

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of)	
)	
Public Safety and Homeland Security Bureau)	PS Docket No. 11-60
Seeks Comment on Wireless Service Providers)	
Safety Measures for Their Customers During)	
Disasters in Connection with the Consolidated)	
Appropriations Act of 2021)	

**COMMENTS OF THE EDISON ELECTRIC INSTITUTE AND UTILITIES TECHNOLOGY
COUNCIL**

Aryeh B. Fishman
Associate General Counsel, Regulatory Legal
Affairs
Edison Electric Institute
701 Pennsylvania Avenue NW
Washington, D.C. 20004
(202) 508-5023

Brett Kilbourne
Vice President Policy and General
Counsel
Utilities Technology Council
2550 South Clark Street, Suite 960
Arlington, VA 22202
202-872-0030

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SUMMARY

Over the past decade, there have been several record-breaking storms, including Superstorm Sandy, Hurricanes Dorian, Florence, Harvey, Irma, Maria, Michael, among others. From an electric industry perspective every storm and natural event, such as wildfires, created new challenges, while reinforcing the need to invest in the energy grid to mitigate extraordinary impacts. For example, as the entities responsible for ensuring safe and reliable service, since Superstorm Sandy in 2012, investor-owned electric companies have invested more than \$340 billion to enhance the energy grid in ways aimed at addressing the threats posed by these kinds of storms. At the same time, such events have also provide valuable lessons, not only with respect to preparation and pre-positioning of equipment that can significantly improve emergency response and service restoration or the importance of system standards, design and maintenance, which can also pay substantial dividends in terms of resilience, but also with respect to the importance of coordination and communication between electric companies and communications providers. As a result of these experiences, the electric industry supports open, balanced, flexible, and cooperative approaches to promoting the development of long-term strategies to improve communications restoration and resiliency. Accordingly, to inform Congress, these comments are intended to underscore the important role of the electric industry as a partner in communications network resiliency and to inform the Commission of electric industry readiness, preparation, response, and coordination with telecommunications service providers.

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**COMMENTS OF THE EDISON ELECTRIC INSTITUTE AND UTILITIES TECHNOLOGY
COUNCIL**

In response to the Public Notice issued by the Public Safety and Homeland Security Bureau (“Bureau”) of the Federal Communications Commission (“FCC” or “Commission”),¹ the Edison Electric Institute (“EEI”) and Utilities Technology Council (“UTC”) hereby submit these comments to underscore the important role of the electric industry as a partner in network resiliency and to inform the Commission of electric industry readiness, preparation, response and coordination with telecommunications service providers. The electric industry appreciates and understands important role that communications service providers play in ensuring public safety during and after an emergency and is committed to our ongoing efforts to build and maintain productive relationships across industries for the benefit of the public.

¹ See Public Safety and Homeland Security Bureau Seeks Comment on Improving Wireless Service Providers’ Safety Measures For Their Customers During Disasters In Connection With The Consolidated Appropriations Act of 2021, PS Docket No. 11-60, (rel. March, 26, 2021) (“Public Notice”). In addition to seeking comment on measures wireless service providers have taken in recent years to improve network resilience during natural disaster, the Public Notice asks for comments to address steps wireless providers have taken to ensure network resiliency, including but not limited to back up power in areas prone to planned power outages to mitigate wildfires; pre-storm staging processes; and effective coordination with power companies and other stakeholders like municipalities and backhaul providers.

EEI is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for about 220 million Americans and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States. EEI's members are committed to providing clean, affordable, and reliable electricity to customers now and in the future. Electric companies are among the nation's largest users of communications services and operate some of the largest private communications networks, therefore the issues the Commission is likely to examine regarding the reliability, resiliency and continuity of communications networks are of key importance to the electric industry, which also faces unique challenges after natural disasters and other emergency situations. Moreover, modernization of the electrical grid is a national priority, as is expanding broadband, as advanced infrastructure will play an important role in achieving this nation's goals of addressing climate change and supporting the clean energy transition as a whole of government effort. In turn, communications providers like virtually all modern society, rely upon electricity to power their innovative technologies.

UTC is the international trade association for the telecommunications and information technology interests of electric, gas and water utilities and other critical infrastructure industries. UTC's members include large investor-owned electric companies who serve millions of customers across multi-state service territories, as well as smaller rural electric cooperative and public power utilities, which may serve only a few thousand customers in isolated communities or remote areas. UTC's members own, manage, and control extensive infrastructure that they use to support the safe, reliable, and secure delivery of essential services to the public at large.

COMMENTS

I. The electric industry relies on robust communications systems to support electric grid reliability, safety, security, resiliency, and communications with customers.

