

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

<b>In the Matter of</b>	)	
	)	
<b>Reliability and Continuity of Communications Networks, Including Broadband Technologies</b>	)	<b>PS Docket No. 11-60</b>
	)	
<b>Effects on Broadband Communications Networks of Damage or Failure of Network Equipment or Severe Overload</b>	)	<b>PS Docket No. 10-92</b>
	)	
<b>Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks</b>	)	<b>EB Docket No. 06-119</b>
	)	

**COMMENTS OF THE EDISON ELECTRIC INSTITUTE**

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## **I. Introduction and Summary of Position**

The Edison Electric Institute ("EEI"), on behalf of its member companies, submits these comments in response to the Commission's Notice of Inquiry ("NOI") issued in the above-listed dockets on April 7, 2011.<sup>1</sup> EEI is an association of the United States investor-owned electric utilities and industry associates worldwide. Its U.S. members serve nearly 95 percent of all customers served by the shareholder-owned segment of the U.S., about 70 percent of all electricity customers, and generate about 70 percent of the electricity delivered in the U.S. EEI frequently represents its U.S. members before Federal agencies, courts and Congress in matters of common concern, and has filed comments before the Commission in various proceedings affecting the interests of its members. Since EEI's members are end-users of commercial communications networks, EEI has a strong interest in the above-referenced proceeding to examine issues regarding the reliability, resiliency and continuity of communications networks.

In the comments below, EEI provides an overview of the concerns confronting electric utilities as end-users of commercial communications systems.<sup>2</sup> Reliability, resiliency and continuity of communications networks and services are of great interest and much concern to EEI members as end-users of commercial communications systems. EEI has indicated as much in earlier proceedings before the Commission,<sup>3</sup> and welcomes

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<sup>1</sup> *In the Matter of Reliability and Continuity of Communications Networks, Including Broadband Technologies; Effects on Broadband Communications Networks of Damage or Failure of Network Equipment of Severe Overload; Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, Notice of Inquiry, PS Docket Nos. 11-60 and 10-92, EB Docket No. 06-119, FCC 11-55 (April 7, 2011) ("Reliability NOI").

<sup>2</sup> EEI reserves the right to raise or address additional issues in reply comments in this proceeding.

<sup>3</sup> *See* Comments of the Edison Electric Institute, PS Docket No. 10-92 (filed June 25, 2010); *see also* Reply Comments of the Edison Electric Institute, PS Docket No. 10-92 (filed Sept. 2, 2010).

the Commission's most recent inquiry into these important issues. Electric utilities use communications networks and services to carry out their core mission of safely and reliably delivering electric service to most, if not all, of the nation's residential and business consumers. However a number of network issues greatly inhibit the ability of commercial systems to provide a level of reliable, resilient service adequate to meet the critical communications demands of electric utilities. In particular, carriers do not provide sufficient network capacity during emergencies, and lack network priority routing necessary to support critical applications. Further, carriers do not provide levels of service restoration or variable latency needed by electric utilities, and carrier networks lack adequate back-up power and redundancy. These problems are of great consequence to electric utilities and are best addressed on a system-wide basis, with an eye towards reliability from an end-use perspective.

Further, as discussed below, electric utilities have unique operating needs more in line with public safety, which often requires electric utilities to design their communications networks to differing standards and practices than commercial communications networks. While commercial systems are well-built, and are more than sufficient to meet the requirements and needs of most businesses and residential subscribers, they sometimes fall short of meeting public safety needs and the needs of most critical infrastructure, of which electric utilities are a key element. Given the mission of commercial carriers, they cannot in most cases provide meaningful assurance that their systems will meet the stringent reliability and resiliency needs of electric utilities as owners and operators of critical infrastructure.

Accordingly, EEI encourages the Commission to move forward to consider and adopt reliability standards which recognize the varied nature in which communications networks often are used. In doing so, however, EEI urges the Commission to avoid taking any action which may inhibit or prohibit the ability of electric utilities to continue to rely on private networks for their critical communications needs.

**II. Reliable and Resilient Communications Networks are Essential to Electric Utilities in Carrying Out Their Critical Services and Meeting Public Safety Needs.**

In order to provide safe, reliable electric service, electric utilities must have communications systems that are robust and reliable in even the most difficult conditions. Reliable communications networks are essential to utility operations, and these communications needs are made all the more important with the increased use of broadband applications and services for utility operations, including system restorations.

Electric utilities have a mandate to serve the public interest – similar to that traditionally imposed on common carriers under the Communications Act – and provide critical utility services which are relied on by most, if not all, of the nation's residential and business consumers. Not only must electric utilities be prepared to provide these services under normal conditions, in times of disaster electric utilities must be able to maintain or quickly restore critical services. Maintaining a stable grid during numerous types of events – natural and otherwise – is in the interest of public safety, as reliable power is needed for military bases, government and public safety facilities, as well as hospitals, traffic signals and other critical infrastructure. Indeed, the national interest requires that communications networks relied on by electric utilities remain reliable and resilient in order to meet these demands.

