



members include all types of utilities from large investor-owned utilities that serve millions of customers across multi-state service territories to relatively small rural cooperative utilities and municipal utilities that may only serve a few thousand customers in remote, insular and sparsely populated areas. These member companies all use communications to support their core mission of delivering essential services to the public safely, securely and efficiently. As such, UTC has advocated for policies that promote and protect utility communications, and it is pleased to offer its comments in opposition to the petition for rule making by Pyramid Communications in this proceeding.

**A. Utilities and Other Critical Infrastructure Industries Heavily Use Fixed Data Operations on 173.2375, 173.2625, 173.2875, 173.3125, 173.3375 and 173.3625 MHz, and These Operations Provide Mission Critical Communications.**

Utilities use the 173.2375, 173.2625, 173.2875, 173.3125, 173.3375 and 173.3625 MHz frequencies for a variety of mission critical operations, including distribution SCADA<sup>2</sup> (including capacitor bank monitoring and control), for nuclear emergency warning sirens, and for water dam warning systems.<sup>3</sup> The critical nature of these communications demands that these systems not be subject to interference from other communications systems. Interference could threaten the stability of critical infrastructure delivery systems.

A cursory review of the FCC Universal Licensing System (ULS) database reveals that there are over five thousand licenses in the 173.2375-173.3625 frequency range, and many of these licenses are held by utilities and other critical infrastructure industries. Public Service Electric and Gas -- which serves 1.8 million gas customers and 2.2 million electric customers in more than 300 urban, suburban and rural communities, including New Jersey's six largest cities -- holds dozens of these licenses. Other major utilities that hold licenses in this frequency range include Northeast Utilities, Detroit Edison, PPL Electric

<sup>2</sup> SCADA is Supervisory Control and Data Acquisition systems, which are used to monitor and control operations on critical infrastructure delivery systems, such as the electric grid, gas pipelines, and water works. Due to their importance to safety and reliability, these communications systems are designed to extremely high standards for performance.

<sup>3</sup> For example, Santee Cooper --which is a large electric utility in South Carolina, providing retail service to 163,000 customers and providing wholesale power services to 20 electric cooperatives in the state that serve 700,000 customers -- uses its dam warning system to alert residents along the Santee River when a breach of the Santee dam has been detected and confirmed.

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Deleted: Because of the critical nature of the essential services that utilities and CII provide, the communications networks that support those core services are designed, built and maintained to high standards for reliability, coverage and resiliency. Utilities need communications that can withstand hurricanes, snow and ice storms, and that have adequate back-up power to remain operational for 72 hours or more in the event of a power outage. Utilities need reliable communications, particularly during emergencies. As such, utilities typically rely on their own private internal communications networks, particularly to support mission critical operations that affect the safety and reliability of their core services. ¶ While utilities do use commercial service providers for some communications functions, these tend to be used for non-mission critical applications, certain point-to-point communications (e.g. a leased line to a remote substation) or enterprise communications. One of the main reasons that utilities limit their use of commercial services is reliability. Unfortunately, the commercial service providers are subject to network outages and congestion, particularly during emergencies, which can jeopardize the safety and reliability of utility and CII operations. Hence, utilities are concerned about using commercial communications networks due to reliability concerns. ¶ **Network Outage Reporting Should Promote Reliability of Broadband and Interconnected VoIP Services.**

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Utilities, Georgia Power Company, Tampa Electric Company, and Virginia Electric and Power Company.

**B. The Petition for Rule Making by Pyramid Does Not Demonstrate That Relief Is Needed, and It Does Not Adequately Consider the Impact on Other Operations and/or Ways to Mitigate These Impacts.**

The essence of Pyramid’s Petition is that it needs access to these frequencies because “current filter technology requires a separation of at least 2-5 MHz from every frequency in the mobile radio”, and that it needs that separation between the frequencies used to communicate between buildings and public safety vehicles and the frequencies used to repeat those communications back to the public safety radio network. However, Pyramid does not demonstrate that the proposed particular frequencies at issue are the only frequencies it could use or that filter improvements could not reduce the separation requirement. There is very little if any technical justification in the Petition for the relief that Pyramid seeks, and there is almost no discussion of possible alternatives and/or interference mitigation strategies.

