly in lower frequency ranges that tend to propagate better. Consequently, electric companies need access to wideband if not broadband licensed spectrum in lower frequency ranges, but also access to mid and high band spectrum. Thus, the Implementation Plan should provide for priority spectrum allocation and protection from harmful interference for the communications needs of energy system operators. Ideally, this would include allowing energy system operators to benefit from dedicated licensed spectrum within a specific coverage area.

B. The Implementation Plan should prioritize study of the 7125-8500 MHz band (7/8 GHz) and the 380-399.9 MHz and the 406.1-420 MHz bands (400 MHz bands), as well as the feasibility of making further spectrum available to critical infrastructure in the 700 MHz to 1 GHz range.

The Implementation Plan should prioritize near-term study of two potential candidate bands: the 7/8 GHz and the 400 MHz bands. Incumbents and electric companies can share these bands without disruption of incumbent systems, putting this spectrum to more effective use in the near-term. The Implementation Plan should also prioritize study of sub-3 GHz bands that may be appropriate for critical infrastructure applications such as in the 700MHz to 1GHz range.

Electric companies need to transition some of their fixed point-to-point links in the 6 GHz band to avoid interference that is expected from unlicensed operations in the 6 GHz band. 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. Electric companies also need access to spectrum in the 400 MHz band, which would support private long-term evolution ("PLTE") and 5G wireless broadband. This spectrum possesses the characteristics electric companies need in terms of capacity and coverage. Moreover, this spectrum is aligned with spectrum that electric companies are using in other countries around the world. This would enable electric companies to leverage existing standardized equipment that is available internationally to accelerate cost-efficient deployments of PLTE systems.

NTIA should assess whether these bands have sufficient capacity in terms of bandwidth for the electric industry and other critical infrastructure industries to support their current and future requirements. NTIA should also evaluate alternatives such as reallocation and relocation of incumbents or dynamic sharing with unlicensed operations to quantify the associated cost, disruption, and time to implement these approaches.

The Implementation Plan should require NTIA to examine whether the 7/8 GHz band may be shared with electric companies in the near-term using traditional frequency coordination approaches that are well-understood. NTIA should evaluate existing studies indicating that the 7/8 MHz band would effectively and efficiently support incumbents to transition from the 6 GHz band. NTIA also should evaluate the process of prior coordination of fixed point-to-point microwave systems, and the feasibility of leveraging existing authorized frequency coordinators to coordinate non-federal microwave systems, which operate like those federal incumbent systems currently authorized to operate in the 7/8 GHz band.

The Implementation Plan should require NTIA to study whether electric companies can share the 400 MHz band with federal government incumbent operations using a predefined spectrum sharing approach (static or predefined sharing of locations, frequency, time). Because the 400 MHz band is lightly used, NTIA should evaluate whether operations in that band are limited to certain parts of the country. This would allow NTIA to assess whether electric

companies should be able to use this spectrum in certain geographic areas without causing interference to federal government incumbents.

C. The Implementation Plan should prioritize NTIA developing an inclusive whole government framework to implement the Strategy.

The Implementation Plan should reflect the Administration's policy "to ensure that spectrum management, usage, and allocation decisions are coordinated, consistent, and reflect the needs and diverse missions of agencies and non-Federal users." *See* Presidential Memorandum. EEI supports the current roles of the FCC and NTIA in leading this process; however, there needs to be broader coordination and collaboration among federal agencies responsible for regulating and supporting critical infrastructure. The Presidential Memorandum states that there is a need to "fully account for essential Federal Missions, including national defense and homeland security, safeguarding the national airspace, securing the Nation's critical infrastructure." Electric companies are not only key to supporting the reliability and resiliency of America's communications networks, but they are also essential to support the Department of Defense and other Federal government operations and missions. Accordingly, the Implementation Plan should provide that the Interagency Spectrum Advisory Council must include critical infrastructure sectors with representation by the US Department of Energy and the Federal Energy Regulatory Commission. It is also important for the Implementation Plan to provide a cross-sector collaborative framework providing sufficient time and procedures for Departments/Agencies to inform NTIA and the FCC.