Electric utilities are among the nation's largest users of communications services. Utilities rely on commercial and private communications systems to safely and reliably deliver power to consumers at reasonable costs. Reliable communications systems are vital to support a multitude of utility responsibilities, including maintenance, remote control and monitoring, dispatch of field crews in service territories, and communication with customer meters. Electric utilities further depend on communications systems for various internal uses which 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 quickly and effectively respond to weather events.

In order to meet public safety needs, communications systems relied on by electric utilities must provide sufficient coverage and capacity under any condition, particularly after severe weather events when other forms of communications often are disrupted. In addition, communications systems relied on by electric utilities must comply with rigorous mandatory and enforceable Reliability Standards adopted by the Federal Energy Regulatory Commission ("FERC") and the North American Electric Reliability Corporation ("NERC"). Compliance with these standards requires utilities to have reliable, secure communications systems capable of handling large amounts of data and traffic with an extremely low level of latency.

However, as detailed below, commercial communications networks suffer from various deficiencies and fall short of offering levels of reliability, survivability and

coverage necessary to meet the communications needs of electric utilities, particularly in times of emergency.

**III. Commercial Networks At Times Suffer Reliability Faults Which Must Be Addressed On a System-Wide Basis and From an End-Use Perspective.**

Commercial communications networks suffer from a number of issues which adversely impact the reliability, resiliency and continuity of these systems. The Commission is correct to recognize in its NOI that inadequacy of backup power and insufficient communications backhaul redundancy are frequent contributors to congestion or failure of commercial networks, particularly during emergencies.<sup>4</sup> However, other factors are at play. In particular, EEI observes four principal impediments to the reliability of commercial communications networks: (1) lack of adequate primary and backup power, or fuel for backup power; (2) lack of redundancy in hardware and switches; (3) insufficient network capacity and oversubscription; and (4) inability to restore failed services in a manner timely enough for utilities.

Commercial networks are not designed to provide levels of reliability, survivability and coverage necessary to meet all utility communications needs, particularly in times of emergency. Most commercial systems are not designed to withstand major weather events and do not have sufficient backup power or fuel for backup power which is needed to maintain communications in areas where power has been knocked out. Nor do these networks include sufficiently redundant components to ensure systems maintain reliability. Commercial networks often become overloaded or

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<sup>4</sup> NOI at P 1 (citing Omnibus Broadband Initiative, Federal Communications Commission, *Connecting America: The National Broadband Plan*, Chapter 12 ("Energy and the Environment"), Section 12.1 ("Broadband and the Smart Grid") (Mar. 2010) ("NBP")).

unavailable during and in the aftermath of emergencies and natural disasters due to insufficient capacity. Additionally, when failures do occur during local or regional emergencies, communications service restoration often does not occur quickly enough for electric utilities

System capacity, as well as backhaul redundancy and connectivity to central switches, is just as critical as backup power. Network capacity frequently is a weak point in the immediate aftermath of an emergency or outage event. This particularly holds true during initial restoration efforts after an outage event when network customers attempt to use the communications system simultaneously. To resolve these vulnerabilities and to prepare for disasters and emergency situations, carriers should ensure adequate backup power is available and sufficient network capacity along their systems to facilitate prompt restoration of service and accommodate anticipated demand in network usage during periods of initial restoration.

Network vulnerability as a result of exposure to these predominant reliability issues lies with the components within that network. While statistically a network may be viewed as reliable, a network is only as reliable as its individual components. Therefore, while a specific carrier class router on a network may exhibit a sufficient level of reliability, gauging the device in isolation neglects a number of underlying network elements in play, including effective and sufficiently redundant power supplies, power feeds and processors. Any of these components individually could adversely impact the reliability of that network as a whole. To avoid this, service reliability of commercial networks must be assessed with an eye towards system components. Gauging reliability with this level of granularity will go far to ensure that vulnerable elements do not go

unresolved, and will provide a more complete picture of a network's reliability in a manner sufficient for end users. Indeed, system-wide reliability is most effectively assessed from the perspective of the end-user of communications services. An end-use analysis is critical in order to identify all single or multiple points of failure throughout the system.

Finally, while the Commission inquires whether internet protocol ("IP") technology, when functioning as a whole, can offer a level of reliability in line with legacy wireline systems,<sup>5</sup> it is important to note that the issue for electric utilities is not whether IP technologies will be less reliable than legacy systems. Rather, the chief concern for electric utilities is how to ensure adequate reliability of the legacy systems themselves. Regardless of whether a service is IP-based or a more traditional analog service, the more pressing issue is the underlying level of reliability to which these systems are designed, built and operated.

