

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

In the Matter of )  
 )  
Effects on Broadband Communications ) PS Docket No. 10-92  
Networks Of Damage to or Failure of )  
Network Equipment or Severe Overload )  
 )

**REPLY COMMENTS OF  
SOUTHERN COMPANY SERVICES, INC.**

Southern Company Services, Inc. ("Southern"), on behalf of itself and its operating affiliates, hereby submits its reply comments in response to the Federal Communications Commission's ("Commission's") *Notice of Inquiry* regarding broadband network survivability.<sup>1</sup> Southern appreciates the opportunity to provide the Commission with information responsive to its inquiry and to respond to initial comments submitted in this proceeding. Southern's interest in this proceeding is in the use of public, commercial broadband networks to support Smart Grid and other utility-related communications requirements. Southern is a wholly-owned subsidiary service company of Southern Company, a super-regional energy company in the Southeast United States. Southern Company also owns four electric utility subsidiaries – Alabama Power Company, Georgia Power Company, Gulf Power Company, and Mississippi Power Company –

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<sup>1</sup> *Effects on Broadband Communications Networks of Damage to or Failure of Network Equipment or Severe Overload*, Notice of Inquiry, PS Docket No. 10-92, 75 Fed. Reg. 26180 (May 11, 2010) ("*NOI*"). By Order, DA 10-1357, released July 22, 2010, the Reply Comment deadline was extended to September 3, 2010. All comments submitted in response to the *NOI* are referenced herein as "Comments."

which provide retail and wholesale electric service throughout a 120,000 square mile service territory in Georgia, most of Alabama, and parts of Florida and Mississippi. Members of the Southern Company family use a variety of communications technologies to support the safe and efficient delivery of energy services to their customers.

Southern encourages the Commission to advance policies that promote survivability and reliability of commercial broadband networks to support, among other things, the safe, reliable and efficient delivery of essential utility services to the public. As discussed more fully herein, Southern is concerned that the reliability and survivability of commercial broadband networks are inadequate for many Smart Grid applications, especially those that are mission critical.

#### **I. General Concerns about Network Survivability and Reliability.**

A primary objective of this proceeding is to assess the survivability and reliability of commercial broadband networks and how this impacts the public welfare.<sup>2</sup> Not surprisingly, commercial operators speak favorably about the survivability of their commercial networks and give sweeping assurances about the reliability of their networks. However, any analysis of the survivability of commercial services (including the suitability of commercial services to meet utility communications needs) should not focus exclusively on carriers' generalized statements and statistics about reliability. Instead, one must look at how they perform during or immediately following major disasters and emergencies, and whether these networks have been designed for the levels of survivability that utilities need. If commercial power is disrupted following a disaster or emergency, will the commercial networks nevertheless remain functioning so that

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<sup>2</sup> In a statement accompanying the *NOI*, FCC Chairman Julius Genachowski states: "Today, we begin an inquiry on the survivability and reliability of broadband communications networks, implementing a recommendation of the National Broadband Plan to further public safety and homeland security." *NOI* at page 8.

utility crews or smart grid devices can communicate effectively in order to support prompt restoration of electric service? While the operators of commercial telecommunications networks claim a certain level of availability during “blue sky” conditions, they have not demonstrated a willingness to make the investment necessary to assure electric utilities that continuous communications service will be available for them during and following a widespread disaster.

Significantly, the Department of Energy (“DOE”) recently issued a Request for Information about current and projected communications requirements of electric utilities.<sup>3</sup> In the DOE proceeding, commenters provided numerous examples of the operational failures of commercial networks during disasters and emergencies including those associated with the 2004/2005 Florida hurricanes, the 2001 Nisqually earthquake and Hurricane Katrina.<sup>4</sup> Based on this information as well as its own experiences with commercial operators, Southern is concerned

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<sup>3</sup> In the Matter of Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities to Inform Federal Smart Grid Policy, NBP RFI: Communications Requirements, 75 Fed. Reg. 26206, 26207 (published May 11, 2010) (“DOE Proceeding”). All comments submitted in the DOE Proceeding are identified herein as “DOE Comments.”