EEI and UTC's members rely on many other critical sectors, like rail and pipelines, to deliver fuel. However, the United States' communications networks and its electric grids are integrally linked. Electric companies depend upon their own communications networks and services to carry out their core mission of safely and reliably delivering electric service to their consumers. Reliable communications systems support a multitude of vital electric company responsibilities, including maintenance, remote control and monitoring, dispatch of field crews in service territories and communication with customer meters. Electric companies further depend on communications systems for various internal uses that include mapping for remote locations and pinpointing outages or other problems, transmitting schematics, blueprints and other data to field crews, and maintaining video surveillance to prevent copper theft and to provide overall security throughout the grid. Further, these networks are vital for internal communications between offices to improve operational efficiency and to respond to weather events quickly and effectively.

Given the need to maintain reliable and secure communications, generally electric companies design, build and operate their own private internal communications networks. These networks include wireless and wireline networks. They are engineered and operated to meet high standards of reliability, including extended back-up power and diverse routing. These private internal networks remained operational during and after many significant hurricanes and other emergencies. Although electric companies use commercial communications services to meet some of their communications needs, they rely on their own private internal communications networks to ensure the safe, reliable, and secure delivery of essential electric services.

To meet the electric industry's requirements for reliability, security and resiliency, communications systems must provide electric companies sufficient coverage and capacity under any condition in both rural and urban areas—particularly after severe weather events when other forms of communications are often disrupted. In addition, electric company communications systems must comply with rigorous mandatory and enforceable reliability standards adopted by the Federal Energy Regulatory Commission and the North American Electric Reliability Corporation. Compliance with these standards requires electric companies to employ reliable, secure communications systems that are hardened, provide diverse routing, and possess the capacity to handle large amounts of traffic over wide areas with an extremely low level of latency.

During disasters, electric companies rely on communications networks for communication with and among service crews in the field to support their efforts to maintain or quickly restore electric service. In addition to essential voice communication between operational staff and line workers in the field, electric companies use the communication infrastructure to provide critical situational awareness data. Such data enables electric companies to determine the status of substations, transmission/distribution protective devices and line sectionalizing devices. This data is critical in enabling an electric company to determine the scope and magnitude of the damage after a major event, which enables the electric company to more efficiently conduct damage assessment and determine the skill sets needed for the mutual assistance crews being brought to bear for the restoration effort. In these type of events, electric companies work closely with public safety entities, telecom carriers, and first responders.

It should be noted that as part of a massive effort to modernize the electric grid, this nation's electric companies have made significant investments in the deployment of Smart Grid technology. This technology relies upon communications systems and networks to help expedite real-time

system monitoring and controls. One of the benefits of this investment is a grid that enables electric companies to be far more responsive in times of emergency. Smart Grid technology enables electric companies to locate, troubleshoot, isolate and repair outages by providing electric companies with information in real-time and the ability to automatically isolate fault locations more efficiently and effectively. Smart Grid technology aids in the restoration efforts by providing electric companies with tools and information that facilitates storm response and restoration by improving situational awareness and damage assessments. Modernization of the electric grid is a national infrastructure priority, as is expanding broadband. Moreover, telecommunications providers, like virtually all modern society, rely on electricity to power their innovative technologies.

Finally, virtually all electric companies use communications services and devices to interact with their customers. For example, electric companies have successfully used automated telephone dialing systems to disseminate non-marketing information to their customers (e.g., outage and account information). Electric companies also use internet websites to inform and interact with their customers regarding services and events. More recently, electric companies have offered their customers smart phone “apps” to do things like report outages and down wires, monitor electric company restoration efforts, pay bills, and check account information. Electric companies also increasingly rely upon social media (e.g., Facebook and Twitter) to manage their communications with customers. Furthermore, electric companies rely upon communications services to coordinate industry activities during large scale disasters.

II. Mutual assistance by electric companies during emergencies.

The electric industry is unique in many ways. The electric grid is an interdependent machine, composed of thousands of different operators. As a result, the electric companies have

found common cause to work together to operate the system reliably, and to defend it and to facilitate restoration when power is disrupted. This is true of the largest investor-owned electric companies and includes all segments of the electric industry down to the smallest rural electric cooperatives. The electric industry is particularly proud of its mutual assistance program, in which electric companies voluntarily send staff and equipment to help others recover from emergencies. This is unique in American industry.

EEI has prepared a brief document, “Understanding the Electric Power Industry’s Response and Restoration Process” to answer frequent questions about the mutual assistance process.² In addition, many agreements and protocols, including an EEI–sponsored agreement addressing basic payment, safety, liability and similar issues during emergency response activities, are in place to facilitate this voluntary mutual assistance effort. As with any effort of this magnitude, the electric industry looks to find lessons to perform better the next time.