This cavalier approach is further reflected by the absence of consideration for the impact that the proposed voice operations would have on non-voice operations on these frequencies. There is a shortage of available frequencies for non-voice operations in the Part 90 PLMR bands, and as noted above, utilities and other critical infrastructure operations need these frequencies for mission critical data communications. Opening these frequencies up for VRS would likely lead to congestion and interference, making them unavailable and unreliable for utility and other critical infrastructure use. Moreover, given the itinerant and temporary fixed nature of VRS operations, it would be difficult to trace this interference and mitigate it. Therefore, UTC submits that these frequencies should not be used for voice operations.

**CONCLUSION**

In conclusion, UTC appreciates the opportunity to provide these comments in response to the Commission’s Public Notice and opposes the Petition for Rule Making by Pyramid Communications. UTC urges the Commission to deny the petition and not allow voice operations on 173.2375, 173.2625, 173.2875, 173.3125, 173.3375 and 173.3625 MHz frequencies. UTC looks forward to working with

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Network outage reporting requirements will provide metrics that will encourage commercial service providers to promote the reliability of their services. Utilities have found that their networks are not as reliable as they need for various applications. For example, Northeast Utilities tested the performance of their commercial service provider’s circuits and found that the commercial service provider’s network circuits were out three times more than the utility’s own private internal circuits.<sup>4</sup> Thus, UTC believes that network outage reporting requirements should provide the kind of metrics to substantiate commercial providers’ claims of reliability. ¶ <#>Outage reporting needs to be extended to broadband and VoIP.¶ UTC also agrees with the FCC’s assessment that more traffic is migrating from traditional networks to broadband and VoIP services. This general trend is also specifically applicable to utilities, which are converting from narrowband analog systems to wideband digital systems that carry an increasing percentage of data traffic, including VoIP. To the extent that utilities use commercial broadband and/or VoIP services, they need to ensure that those services are reliable. Given the trend towards increasing use of broadband and VoIP, it is appropriate to extend network outage reporting requirements to commercial broadband and interconnected VoIP services, in order to promote the reliability of commercial broadband and VoIP services that utilities and other CII may use. ¶ UTC recognizes that the Financial (... [1]

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Commission on this issue going forward.

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Respectfully submitted,

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**Outage reporting will provide metrics that should promote reliability.**

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**Outage reporting needs to be extended to broadband and VoIP.**

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UTC recognizes that the Financial Services Coordinating Council (FSCC) has also commented on the need for network outage reporting requirements. The FSCC concluded that

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<sup>1</sup> See Comments of Northeast Utilities System to the Department of Energy's Request for Information on the Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities To Inform Federal Smart Grid Policy at 3 (filed July 12, 2010) (explaining that "We have been experiencing more and more problems with our leased telephone lines which use copper based facilities. The last mile telephone carriers have not maintained the copper cable plant due to increased costs and fewer personnel. T1 circuits which were traditionally constructed using 4 wire repeaters have been replaced with 2 wire circuits using ADSL/HDSL type electronics. This change in technology has helped the telcos to reduce engineering and cable maintenance costs but it has reduced circuit reliability and limited our ability to design highly available solutions for electric grid protection & control systems.") Note that in its comments to the DOE, Northeast Utilities provided a table of data showing the actual statistics from its corporate router reporting availability of networks between the period May 2009 to April 2010.

“having metrics on outages is important for several reasons.” Specifically, it found that network outage reporting would help to identify the root causes of network outages and to continuously improve reliability. It also found that financial institutions increasingly rely on VoIP and other broadband services for core services and remote computing. It also agreed that network outage reporting would send a signal to developers of emerging telecommunications technologies to design security and resiliency features into their products. Finally, it concluded that expanded outage reporting information could help financial services to comply with regulatory requirements mandating that financial institutions implement robust business continuity plans.