The Implementation Plan should require NTIA to establish a federal advisory committee to ensure that the public has knowledge of, and an opportunity to participate in, meetings between Federal Agencies and/or the Inter Agency Spectrum Advisory Council for the purpose of obtaining expert advice and recommendations to NTIA in carrying out its authorized duties. An important benefit of establishing a federal advisory committee is it would allow the Electric Power Research Institute ("EPRI") and similar industry groups to provide their expertise and unique perspectives to inform the NTIA and assist in the spectrum decision making process. These entities can better help NTIA consider how spectrum access can support national clean energy and critical infrastructure protection policies. The federal advisory committee should be solely advisory in nature and, in according with the provisions of the Federal Advisory Committee Act of 1972 ("FACA"),[1] should report to the Assistant Secretary of Commerce for Communications and Information of NTIA ("Assistant Secretary"), provide input on industry requirements, standards, priorities, and gaps, as well as on the overall direction, status and health of the Strategy implementation including direction of research and standards activities. This federal advisory committee should also focus on improved spectrum governance. Among other things, such an effort should involve clarifying the interference rules and accelerating resolution of disputes, including what responsibilities users have to one another in adjacent

[1] Public Law 92-463.

bands. The NTIA should structure the membership of the federal advisory committee to have diverse sector representation including significant representation by critical infrastructure – commercial telecommunications interests should not dominate it. The Assistant Secretary of NTIA should appoint the members of the committee on a clear, and standardized basis.

D. The Implementation Plan should prioritize transparency of data-driven decision-making.

Electric companies support broader spectrum sharing, including sharing with unlicensed operations, provided that these approaches are implemented in a way that protects incumbent operations from interference. The Implementation Plan should reflect the principle that any sharing techniques must be tested and proven to be effective at protecting incumbents' use of a band before being put to use. Quantitative analyses of interactions between services should be fact- and evidence-based, sufficiently robust, transparent, and reproducible to better inform spectrum management decision-making. Transparent and reproducible quantitative analyses best inform decision-making and give stakeholders and regulators the ability to validate the fidelity of interference models and ensure that they represent realistic operating conditions and scenarios, with balanced protection criteria. The Implementation Plan should require NTIA to actively encourage cross-industry information sharing and collaboration,[2] as well as requiring regulatory processes to utilize analytical models that are reproducible and verifiable in the real-world so that multiple diverse stakeholders can validate the conditions and results of such models.

E. The Implementation Plan should require NTIA to foster stakeholder engagement and trust-building regarding spectrum allocation and sharing decisions.

As discussed above, the electric power industry utilizes and relies on spectrum for a wide variety of essential purposes that serve important economic, security, and safety objectives. The Implementation Plans should require NTIA to be proactive in stakeholder engagement and ensure that the electric power industry is engaged in a long-term spectrum planning process.

The key for NTIA's success in this effort is to ensure that a transparent dialogue is maintained where all spectrum stakeholders can clearly articulate their communications needs and requirements. The dialogue should not simply be focused on how much revenue can be derived through auction mechanisms, because it is without question that the public interest is well served by the proliferation of services and user communities, like the electric power industry, with needs that cannot be fully realized over commercial wireless networks. Similarly, undue focus should not be placed on identifying additional spectrum for unlicensed use, simply

[2] While EEI does not expect government entities to necessarily share sensitive information, NTIA should require commercial parties to share information with appropriate confidentiality protections recognizing that the electric industry does not compete in providing communications products or services.

because that approach satisfies the business case of certain commercial interests. As NTIA considers opportunities to reallocate spectrum, it must recognize that evaluations of efficiency and effectiveness for CII, such as the electric power industry, will differ from other types of spectrum users. Indeed, electric companies' communications needs more closely resemble those of public safety entities because their communications systems are designed for worst-case, highest use scenarios and therefore also require a much greater surge capacity than commercial systems. By ensuring that CII, public safety, and government services have a strong voice in the coming discussions on spectrum access, NTIA will be providing a balanced process that best serves the interests of the American people.

Conclusion

EEI appreciates the opportunity to provide comments on NTIA's Implementation Plan for the Strategy and urges NTIA, consistent with these comments, to prioritized promoting access to additional licensed spectrum enabling more effective and intensive use of spectrum by electric companies to support their private wireless communications networks used to ensure the safe, reliable, secure, and resilient delivery of power to the public including communications networks. EEI looks forward to working with NTIA as it further develops the National Spectrum Strategy.

Please contact the undersigned with any questions.

Respectfully submitted,

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