U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE

July 20, 2015

TO: Members, Subcommittee on Communications and Technology

FROM: Committee Majority Staff

RE: "Promoting Broadband Infrastructure Investment"

I. INTRODUCTION

On Wednesday, July 22, 2015, at 2:30 p.m. in 2322 Rayburn House Office Building, the Subcommittee on Communications and Technology will hold a hearing entitled "Promoting Broadband Infrastructure Investment."

Broadband services have transformed the American economy, allowing the rapid exchange of information from coast to coast. As more consumers adopted broadband, new services have proliferated, spurring further broadband adoption and further use. Forecasters predict that by 2019, consumer IP traffic in the U.S. alone will reach 38.6 Exabytes per month, the equivalent of 13 million DVDs crossing our networks per hour.[1] By 2019, Americans are expected to use 3.9 billion networked devices – almost double the 2 billion in service in 2014.[2] To keep pace with the growth in traffic, broadband networks must also grow in both scale and scope. Accordingly, this hearing is intended to update the Subcommittee on the state of broadband deployment today, demand for faster networks, developments in how broadband infrastructure is planned and funded, and policies that will help encourage investment in and deployment of broadband infrastructure.

II. WITNESSES

- Jonathan Adelstein, President and CEO, PCIA;
- The Honorable Stephen Roe Lewis, Governor, Gila River Indian Community, Arizona;
- Craig Moffett, Senior Research Analyst, Moffett Nathanson;
- Michael Slinger, Director, Google Fiber Cities; and
- Deb Socia, Executive Director, NextCentury Cities.

[1] Cisco Virtual Networking Index, 2019 Forecast Highlights *at* http://www.cisco.com/web/solutions/sp/vni/vni_forecast_highlights/index.html.
[2] *Id*. Device Growth Traffic Profiles.

III. DISCUSSION

Our telecommunications networks are the foundation of the thousands of new services used daily by consumers. Deployment of networks — both wired and wireless — requires armies of skilled workers accomplishing varied tasks, from the network design to the actual hanging and trenching of cables and antennas and construction of server farms. Today, broadband service is provided either by wire or by radio. Cable modems, Digital Subscriber Lines (DSL), or fiber optical lines are all examples of wired broadband network technologies. Examples of wireless broadband networks include fixed and mobile wireless networks based on Long Term Evolution (LTE) and networks based on the use of unlicensed Wi-Fi technology.

In each instance, infrastructure providers must overcome the challenge of installing equipment. In the case of rural installations, the physical geography of a location can pose particular challenges — rocks, mountains, swamps, and other natural formations, can add additional costs to deployment. With settled terrain, the provider must obtain permission from private and public entities to dig up streets to trench cable, access ducts or conduits beneath the municipal streets, hang wire from and attach antennas to poles, build cabinets to house equipment, or build towers. The National Broadband Plan noted that access to conduits, ducts, poles, and rights of way on public and private land comprises a significant portion of the costs of deploying broadband. For fiber optic systems, it can amount to 20 percent of the deployment cost.[3] Moreover, infrastructure providers must continually access existing cabling and equipment for maintenance and upgrade.

Below is a review of several issues that continue to present challenges for broadband infrastructure build-out.

Pole Attachments

Congress has long recognized that access to poles is critical to network deployment as stringing wires along poles is usually a faster, less expensive method of deployment compared to burying cable under streets. In adopting Section 224 of the Communications Act, Congress balanced the rights of pole owners — generally utilities and incumbent telephone companies — against the rights of those seeking to attach wires and antennas, which are deployers of telephony, cable, and, today, broadband networks.[4] While nondiscriminatory access is guaranteed, attachers must still compensate pole owners with rent and the costs of making the pole ready under the statute. Congress granted the Federal Communications Commission (FCC) authority to regulate the "rates, terms, and conditions of pole attachments" to ensure that they are "just and reasonable."[5]

Nonetheless, pole attachments continue to be the subject of considerable dispute between attachers and pole owners. Critics claims that the terms and conditions set by utilities are onerous or obscure; that pole owners often have little incentive to provide speedy access to attachers; and,

[3] FCC, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN (2010) at 109 (National Broadband Plan).
[4] 47 U.S.C. § 224.
[5] 47 U.S.C. § 224(b)(1).

that pole owners drag out the application process. Finally, the rate formulas are complicated and prone to litigation and controversy, all of which leads to delays in the deployment of networks.

Moreover, Section 224, written before mass market adoption of broadband, provides rate formulas only for attachments made by telecommunications providers and cable providers. Those companies attempting to string fiber on poles — but who did not intend to be a provider of telecommunications or cable services — did not automatically get the benefit of a guaranteed right to access poles.[6] Additionally, the rate formula for cable attachments is lower than the rate formula for telecommunications attachments, which has allowed cable broadband operators to enjoy lower pole attachment rates than broadband competitors. While the FCC attempted to harmonize the rates and eliminate delay by utilities in 2010 as part of its implementation of the National Broadband Plan,[7] the agency left open the ability for utilities to continue to charge up to 70 percent more for attachments made by telecommunications providers.[8]

Tower Siting

Base stations and antennae are the primary pieces of equipment used to transmit and receive the radiofrequency signals through which mobile broadband service is provided to customers. The structures used to support these systems vary depending on several factors, including geographic location, local zoning rules, network needs (coverage vs. capacity), and the types of technology being deployed.

