

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

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

To: The Commission

**REPLY COMMENTS
OF THE
AMERICAN PETROLEUM INSTITUTE**

The Telecommunications Subcommittee of the American Petroleum Institute (“API”) submits these Reply Comments in response to the Commission’s Notice of Inquiry regarding the survivability of broadband communications infrastructure.¹ API appreciates the Commission’s efforts to explore the “hardening” of broadband infrastructure. This issue is central to API’s recent calls for the Commission to create an exclusive, private licensed wireless allocation for critical infrastructure industry (“CII”) communications.

I. Background

API is a national trade association representing more than 400 companies involved in all phases of the petroleum and natural gas industries, including exploration, production, refining, marketing and transportation of petroleum, petroleum products and natural gas. Among its many activities, API acts on behalf of its members before federal and state regulatory agencies. The API Telecommunications Subcommittee evaluates and develops responses to state and federal proposals affecting telecommunications facilities used in the oil and gas industries.

¹ See Effects on Broadband Communications Networks Of Damage to or Failure of Network Equipment or Severe Overload, Notice of Inquiry, PS Docket No. 10-92 (Rel. Apr. 20, 2010) (“Notice”).

API is supported and sustained by companies that make use of a wide variety of wireline, wireless and satellite communications services on both a private and commercial basis. API member companies are authorized by the Commission to operate facilities in the Private Land Mobile Radio (“PLMR”) service and Private Operational-Fixed Microwave Services (“POFS”), among other telecommunications systems.

API’s members utilize PLMR systems, for example, to support the search for and production of oil and natural gas, to ensure the safe pipeline transmission of natural gas, crude oil and refined petroleum products, to process and refine these energy sources and to facilitate their ultimate delivery to industrial, commercial and residential customers. POFS is used for communications with remote oil and gas exploration and production sites for voice and data applications, communications with refineries, the extension of circuits to remote pipeline pump and compressor stations, and supervisory control and data acquisition systems (“SCADA”) that remotely monitor and control oil and gas wells, pipeline operations and other facilities.

II. Commercial Networks are Often Ill-Suited to Meet the Needs of the Oil and Gas Industry

API agrees with two of the Commission’s central premises in the Notice. First, that “[b]roadband core networks are generally presumed to be quite survivable”² and second, that “[s]urvivability is generally weaker in segments of the communications networks closer to the network edge.”³

While the oil and natural gas industry relies extensively on commercial networks, these two principles show that, particularly for last-mile links, private solutions are often required to satisfy mission-critical applications.

² Notice at para 7.

³ *Id.*

Oil and natural gas exploration, production, refining, transportation and distribution occurs 24 hours a day, 7 days a week, 365 days a year, often in some of the most remote areas of the country. Industry communications systems are developed to “five-nines” reliability (i.e., available 99.999% of the time) ensuring availability on the same 24/7/365 schedule. Communications cannot rely on network infrastructure built to lesser standards or networks where CII communications are required to compete for bandwidth access with consumer applications.

The harsh environments within which oil and natural gas companies operate, from hundreds of miles offshore in the Gulf of Mexico to hundreds of miles north of the Arctic Circle in Prudhoe Bay, Alaska, require the use of rugged devices and hardened infrastructure. In 2005, hurricane Katrina knocked-out wireline service to more than 3 million customers in Louisiana, Mississippi, and Alabama.⁴ The Commission found that nearly 1000 cellular and PCS base stations were impacted. Yet despite these catastrophic consequences, carriers still remain resistant to implementing measures such as backup power for cell sites. The oil and natural gas industry must be assured that communications are available during disaster relief and emergency response, despite extreme operating conditions and the failures of commercial networks.

CII communications systems and the applications deployed on such systems must be secure from intrusions from outside sources. The public Internet simply does not offer the required level of threat security for mission critical industrial use. Indeed, although CII systems utilize encryption and other advanced security features, the first line of defense is separation from the public Internet itself.

⁴ Frances Fragos Townsend, Assistance to the President for Homeland Security and Terrorism, The Federal Response to Hurricane Katrina: Lessons Learned, Page 8 (February 23, 2006).

Several commenters in this proceeding note similar concerns. The Utilities Telecom Council (“UTC”) states that while its utility members make use of leased lines and wireless communications, it is “concerned that carrier networks are unable to meet utility [...] communications needs.”⁵ Sensus USA Inc. states that public broadband networks are “inadequate” for critical infrastructure use.⁶ The Edison Electric Institute (“EEI”) states that “[b]ecause commercial systems generally do not meet the reliability and security standards of utilities, private internal broadband networks will be essential in some areas.”⁷

For their part, carriers and their representatives offer examples intended to demonstrate the reliability of commercial networks. For example, CTIA states that severe flooding in May 2010 in middle Tennessee resulted in “only relatively minor interruptions” to wireless services. Verizon notes that the East Coast snowstorms of February 2010 “had little effect” on its wireless networks.

These anecdotes may be true, as far as they go, but they provide little to evaluate commercial network resiliency on a quantitative basis. In fact, for each anecdote offered of an event creating only a limited disruption to wireless service, there are several examples of events that brought down entire networks.⁸ Reasons range from loss of infrastructure to simply severe network congestion as large numbers attempt to access the network at once. In many instances,

⁵ UTC Comments at 3.