III. Early engagement with stakeholders is critical to effective electric industry coordination.

After a storm event, the primary focus for electric companies is the safe and timely restoration of power; however, electric companies typically will undertake efforts to coordinate and communicate regularly with communications providers regarding their status and restoration status efforts. For example, many electric companies engage in regular coordination and communications with communications providers, including providing communications providers updates regarding electricity restoration status and efforts.³ Electric companies work to avoid coordination problems

² See “Understanding the Electric Power Industry’s Response and Restoration Process” available at https://www.eei.org/issuesandpolicy/electricreliability/mutualassistance/Documents/MA_101FINA_L.pdf.

³ *Id.*

by embedding with state and local officials during incidents and remaining in regular contact with state and local officials before, during, and after a storm event.

It is important to emphasize that much of the communication and coordination is designed to occur at the state and local Emergency Management Agency (“EMA”) Emergency Operations Centers (“EOC”) and is available to any communications provider with a representative at the EOC. While electronic and automated systems can help streamline restoration, representation at the EOC by all stakeholders from relevant industry sectors is crucial, as it will improve collaboration, address exceptions, and help maintain confidence and consistency in the recovery process. The EOC mechanism is designed to provide government, public safety officials, and providers of public services – including electric companies and communications providers – with the information and coordination needed for recovery and restoration.

Direct communication between service providers and state and local government EMAs and the relevant state and local EOCs is the most helpful when coordinating restoration efforts. However, given the evolving nature of communications networks and electric networks, it also is important that communications providers meet with electric companies regularly and in “blue skies” conditions to identify where electric service is critical to the stability of their communications network. These meetings will provide the opportunity not only to establish critical relationships between electric company and communications provider subject matter experts, but also to identify locations crucial to network stability in an electric company’s outage management system and that should be prioritized during recovery efforts.

In recent years given the increasing frequency and intensity of catastrophic wildfires in California, electric companies have taken steps to build up mitigation strategies that focus on reducing the risk that electrical equipment becomes a source of ignition in high risk areas for fires.

For example, in California, when there is a risk for a catastrophic wildfire due to dangerous weather and fuel conditions, electric companies may declare a Public Safety Power Shutoff (“PSPS”) event and temporarily de-energize lines to help prevent ignitions associated with the electric system. In these situations, electric companies promote the safety of the public, electric customers and employees by carefully evaluating a number of factors in the decision to preventively de-energize any part of the electric system while also working to minimize the scope of a PSPS event to reduce the number of customers impacted and minimize the length of the outage. In this regard, Pacific Gas and Electric Company (“PG&E”) has worked since 2018 to improve coordination with communications providers in its service territory, including: the establishment in 2019 of a forum for collaborative dialogue to share best practices on resilience programs and provide information on PG&E’s wildfire safety efforts to help inform communication providers’ resilience planning; enhancements to situational updates with communications providers during PSPS events including access to a specialized data portal and a Critical Infrastructure Lead in the PG&E EOC; and the inclusion of communications providers in PSPS simulation exercises.⁴ Southern California Edison (“SCE”) has likewise also engaged in outreach and coordination efforts with telecommunications service providers based in part on lessons learned during the 2019 wildfire season.⁵ SCE’s efforts include assigning an Account Manager as a single point of contact for providing communications providers with current information on PSPS, conducting one-on-one meetings with communications providers to help them understand key information related to PSPS events and to gain their feedback on enhancements to SCE’s PSPS communications and outreach efforts to communications

⁴ See Letter from Jessica Hogle, Vice President, Federal Affairs and Corporate Sustainability, PG&E Corporation, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 11-60 (August 31, 2020).

⁵ See Letter from Kevin M. Payne, President and Chief Executive Officer, Southern California Edison, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 11-60 (October 16, 2020).

providers. SCE has also held executive-level communications, including communications providers to observe a PSPS Incident Management Team exercise remotely to allow communications providers to understand, among other things, how decisions are made during and after a PSPS event including how customer notifications will be dispatched.⁶

In sum, the electric power industry considers it a best practice to engage early with not only state and local authorities, but to also facilitate increased coordination between communications providers and electric companies given the evolving nature of communications networks and electric networks. This type of early engagement will provide opportunity to establish critical relationships between electric company and communications provider subject matter experts.

