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

In the Matter of	)	
	)	
Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act	)	GN Docket No. 14-126

TENTH BROADBAND PROGRESS NOTICE OF INQUIRY

Adopted: August 1, 2014 **Released: August 5, 2014**

Comment Date: September 4, 2014
Reply Comment Date: September 19, 2014

By the Commission: Chairman Wheeler issuing a statement; and Commissioners Pai and O'Rielly approving in part, concurring in part and issuing separate statements.

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I. INTRODUCTION

1. Section 706 of the Telecommunications Act of 1996, as amended (1996 Act), requires the Commission to determine and report annually on "whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion."[1] This Notice of Inquiry (*Inquiry*) initiates the Commission's assessment of the "availability of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary schools and classrooms)."[2] In conducting this *Inquiry*, the Commission must "determine whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion" and, if the answer is negative, the Commission "shall take immediate action to accelerate deployment of such capability" through a variety of means.[3] In this *Inquiry*, we solicit data and information that will help the Commission make this determination.

2. On August 21, 2012, the Commission released the *Ninth Broadband Progress Notice of Inquiry*.[4] We asked questions in the *Ninth Broadband Progress Notice of Inquiry* and have not issued a corresponding report.[5] To what extent do those questions remain relevant or need to be resolved? Since that last inquiry, there have been numerous noteworthy developments in the broadband market and the Commission has continued to take significant steps to accelerate the deployment of modern communications networks. For example, since the last report, the Commission has implemented a second round of Phase I of the Connect America Fund to promote the deployment of broadband-capable infrastructure and more than $438 million in funding has been disbursed, which will bring new broadband service to more than 1.6 million unserved Americans in the next several years.[6]

3. With this *Inquiry*, we start anew by analyzing current data and seeking information that will enable the Commission to conduct an updated analysis for purposes of its next report. In particular, we seek comment on the benchmarks we should use to define "advanced telecommunications capability," explore whether we should establish separate benchmarks for fixed and mobile services, which data we should rely on in measuring broadband, whether and how we should take into account differences in broadband deployment, particularly between urban areas versus non-urban and Tribal areas, and other issues. We seek comment on whether we should modify the 4 megabits per second (Mbps) download and

[1] 47 U.S.C. § 1302. Section 706 of the Telecommunications Act of 1996, Pub. L. No. 104-104, § 706, 110 Stat. 56, 153 (1996), as amended by the Broadband Data Improvement Act, Pub. L. No. 110-385, 122 Stat. 4096 (2008), is now codified in Title 47, Chapter 12 of the United States Code. *See* 47 U.S.C. § 1301 *et seq*. The Commission has historically used the term "broadband" to refer to "advanced telecommunications capability" and we do so herein. *See, e.g.*, *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 11-121, Eighth Broadband Progress Report, 27 FCC Rcd 10342, 10344, para. 1 n.2 (2012) (*2012 Eighth Broadband Progress Report*).

[2] 47 U.S.C. § 1302(b).

[3] *Id*.

[4] *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 12-228, Ninth Broadband Progress Notice of Inquiry, 27 FCC Rcd 10523 (2012) (*Ninth Broadband Progress Notice of Inquiry*).

[5] We note that while the *Ninth Broadband Progress Report* was circulated last year, it was not adopted.

[6] *Wireline Competition Bureau, Universal Service Implementation Progress Report*, WC Docket No. 10-90 (Wireline Comp. Bur. rel. Mar. 24, 2014), http://www.fcc.gov/document/universal-service-implementation-progress-report; *see also Connect America Fund; ETC Annual Reports and Certifications*, WC Docket Nos. 10-90, 14-58, Report and Order and Further Notice of Proposed Rulemaking, FCC 14-98 (rel. July 14, 2014).

1 Mbps upload (4 Mbps/1 Mbps) speed benchmark we have relied on in the past reports. We also seek comment on whether we should consider latency and data usage allowances as additional core characteristics of advanced telecommunications capability.[7]

4. We seek comment on how to address mobile and satellite services data in our section 706 report and on ways to improve the evaluation of mobile and satellite services data. We also seek comment on whether we should establish separate benchmarks for fixed and mobile services, and under what circumstances mobile services may itself satisfy the definition of advanced telecommunications capability and therefore serve as a functional equivalent for fixed broadband that satisfies the definition. For areas where multiple providers have deployed service but none of the services, standing alone, satisfies the broadband benchmark, how (if at all) should we evaluate that deployment for our determination under section 706? Finally, we seek comment on how to improve our analysis concerning broadband availability at elementary and secondary schools. We encourage parties to provide any information that might be useful in our evaluation of broadband availability and welcome innovative ideas on how the Commission can best increase and accelerate broadband availability throughout the nation. We welcome input on all matters relevant to this *Inquiry*, and seek information on the specific issues set forth below.