⁶ Sensus USA Inc. Comments at 7.

⁷ EEI Comments at 5.

⁸ See Michael S. James, Phone Home During Emergency? Don't Count on It, ABC News, available online at <http://abcnews.go.com/Technology/story?id=3446088&page=1> See also Roxana Hegeman, Back-to-back disasters show cell gaps, Associated Press, available online at http://www.usatoday.com/tech/wireless/phones/2007-05-27-cellphone-gaps-disasters_N.htm; John Cheves, Bill Estep and Ryan Alessi, Ice storm wreaked havoc on Kentucky communications, Lexington Herald-Leader, available online at <http://www.theolympian.com/795/story/756444.html>.

commercial wireless service is completely lost as a result of no particularly significant disaster or even an apparent event.⁹

More useful to the Commission are the facts that in the rural and remote areas that API's members operate, carrier networks generally are *not* built to 99.999% reliability, which guarantees a level of reliability of approximately 6 minutes of annual down time. Comparatively, 98% or 99% reliability figures, which may be considered acceptable or even good for widespread consumer applications, result in unacceptable loss of coverage for several days over the course of a year when considered in the context of CII operations. Even where such reliability is claimed, wireless carriers have historically resisted providing customers with Service Level Agreements ("SLAs") containing acceptable service guarantees, or, more commonly, have refused to provide SLAs at all. Moreover, whereas private network operators have the ability to determine their own restoration priority for internal infrastructure, that ability does not exist for services purchase on commercial wireless networks.

The Commission must look beyond consumer applications and take into account the unique needs of the oil and gas industry and other CII companies when evaluating the sufficiency of commercial network infrastructure.

III. The Commission Should Allocate Spectrum for Exclusive CII Use

Several Commenters in this proceeding take the position that the Commission either does not have the authority to regulate broadband networks or that it is premature to do so, given that broadband networks are in a relatively early stage of deployment.

With respect to mission-critical CII communications, these caveats are off target. API's comments above reflect the reasons why, for decades, internal, private, licensed communications

⁹ See Erin Hartness, AT&T, Time Warner outages reported, WRAL.com, http://www.wral.com/news/news_briefs/story/8006422/; see also Roger Holsinger, World-Herald News Service, 2 phone companies restoring service <http://www.omaha.com/article/20100629/NEWS01/706299903>.

systems have been central to successful energy industry operations and will continue to be so for decades to come.

API's members are in the midst of migrating to IP-enabled technology much in the same way that utilities are seeking new efficiencies through smart grid deployment. New communications technologies will advance two key aspects of President Obama's energy platform, 1) "getting more from our existing oil fields", and 2) "promot[ing] the responsible *domestic* production of oil and natural gas."¹⁰ President Obama noted that "up to 85 billion barrels of technically recoverable oil remains stranded in existing fields" and undertook to set up "a process for early identification of any infrastructure obstacles/shortages" to energy production. The digital oil field of the future will bring increased environmental protection, promote safety of life and property, improve efficiency, and support disaster response efforts.¹¹ In that regard, it is a clear "win-win" for American energy consumers.

Despite these benefits, the oil and natural gas industry is "hitting the wall" when it comes to identifying broadband communications options, wireless or wireline, necessary to implement its plans.

Rather than allocating additional spectrum to the oil and gas industry, the FCC for years has routinely required private radio users – such as oil and gas companies and electric utilities – to *vacate* spectrum as a means of accommodating the entry of new commercial providers serving mass markets. For example:

- Private microwave operators were required to vacate the 1850-1990 MHz band to accommodate new Personal Communications Services;

¹⁰ See New Energy for America, http://my.barackobama.com/page/content/newenergy_more.

¹¹ See Barack Obama and Joe Biden: New Energy For America, http://www.barackobama.com/pdf/factsheet_energy_speech_080308.pdf.

- Private microwave operators were required to vacate portions of the 2 GHz band to accommodate new Advanced Wireless Services;
- Private microwave operators were required to vacate the 12.2-12.7 GHz band to accommodate the introduction of Direct Broadcast Satellite Services; and
- Private mobile radio operators in the 800 MHz band were required to relocate to different frequencies in order to reduce interference caused by nearby commercial radio operators to public safety systems and licensing at 900 MHz was frozen.

The result is that as the oil and gas industry and electric utilities move towards next generation applications to increase efficiency, effectiveness and safety, they are left without the necessary spectrum tools to do so.

To advance energy independence and efficiency, the Commission must ensure that the energy industry has access to sufficient exclusive, licensed spectrum to support necessary applications. Current Commission policy has left the industry with few if any options. API supports the calls from UTC and other for up to 30 MHz of exclusive licensed spectrum for CII industries.

IV. CONCLUSION

API supports the Commission's efforts to further understand the resiliency of commercial broadband networks and urges the Commission to allocate spectrum for CII use consistent with the above comments.

Respectfully submitted,

**THE AMERICAN PETROLEUM
INSTITUTE**

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