IV. Cross-industry coordination to enhance cooperation to improve resiliency is important.

In 2020, the nation's leading communications providers and investor-owned electric companies, and their major trade associations established the Cross Sector Resiliency Forum ("Forum"). The Forum represents a collaborative effort towards advancing resiliency through improving information sharing, identifying lessons learned from previous events, and enhancing coordination between communications and electric industries before, during, and in the immediate aftermath of emergencies and disasters. The Forum builds on the established track record of coordination by individual communications providers and stakeholders in one venue to discuss resiliency and response efforts related to hurricanes, wildfires, and other emergency disaster events.

Over the last year, the Forum has convened representatives to identify and prioritize initial objectives to advance resiliency and participants have subsequently worked to implement many of

⁶ *See id.* for attachment describing in details actions SCE took during 2020 to inform, educate and coordinate PSPS planning and preparations with communications providers as well as information about its cross-industry collaboration and wildfire mitigation program.

these initiatives. The Forum's activities have also included convening participants to review efforts of communications providers and investor-owned electric companies to respond to hurricane and wildfire seasons. Participants refined and reviewed progress on initiatives, identified lessons learned from the 2020 Hurricane and wildfire seasons, and established action items for 2021. In particular, participants identified a number of instances of improved coordination between communications providers and electric companies. Examples include:

- Communications providers and electric companies exchanging priorities that could be incorporated into respective restoration strategies.
- Electric companies providing estimates of restoration timelines that allowed communications companies to better evaluate where to deploy back up power.
- Companies conducting daily cross-sector coordination briefings during major events.

To identify opportunities to enhance information sharing and coordination between communications and electric sectors before, during and after a disaster, in 2021, the Forum's initiatives continue to focus on coordinating exercises, workshops and summits to allow for exchange of priorities and strategies, work on assembling cross-sector local contact information to facilitate information-sharing, and work on developing an emergency response coordination guideline. To further these efforts, the Forum will convene a two-day discussion, May 11, and May 18, 2021, that will include updates on these initiatives and participants will review recent weather events to identify potential lessons learned and that may provide basis for further industry initiatives. The Forum will also review preparation for 2021 hurricane and wildfire seasons.

The electric industry recognizes that there is more work to be done to promote overall resiliency and looks forward to continuing to inform the Commission on the Forum's efforts to

identify and implement resiliency and coordination activities that help ensure critical services will be available to Americans.⁷

V. To improve wireless resiliency the Commission should ensure its policies support the availability of commercial power to communications facilities by protecting electric company incumbent wireless licensees from harmful interference.

Given that the operational safety, reliability, and security of electric utilities depends upon communications systems, the Commission should ensure that its policies protect against interference to utility wireless communications systems. Electric companies need reliable communications links to support distribution automation, outage detection and remote monitoring as well as emergency preparedness measures such as expanded weather monitoring equipment to monitor and identify emerging weather conditions. Furthermore, electric company communications systems are critically important in times of emergency, such as wildfires, and in many cases, electric companies coordinate with first responders to relay information about wildfire conditions and outbreaks and to coordinate response to wildfires.

The core communications network of an electric company typically consists predominantly of fiber optic and point-to-point microwave transport technology. The majority of electric companies extensively use the 6 GHz band for their point-to-point microwave systems. The electric companies' microwave systems support SCADA telemetry, and distribution automation backhaul to base stations located in substations. In addition, the 6 GHz microwave systems are used to support Field Area Networks by providing backhaul for land mobile voice and data communications. For the electric industry, 6 GHz microwave systems provide communications links with critical

⁷ The Forum has regularly briefed the Commission on such efforts. *See e.g.*, Letter from Matthew Gerst, Vice President, Regulatory Affairs, CTIA, et al., to Marlene Dortch, Secretary, FCC, PS Docket No. 11-60 (June 26, 2020); Letter from Matthew Gerst, Vice President, Regulatory Affairs, CTIA, et al., to Marlene Dortch, Secretary, FCC, PS Docket No. 11-60 (December 17, 2020).

infrastructure systems and for remote monitoring and control systems, including protective relaying, AMI, wide area situational awareness, integration of distributed energy resources and storage, electric transportation, distributed grid management, outage detection, phasor measurement units, security monitoring and field dispatch monitoring.