<sup>4</sup> See Tacoma Public Utilities DOE Comments at 5 and Florida Power & Light DOE Comments at 3. See also DTE Energy Company DOE Comments at 7 (“[C]ellular networks experience crippling congestion and failed equipment during severe weather events, just the time when we need field communications the most.”); East Central Energy-Minnesota DOE Comments at 5 (“Commercial networks fail due to lack of generator back up and high call volume during disasters. This has been the case from large disasters such as 9/11 and hurricane Katrina to smaller disasters such as flooding in the Red River Valley in Minnesota and North Dakota and during many local storms.”); Great River Energy DOE Comments at 9 (“GRE’s service area is in a tornado prone area and our private communication systems have been used for power restoration during disasters when commercial networks failed.”); National Rural Electric Cooperative Association DOE Comments at 12 (“However, NRECA does not expect Cooperatives to switch from their private land mobile radio systems to commercial carrier services given the dual challenges of coverage gaps and a poor track record of reliability during major events and storms.”); and San Diego Gas & Electric DOE Comments at 21 (“SDG&E faces two primary natural disasters: earthquakes and wildfires. Previous experience shows that commercial networks stop operating during these events, precisely at the moment they are most critical to the restoration of power operations.”).

that commercial networks are not sufficiently reliable to handle the demands of mission critical Smart Grid applications (*e.g.*, command and control operations), especially during disasters and other emergencies.

How can commercial operators and utilities have such vastly differing views about the "reliability" and "survivability" of commercial networks? Perhaps, it is because each group's needs are so different. Utilities have far more demanding needs for reliability and survivability than those generally faced by commercial operators whose typical customers tolerate lower standards. Southern and other utilities typically design key communications systems to a reliability standard of 99.999 percent. However, the "best effort" standard of many commercial networks is inadequate to meet the reliability needs of utilities especially with respect to mission critical applications during times of emergencies and disasters when network survival is essential. Even for less critical Smart Grid applications, network reliability is an important utility concern.<sup>5</sup>

In comments submitted in this proceeding, one of the nation's largest carriers recommended to the FCC that in addition to encouraging carriers to employ best practices for network survivability, the FCC should ensure that customers – both residential and commercial – take steps to ensure continuity of communications:

In addition to focusing on establishing best practices among providers, the Commission has a role to play in ensuring that broadband customers take appropriate steps to enhance their ability to communicate in the event of network congestion or outage. For example, there are a wide range of activities that end users can take to prepare for and help mitigate the effect of a network-affecting event, ranging from limiting broadband use to off-peak time periods to obtaining information from alternative sources, such as broadcast television or radio. In the enterprise space, businesses, too, should take steps to establish

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<sup>5</sup> Southern is not opposed to using some commercial broadband services for non-mission critical applications as long as reliability, survivability, cost, engineering and other functionality issues are adequately addressed. Indeed, a number of utilities (including Southern) use public networks for some communications needs including non-mission critical Smart Grid elements like advanced metering infrastructure.

alternative means of communications; purchase diverse services for mission critical sites or applications; consider maintaining duplicate 'hot sites' from which key data and applications can be accessed in the event of an outage at the primary site; and other such measures.<sup>6</sup>

These recommendations indicate that even the carriers themselves do not believe they can ensure the level of survivability that business customers, in particular, may need for mission-critical communications.

## **II. Importance of Back-Up Power**

One way to help to improve the reliability and survivability of commercial broadband networks is to have adequate back-up power in the event of a loss of commercial power. If power is interrupted and there is no back-up power, commercial communications system operations will be crippled. This, in turn, will slow down progress on power restoration. While some commercial operators claim that they have adequate back-up, Southern is unsure if adequate steps actually have been taken by commercial operators. For example, in this proceeding, one carrier states that it "routinely installs battery back-up and generators at major points of the network."<sup>7</sup> Another carrier states that it "typically maintains battery back-up in local backbone sites . . . and in Internet backbone sites."<sup>8</sup> Southern is not sure what is meant by "routinely" or "typically."<sup>9</sup> Utilities need assurances that all centers through which their mission critical communications are routed have sufficient back-up power. In fact, all of Southern's sites have batteries with an

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<sup>6</sup> Verizon Comments at 8.

<sup>7</sup> AT&T Comments at 10.

<sup>8</sup> Verizon Comments at 5.

<sup>9</sup> Part of the reason that Southern questions some commercial operator claims regarding back-up capabilities is because of their vigorous opposition to the FCC's prior efforts to require such capabilities.

absolute minimum capacity of 8 hours, and every site critical to electric operation has a generator with on-site fuel capability.<sup>10</sup>

Southern is not surprised that commercial operations have less stringent back-up capabilities given the economics involved. There is a cost to develop, implement, and maintain these back-up capabilities. Often, it does not make business sense for commercial operators to incur these costs. However, for Smart Grid applications, such back-up capabilities are essential. In this regard, a task force of the National Security Telecommunications Advisory Committee ("NSTAC") succinctly stated: "These backup capabilities, which are not economical or feasible for commercial networks, are required by utilities to ensure reliable communications in emergency."<sup>11</sup> Southern supports the Commission's efforts to revisit the back-up power issue and to consider whether rules are needed to require back-up capabilities for commercial network operations.<sup>12</sup>

### **III. Network Congestion**

Network reliability also can be affected by network overload and congestion. To alleviate network congestion, commercial operators suggest that certain parties (including first responders

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<sup>10</sup> SouthernLINC Wireless, a wholly-owned subsidiary of Southern Company, has designed and built its commercial wireless system to meet the rigorous standards of utility communications, distinguishing it from other providers of commercial wireless service.