**Outage reporting will help utilities meet their reliability requirements.**

UTC echoes the FSCC’s assessment and emphasizes that utilities and CII are also subject to regulatory requirements mandating robust business continuity plans. State PUCs evaluate various reliability data and customer satisfaction data in deciding rate requests and allowing utilities to recover costs of implementing performance improvement programs. Types of

Reliability data that PUCs evaluate include:

- CAIDI – Customer Average Interruption Duration Index
- CAIFI – Customer Average Interruption Frequency
- CEMI – Customer Experiencing Multiple Interruptions
- CELI – Customer Experiencing Long Interruptions
- MAIFI – Momentary Average Interruption Frequency Index
- SAIFI – System Average Interruption Frequency Index
- SAIDI – System Average Interruption Duration Index<sup>2</sup>

In addition, The Department of Energy (DOE), under its relevant authorities, has established mandatory reporting requirements for electric emergency incidents and disturbances in the United States. DOE collects this information from the electric power industry on Form EIA-417 to meet its overall national security and Federal Energy Management Agency’s Federal Response Plan

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<sup>2</sup> Comments of the Edison Electric Institute to the Department of Energy’s Request for Information on the Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities To Inform Federal Smart Grid Policy at 6 (filed July 12, 2010).

(FRP) responsibilities.<sup>3</sup> Finally, in the wake of the 2003 Northeast Blackout, Congress passed the Energy Policy Act of 2005, which required the establishment of minimum mandatory standards of reliability for the U.S. energy sector. These standards were developed by the North American Electric Reliability Corporation (NERC) and became effective on June 18, 2007.<sup>4</sup>

**The benefit of adopting meaningful outage reporting requirements will outweigh the burdens.**

Given the reliability standards that utilities and other sectors must meet, the FCC should adopt comparable standards for network outage reporting by commercial service providers. In that regard, the Commission should define an “outage” as at least “a complete loss of the ability to complete calls”, and it should consider a threshold based on lost or delayed packets.<sup>5</sup> Utilities demand high performance networks for smart grid and other applications. Therefore, latency, jitter and packet loss – as well as complete loss of communications – is important for utilities operations and decision making.

As the Commission has acknowledged, broadband and VoIP are different from legacy

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<sup>3</sup> See U.S. Department of Energy, Energy Information Administration, Form EIA-417 (2004) at <http://ftp.eia.doe.gov/pub/pdf/electricity/insteia417.pdf>. Note that utilities are required to file an initial report to DOE within 60 minutes of the incident and then file a follow-up report within 48 hours of the time of system disruption. The Form EIA-417 must be submitted to the DOE Operations Center if any one of the following apply:

1. Uncontrolled loss of 300 MW or more of firm system load for more than 15 minutes from a single incident
2. Load shedding of 100 MW or more implemented under emergency operational policy
3. System-wide voltage reductions of 3 percent or more
4. Public appeal to reduce the use of electricity for purposes of maintaining the continuity of the electric power system
5. Actual or suspected physical attacks that could impact electric power system adequacy or reliability; or vandalism which target components of any security systems
6. Actual or suspected cyber or communications attacks that could impact electric power system adequacy or vulnerability
7. Fuel supply emergencies that could impact electric power system adequacy or reliability
8. Loss of electric service to more than 50,000 customers for 1 hour or more
9. Complete operational failure or shut-down of the transmission and/or distribution electrical system

<sup>4</sup> These Critical Infrastructure Protection (CIP) standards establish the minimum requirements that all electric power entities in North America must follow to secure the electronic exchange of information needed to support the reliability of the nation’s bulk power system. Currently, NERC is developing version 4 of its CIP standards.