The process for building a new tower or collocating on an existing structure involves several local, State, and the Federal regulations. As carriers consider their needs, site surveys are performed to identify the locations best suited for a new deployment. In most places, applications to obtain a tower siting permit are submitted to the local government and zoning board for approval. Zoning authorities take several factors into account while considering the application, such as certain restrictions on the land, local laws for rights of way use, and may hold hearings on the proposed land use. In addition to receiving approval from the local government, those wishing to build a tower must also comply with several Federal laws, including compliance with the National Environmental Policy Act and the National Historic Preservation Act, notification to the Federal Aviation Administration, and registration under the FCC's Antenna Structure Registration program.

While this process can take considerable time to complete, there have been steps taken in order to help speed the process, where appropriate. In 2009, the FCC adopted a declaratory

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[6] *See* United States Telecom Association Petition for Rulemaking, RM-11293 (filed Oct. 11, 2005). *See also Nat'l Cable & Telecomms. Ass'n v. Gulf Power Co.*, 534 U.S. 327 (2002) (in which the Supreme Court held that the FCC's authority to regulate rates applied to attachments by telecommunications providers and cable providers regardless of whether those attachments were used for wireless service or Internet service).

[7] *Implementation of Section 224 of the Act*, Report and Order and Order on Reconsideration, 26 FCC Rcd 5240 (2011), *aff'd by Amer. Elec. Power Svc Corp. v. FCC*, 708 F.3d 183 (D.C. Cir. 2013).

[8] COMPTEL, tw telecom, and NCTA filed a petition for reconsideration soon after seeking to remedy this disparity. The pleading cycle at the FCC is complete, but it has not yet issued an Order. *See* Petition for Reconsideration or Clarification of the National Cable & Telecommunications Association, COMPTEL and tw telecom, inc., WC Docket No. 07-245 (filed June 8, 2011).

ruling to help accelerate the application process for carriers requesting a tower site by requiring local authorities to comply with shot clocks (150 days to respond to an application to build a new site and 90 days for buildout on existing facilities).[9] If local authorities do not act before the shot clock expires, companies have the right to appeal to the courts for action. In 2012, Congress passed the Middle Class Tax Relief and Job Creation Act,[10] which included provisions to help streamline the process for minor facility modifications. The law requires local governments to approve a collocation application if it does not make any substantial or physical changes to the appearance of the structure.[11] Finally, the FCC established additional rules in 2014, aiming to ease infrastructure buildouts for next generation wireless technology, including distributed antenna systems and small cells.[12]

The costs of network deployment are significant and industry investment in growing networks is ongoing. Despite the significant cost of deployment, new competitors have been dotting the landscape, as consumers continue to seek faster speeds. Additionally, a number of municipalities have attempted to build out fiber networks financed by local governments with varying success. Other cities are working with commercial firms in public-private partnerships to roll out faster services, and consortia of municipalities have formed to pool resources, best practices, and experience in bringing faster speeds to their respective cities.[13] The best-known entrant is Google Fiber, who has deployed fiber to a number of cities in the United States. But smaller providers aimed at providing 1 Gbps speeds have entered the market as well, such as Light Speed in Lansing Michigan, US Internet in southeastern Minneapolis, Rocket Fiber in Detroit, or Ting in Charlottesville, Virginia and Westminster, Maryland.[14] These new entrants face the same challenges of amassing capital and planning and constructing networks as the incumbent providers, with one notable difference: the newer entrants often are exempted from the build-out requirements that municipalities required of the incumbent broadband provider.[15]

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[9] *Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B) to Ensure Timely Siting Review and to Preempt Under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance*, Declaratory Ruling, 24 FCC Rcd 13994 (2009) *aff'd by City of Arlington v. FCC*, 133 S. Ct. 1863 (2013).

[10] Middle Class Tax Relief and Job Creation Act of 2012, Pub.L. 112–96, H.R. 3630, 126 Stat. 156 (2012).

[11] An appeal by Montgomery County, Maryland to the FCC's implementation of this provision is currently pending in the courts. *See* Montgomery County, MD v. FCC, No. 15-1240 (4th Circ., Mar. 6, 2015).

[12] *Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies, et al.*, Report and Order, 29 FCC Rcd 12865 (2014).