EI and UTC remain concerned that interference to an electric company relying on 6 GHz microwave systems could result in outages on the grid, because harmful interference from unlicensed devices to 6 GHz microwave systems could degrade or prevent communications, which in turn compromises the company's ability to provide electric service, potentially impacting an area far beyond the company's service territory. The electric industry is also concerned that interference from these devices will be nearly impossible and very expensive to trace and mitigate, due to the likelihood that the interference will be sporadic and unpredictable from itinerant fixed or mobile operations. For example, loss of signal for an electric company could impact distribution SCADA communication such that an electric company would have no visibility from microwave-based substations into distribution electric SCADA. This would cause missed alarms, alerts and data for the distribution operator therefore impacting outage restoration and potentially impact the safety of personnel and customers. Furthermore, because the 6 GHz microwave paths provide the connectivity for many electric companies' network backhaul, if reliability is lost on the microwave backhaul, the company's two-way radio system would not function. This would cause a major safety issue for field personnel resulting from the distribution operator losing the ability to communicate via radio with crews during outage restoration and other emergency situations.

Risk to electric company 6 GHz networks is not only a matter of system reliability, but also resiliency. Resiliency is closely related to reliability but is aimed at reducing the damage to the grid. Reliable telecommunications and the associated network infrastructure are the critical

enablers in providing visibility in maintaining the balance of electricity between demand and supply and must be available within milliseconds. Loss of visibility to the grid means that operators cannot effectively monitor or remotely control the balance of electric supply and demand of power.

Electric companies must also ensure the security of the grid to withstand disturbances and unforeseen equipment failures while maintaining functionality. This includes maintenance of the grid and telecommunications infrastructure, as well as potential cyber security vulnerabilities that are directly tied to the telecommunications infrastructure.

Microwave systems are a key component of electric company telecommunications infrastructure, and electric companies predominantly use the 6 GHz band to support these networks. For example, tele-protection where sensors for are deployed directly at/on the asset to be monitored with data analytics for asset health monitoring and anomaly detection and identification. If a fault occurs, the relay senses the fault and quickly open breakers at the substation to clear the fault. This requires the communications channel to function with very low latency because if the relay fails to open in time then significant damage can occur (e.g. transformers catching fire).

Electric company Field Area Networks (“FANs”) also rely on the 6 GHz band. These networks fill the communication gap between the core utility communications networks and devices, as well as personnel, in the field. FANs are most often implemented with wireless networking technologies because their large geographic coverage areas, large number of connected devices and the need to support mobile field workers make it technically and economically infeasible to implement them using wired technologies.

Given the importance of these applications towards the protection of life, health and property, EEI and UTC are very concerned that allowing unlicensed users in spectrum bands relied upon by electric company wireless networks will adversely impact the critical networks over time,

such that the availability of these microwave paths will be reduced and increase the difficulty of ensuring the reliability, safety, security and resiliency of the electric grid. In the fall of 2020, CTIA and Southern Company performed initial field testing that showed that a single unlicensed low-power indoor (“LPI”) device can cause interference to a licensed fixed microwave link from as far as 9 km away.⁸ The results are of serious concern and EEI and UTC and other stakeholders have requested that the Commission to halt any additional equipment certification approvals for 6 GHz unlicensed LPI devices until rigorous testing is conducted to demonstrate that untethered unlicensed devices can coexist with incumbent fixed microwave licensees in the 6 GHz band.⁹ Additionally, EEI and UTC and other stakeholders have requested that the Commission exercise its authority under Section 2.945 of its rules to obtain sample devices from any LPI device manufacturer that seeks equipment certification.¹⁰ Electric companies’ mission-critical operations cannot be conducted on spectrum that does not ensure appropriate levels of security and reliability, thus shared use of the 6 GHz band with unlicensed devices must ensure that existing 6 GHz systems can operate as designed during emergencies and natural disasters without interruption.

⁸ See Letter from Jennifer L. Oberhausen, CITA, to Marlene H. Dortch, Secretary, Federal Communications Commission, ET Docket No. 18-295, GN Docket No. 17-183 (filed Nov. 13, 2020).

⁹ See Letter from Brett Kilbourne, Vice President Policy and General Counsel, Utilities Technology Council, et al. to Marlene H. Dortch, Secretary, Federal Communications Commission, ET Docket No. 18-295, GN Docket No. 17-183 (filed Jan. 26, 2021).

¹⁰ See 47 C.F.R. § 2.945(a).

VI. Conclusion

EEI and UTC respectfully request that the Commission consider these comments to improve infrastructure security and resiliency and to promote safe, effective disaster response and service restoration.

Respectfully submitted,

/s/ Aryeh B. Fishman

Aryeh B. Fishman

Associate General Counsel, Regulatory Legal Affairs

Edison Electric Institute

701 Pennsylvania Avenue NW

Washington, D.C. 20004

(202) 508-5023

Respectfully submitted,

/s/ Brett Kilbourne

Brett Kilbourne

Vice President Policy and General Counsel

Utilities Technology Council

2550 South Clark Street, Suite 960

Arlington, VA 22202

202-872-0030

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