<sup>5</sup> *NPRM* at ¶27.

networks and these differences raise practical issues for applying current standards to broadband and VoIP networks.<sup>6</sup> But, these practical issues are not insurmountable and can be overcome.<sup>7</sup> Moreover, the benefits from adopting appropriate standards for network outage reporting should outweigh any burdens, especially when the wider economic, safety, security and societal impacts of such outages are considered.<sup>8</sup>

**Outage reporting should be mandatory and the process should be consistent with existing Part 4 requirements.**

UTC supports the Commission's proposal that, consistent with its current Part 4 requirements, outage reporting should be mandatory, and that broadband and VoIP providers should be required to submit a Notification within two hours of discovering a reportable outage; an Initial Report within 72 hours after discovering the outage; and a Final Report within 30 days after discovering the outage.<sup>9</sup> UTC submits that voluntary reporting would not promote reliable data, and prompt reporting is needed to effectively respond to significant outages. If the outage was not the fault of the service provider, the Commission should allow the service provider to explain that in its report. But, it shouldn't exempt providers from reporting such outages, and it shouldn't rely on the Disaster Information Reporting System (DIRS) as a poor substitute for network outage reporting, generally.<sup>10</sup>

UTC supports the adoption of a similar reporting process to the current process under Part 4, and believes that it would be acceptable to treat network outage reporting information as

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<sup>6</sup> *Id.* (stating that “[b]roadband networks operate differently than legacy networks, so the impact of outages is likely to be different.”)

<sup>7</sup> *See e.g.* NPRM at ¶27 (recognizing the difficulty of distinguishing precisely when a VoIP end system cannot place a call as opposed to when it is simply temporarily disconnected from the network due to user choice or home network failure, and asking if statistical measures that compare typical to current device registration counts (e.g., number of active SIP registration entries) can be used to detect and measure large-scale outages).

<sup>8</sup> NPRM at ¶30 (requesting comments on: the costs, burdens and benefits of its proposed rules on outage reporting by interconnected VoIP service providers, and whether the proposed rules would promote the reliability, resiliency and security of 9-1-1 and other communications over interconnected VoIP service and the networks that support such service.)

<sup>9</sup> NPRM at ¶56.

<sup>10</sup> *See NPRM* at ¶57 (disagreeing with commenters who suggest that the Commission adopt voluntary reporting rules or rely on DIRS).

presumptively confidential. UTC recognizes that certain information should not be disclosed for safety and security reasons, as well as commercial proprietary reasons. Therefore, it may be appropriate for the Commission to merely publicly report aggregated information across companies, e.g., total number of incidents by root cause categories.<sup>11</sup>

**The FCC has the legal authority to extend outage reporting requirements to broadband and interconnected VoIP services.**

Finally, UTC agrees with the FCC that outage reporting is reasonably ancillary to its authority to implement 9-1-1 systems.<sup>12</sup> As the Commission explained, broadband and VoIP are increasingly used and 9-1-1 calls over VoIP must be reliable and secure, which depends as much on the underlying broadband network as it does on the VoIP service. As such, extending network outage reporting requirements to VoIP and broadband is reasonably ancillary to carrying out the FCC's authority over 9-1-1.<sup>13</sup>

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into extending outage reporting requirements to broadband and interconnected VoIP providers. As UTC has explained herein, utilities need reliable communications to support the safe, secure and efficient delivery of essential services to the public at large. Utilities and CII are increasingly using broadband and VoIP for their communications, and they do use commercial service providers for some of their communications needs. UTC agrees with the FCC and commenters on the record that adopting rules that extend the Part 4 network outage reporting requirements to apply to broadband and interconnected VoIP should promote the reliability of these services. To the extent that utilities use commercial services, these rules should promote the reliability of utility communications and the underlying essential electric, gas and water services that they provide.

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<sup>11</sup> *NPRM* at ¶66.

<sup>12</sup> *NPRM* at ¶67-69.

<sup>13</sup> *Id.*