<sup>11</sup> See NSTAC Report to the President on Telecommunications and Electric Power Interdependencies: People and Processes: Current State of Telecommunications and Electric Power Interdependencies, January 31, 2006, at 3-1 and 3-2. The Report is reprinted in the following compilation of NSTAC reports:  
[http://www.ncs.gov/nstac/reports/2006/NSTAC\\_XXIX\\_Reports\\_082206.pdf](http://www.ncs.gov/nstac/reports/2006/NSTAC_XXIX_Reports_082206.pdf).

<sup>12</sup> According to the Commission's Broadband Action Agenda for the National Broadband Plan, the Commission intends to initiate a Notice of Inquiry in late 2010 "to examine ways to ensure that commercial communications service providers, including broadband providers, have adequate (cont'd)

and critical support agencies during emergencies) can avail themselves of government programs intended to provide priority communications services to activities that support National Security and Emergency Preparedness, such as the Wireless Priority Service (WPS), the Telecommunications Service Priority System (TSP), or the Government Emergency Telecommunications Service (GETS).<sup>13</sup> However, as one carrier acknowledged, these priority services do not yet extend to broadband services.<sup>14</sup> In addition, these services are only as good as the networks on which they are provided. If the networks are down, a user of WPS or GETS does not have any service, let alone a priority. TSP can be of some benefit in securing priority for restoration of service, but it is still more akin to a “best efforts” prioritization and not a guarantee that any particular circuit will be restored ahead of others or within a certain timeframe. WPS does not offer preemptive service; that is, a WPS user may be pushed to the head of the queue for an available channel, but will not preempt calls that are in progress. WPS and GETS only provide priority for outbound calls from the user’s wireless device to the network; inbound calls to the wireless device do not receive any special treatment. WPS and GETS only apply to voice calls, do not provide any priority to text or data traffic, and will not be supported if the user is roaming on another carrier’s network that does not support these features. Thus, although these services have some benefit, they are lacking in most of the key attributes that are needed to support mission-critical communications.

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measures in place, such as back-up power.” See <http://www.broadband.gov/plan/broadband-action-agenda.html> (last viewed on August 25, 2010).

<sup>13</sup> See, e.g., AT&T Comments at 16 and CTIA Comments at 10-11.

<sup>14</sup> AT&T Comments at 18.

#### IV. Dedicated Spectrum for Utilities

Finally, a number of commenters in this proceeding raise spectrum allocation issues. Southern supports the request of both the Utilities Telecom Council ("UTC") and the Edison Electric Institute ("EEI") for the Commission to allocate dedicated spectrum to utilities.<sup>15</sup> Southern also believes that utility spectrum needs should not be determined based solely on economic supply and demand considerations. Economic forces alone do not properly account for the safety and public interest value of Smart Grid uses, among others. A narrow, purely economic view puts utilities, public safety organizations, and other non-commercial entities at an unfair and inequitable disadvantage. This sentiment was echoed in the Congressional Research Service report entitled, *Spectrum Policy in the Age of Broadband: Issues for Congress*. According to the report, "[P]ublic utilities, municipal cooperatives, commuter railroads, and other public or quasi-public entities face a variety of legal, regulatory, and structural constraints that limit or prohibit their ability to participate in an auction or buy spectrum licenses."<sup>16</sup> The Commission should recognize that a spectrum allocation model based on "the-highest-bidder-wins" only benefits commercial interests and is not well-suited to putting spectrum in the hands of utilities and other critical infrastructure industries that use spectrum as a critical operational tool and not simply a revenue-generator for the licensee. In contrast, the utilities' request for dedicated spectrum will benefit the public at large through improved public safety and other benefits.

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<sup>15</sup> EEI Comments at 7 and UTC Comments at 4.

<sup>16</sup> *Spectrum Policy in the Age of Broadband: Issues for Congress*, Congressional Research Service, R40674 at 14 (July 13, 2009).

## V. CONCLUSION

Southern looks forward to working with the Commission and others in the industry on issues related to the reliability and survivability of commercial broadband networks.

Respectfully submitted,

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