These issues and system vulnerabilities further serve to underscore the importance to electric utilities of having multiple avenues available to meet their critical communications needs. As EEI has articulated previously, this includes both licensed and unlicensed wireless as well as commercial solutions.<sup>6</sup>

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<sup>5</sup> NOI at P 27-28.

<sup>6</sup> Electric utilities' spectrum needs are detailed in EEI's comments in response to the Department of Energy's request for information regarding utility communications requirements. *See* Comments of EEI, Department of Energy, *Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities to Inform Federal Smart Grid Policy* (July, 2010), available at [http://www.gc.energy.gov/documents/EdisonElectric\\_Comments\\_CommsReqs.pdf](http://www.gc.energy.gov/documents/EdisonElectric_Comments_CommsReqs.pdf); *see also* Reply Comments of EEI (August 2010), available at [http://www.gc.energy.gov/documents/Edison\\_Reply\\_Comms.pdf](http://www.gc.energy.gov/documents/Edison_Reply_Comms.pdf). EEI reaffirms its position taken in those comments regarding electric utilities' need for dedicated spectrum to meet their current and future communications needs.

**IV. While Communications Industry Standards Are in Place Carrier Business Practices at Times Do Not Align with the Reliability and Resiliency Needs of Electric Utilities.**

Carriers and electric utilities have differing needs with respect to the reliability and resiliency of communications systems. As discussed above, in order to meet public safety needs, communications systems relied on by electric utilities must provide sufficient coverage and capacity under any condition, particularly after severe weather events when other forms of communications often are disrupted. These unique operating needs often are more in line with public safety, which often requires electric utilities to design their communications networks to differing standards and practices than commercial communications networks.

The problem is not necessarily one of standards. To be sure, robust standards exist within the communications industry which address various aspects of carrier communications practices and provide guidelines for the physical and structural components of carrier systems. While some of these standards are rigid, others provide carriers with a good deal of flexibility to account for, among other things, local conditions. However industry standards are not themselves sufficient to ensure utilities an adequate level of network reliability. Nor are other options proffered to electric utilities by carriers, including Service Level Agreements ("SLAs") and priority services. SLAs do not sufficiently address the impacts of network outages on utilities and do not give adequate focus to underlying network reliability concerns; priority services have proved to be inadequate at times when they are most needed. Rather, the more pressing issue for electric utilities is how carriers – through their business practices – implement

communications industry standards on a local level, and particularly in times of emergency.

The flexibilities imbedded in standards which address, among other things, structural aspects of carrier networks lead to carrier practices that at times do not meet the reliability, resiliency and redundancy needs of electric utilities. These practices are a key element of any discussion on communications network reliability issues, and dependable carrier business practices are essential to providing electric utilities with predictability and an assurance of reliable and quality communications services.

**V. The Commission Has Authority to Ensure Network Reliability and Should Move Forward to Ensure Reliability, Resiliency and Continuity of Communications Networks.**

EEI believes that the Commission possesses adequate authority under the Communications Act to address carrier network reliability issues and to ensure reliability and continuity of networks during major emergencies. The Commission is correct to note in its NOI that this could be achieved through the Commission's authority under section 316(a)(1) of the Communications Act to modify a license if, in its judgment, the modification will serve the public interest, convenience and necessity.<sup>7</sup>

However, given the nature of communications networks, adoption by the Commission of proscriptive rules likely is not an ideal solution. Instead, EEI believes that a better option for the Commission is to move forward to consider and adopt reliability standards which recognize the varied nature in which communications networks often are used. For instance, networks serving mobile phone users may not

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<sup>7</sup> See 47 U.S.C. § 316(a); see also *California Metro Mobile Communications v. FCC*, 365 F.3d 38 (2004).

require or desire the same level of reliability as entities such as electric utilities that manage critical infrastructure or respond to emergencies. These networks, then, would require discrete standards specific to their individual needs. However, standards affecting networks relied upon by electric utilities should be at least as rigorous as those standards to which utilities are bound with respect to operations and maintenance of their own systems.

Regardless of what action the Commission ultimately pursues in this and related proceedings, electric utilities will continue to rely on private networks for critical communications needs. EEI urges the Commission to avoid taking any action which may inhibit or prohibit this option. Electric utilities will continue to make sound business decisions when choosing communications options for their critical business needs, and commercial networks will be included in that consideration. In the end, electric utilities will chose the best option to meet their communications needs based on performance and cost.

## **VI. CONCLUSION**

WHEREFORE, for the foregoing reasons, EEI respectfully requests that the Commission consider these comments and ensure that any Commission action taken with respect to communications network reliability is consistent with them.

Respectfully submitted,

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