[13] *See, e.g,* NextCentury Cities, http://nextcenturycities.org/; Wired West, https://register.wiredwest.net/;

[14] *See, e.g.,* Colin Neagle, "Inside the Bold Plan to Bring Gigabit Fiber to Detroit," NETWORK WORLD (Jun. 29, 2015) *at* http://www.networkworld.com/article/2941353/lan-wan/inside-the-bold-plan-to-bring-gigabit-fiber-to-detroit.html; Adam Belz, "US Internet's Fiber Spreads Across South Minneapolis," STAR TRIBUNE (Apr. 7, 2015) at http://www.startribune.com/us-internet-intensifies-battle-for-high-speed-dollar-in-south-mpls/298723851/; Lorne Fultonberg, "New High-Speed Internet Comes to Lansing," WILX10 (Mar. 11, 2015) *at* http://www.wilx.com/home/headlines/New-High-Speed-Internet-Comes-to-Lansing-295944931.html; Sean Buckley, "Ting to Take 1 Gig Service to Westminster, MD," FIERCETELECOM (Jan. 14, 2015) *at* http://www.fiercetelecom.com/story/ting-take-1-gig-service-westminster-md/2015-01-14.

[15] *See, e.g.*, Alistair Barr, "Google Fiber is Fast, but is it Fair?" WALL STREET JOURNAL (Aug. 22, 2014) *at* http://www.wsj.com/articles/google-fuels-internet-access-plus-debate-1408731700; Colin Neagle, "How Google Fiber is disrupting the broadband deployment model," NETWORKWORLD (Aug. 26, 2014) *at* http://www.networkworld.com/article/2599023/opensource-subnet/how-google-fiber-is-disrupting-the-broadband-deployment-model.html.

Local cable franchises generally require the local cable operator to build to all neighborhoods, and incumbent telephone operators generally face the same obligations under their State certificates of public convenience and necessity – the so-called "carrier of last resort" obligation. However, many of the new fiber entrants have begun with selectively providing service to areas that have indicated interest by either a down-payment or a subscription.

Access to Federal Lands and Buildings

The Federal government is the largest landowner in the country – roughly 635-640 million acres, 28% of the 2.27 billion acres of land in the United States.[16] The Federal government's General Services Administration (GSA) also owns or leases space in 9,600 buildings nationwide.[17] Streamlining access to Federal property would go a long way to facilitate deployment of broadband facilities.

The Federal government has long recognized the value of facilitating access to Federal lands and facilities for broadband deployment. In 1995, President Clinton required GSA to develop guidelines to permit deployment of wireless antennas on Federal buildings and lands.[18] In March 2007, the GSA updated these procedures and declared them effective indefinitely.[19] The rents that the government may charge are expected to be reasonable and based on "market value" per the 1995 presidential memo.[20]

The National Broadband Plan proposed that the fees for use of Federal property be set based on direct cost recovery, especially in markets currently underserved or unserved by any broadband service provider.[21] The Plan also proposed that the government develop master contracts for all Federal property and buildings covering the placement of wireless towers and antennae.[22] Section 6409(c) of the Middle Class Tax Relief and Job Creation Act of 2012 directed GSA to develop such a contract. By standardizing the placement of wireless antennas, among other considerations, these master contracts would lower real estate costs and streamline local zoning and permitting for network infrastructure. However, to date, these master contracts have yet to become the standard for wireless facilities deployment that Congress had envisioned.

Tribal Broadband Deployment

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[16] Ross W. Gorte, *et al.*, "Federal Land Ownership: Overview and Data," CRS Report R42346 (Feb. 8, 2012) *available at* http://fas.org:8080/sgp/crs/misc/R42346.pdf.
[17] See GSA, GSA Properties Overview *at* http://www.gsa.gov/portal/content/104501.
[18] *See* Memorandum on Facilitating Access to Federal Property for the Siting of Mobile Services Antennas, 31 Weekly Comp. Pres. Doc. 1424 (Aug. 10, 1995); *see also* 41 C.F.R. §§ 102-79.70 - .100.
[19] *See* 72 Fed. Reg. 11,881 (2007).
[20] *Id.*
[21] National Broadband Plan at 115.
[22] *Id.*

Network deployment on tribal lands is subject to the same difficulties posed in any rural landscape. However, a few additional challenges apply due to the unique nature of tribal lands.[23] Obtaining rights of way on tribal lands poses a particular problem. The Bureau of Indian Affairs ("BIA") must approve the application for a right-of-way across Indian lands; in order to obtain approval, service providers must coordinate with multiple entities during the application process. Identifying landowners and obtaining consent can prove time-consuming and costly. Additionally, the Federal regulations that guide BIA in approving rights-of-way applications lack clarity, particularly in reference to advanced telecommunications equipment.[24]

IV. STAFF CONTACTS

If you have any questions regarding this hearing, please contact David Redl or Grace Koh of the Committee staff at (202) 225-2927.

[23] *See* GAO Report 06-189, "Challenges to Assessing and Improving Telecommunications for Native Americans on Tribal Lands" (2006).
[24] *See, e.g.*, 25 C.F.R. §§ 169.22(A) 169.27 (describing voltage for equipment that can be installed for commercial purposes; similar guidance does not exist for advanced telecommunications equipment).