II. ISSUES FOR INQUIRY

A. What is Advanced Telecommunications Capability?

5. We seek comment on the appropriate definition of advanced telecommunications capability for purposes of the next report. Since the Commission began issuing the broadband progress reports, it has used a speed benchmark to determine whether "advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion."[8] Beginning with the *2010 Sixth Broadband Deployment Report*, the Commission has used 4 Mbps download/1 Mbps upload as the speed benchmark.[9] The Commission noted in 2012 that it may be time to update the speed benchmark

[7] 47 U.S.C. § 1302(d)(1). In the *USF/ICC Transformation Order*, the Commission went beyond speed and considered latency and capacity as additional core characteristics that affect what consumers can do with their broadband service. *See Connect America Fund et al.*, WC Docket No. 10-90 et al., Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17696-702, paras. 90-104 (2011) (*USF/ICC Transformation Order*), *aff'd sub nom. In re FCC 11-161*, 753 F.3d 1015 (10th Cir. 2014). In the *USF/ICC Transformation Order*, the Commission required all recipients of Connect America support to offer broadband service at speeds of 4 Mbps/1 Mbps, at "sufficiently low latency to enable use of real-time applications, such as [Voice over Internet Protocol (VoIP)]," and with usage limits that are "reasonably comparable to usage limits for comparable broadband offerings in urban areas." *Id*. at 17696-99, paras. 92-100. In the *Connect America Fund Phase II Service Obligations Order*, the Wireline Competition Bureau (Bureau) then specified the latency and usage limits that will apply to Phase II model-based support, by adopting a 100 gigabyte (GB) minimum usage allowance and requiring the provider to have a round trip latency of 100 milliseconds (ms) or less. *Connect America Fund*, WC Docket No. 10-90, Report and Order, 28 FCC Rcd 15060, 15065-75, paras. 14-36 (Wireline Comp. Bur. 2013) (*Connect America Fund Phase II Service Obligations Order*). In the *Connect America Fund FNPRM*, the Commission proposes to increase the minimum broadband downstream speed requirement to 10 Mbps and apply the same latency and usage limits to all recipients of ongoing Connect America support, subject to broadband performance obligations. *Connect America Fund et al.*, WC Docket No. 10-90 et al., Report and Order et al., FCC 14-54, para. 10 (rel. June 10, 2014) (*Connect America Fund FNPRM*).

[8] 47 U.S.C. § 1302(b).

[9] In the *2010 Sixth Broadband Deployment Report*, the Commission took what it described as "the overdue step" of increasing the speed benchmark to 4 Mbps/1 Mbps upload to reflect that "network capabilities, consumer applications and expectations – have evolved in ways that demand increasing amounts of bandwidth." *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act et al.*, GN Docket No. 09-137 et al., Sixth Broadband Deployment Report, 25 FCC Rcd 9556, 9558, para. 4 (2010) (*2010 Sixth Broadband*

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"consistent with the 2010 National Broadband Plan, which recommended that the Commission 'review and reset' this benchmark every few years."[10] We also suggested that we may want to follow the approach taken in the *USF/ICC Transformation Order*, and adopt not only a speed benchmark but also consider adopting latency and capacity as additional core characteristics that affect what consumers can do with their broadband service.[11] Below, we seek comment about these core characteristics—speed, latency, and usage allowance—and about what other characteristics we should consider for the purposes of determining whether advanced telecommunications capability is being deployed to all Americans in the next report.

1. Broadband Benchmark: Speed

6. Section 706 refers to consumers' ability "to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology."[12] We seek comment on the appropriate speed benchmark that would permit users to achieve the purposes identified in section 706. We ask parties to provide information on which of the applications described in section 706's definition of advanced telecommunications capability[13] Americans are using most today and how they affect the need for broadband services at a particular speed.[14] Does service with speeds of 4 Mbps/1 Mbps provide consumers the ability to originate and receive these services? For example, consumers increasingly use VoIP, social networking, video conferencing, and streaming video over their broadband connection.[15] In

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Deployment Report); *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 10-159, Seventh Broadband Progress Report and Order on Reconsideration, 26 FCC Rcd 8008, 8019, para. 15 (2011) (*2011 Seventh Broadband Progress Report*); *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10360, para. 19.

[10] *Ninth Broadband Progress Notice of Inquiry*, 27 FCC Rcd at 10528, para. 7; Federal Communications Commission, *Connecting America: The National Broadband Plan*, GN Docket No. 09-51 135 (2010) (*2010 National Broadband Plan*), http://download.broadband.gov/plan/national-broadband-plan.pdf; *see also* White House Office of Science and Technology Policy & The National Economic Council, *Four Years of Broadband Growth* 3 (2013) (*Four Years of Broadband Growth*) (stating that the 4 Mbps/1 Mbps "baseline reflects a growing need for increased bandwidth as more Americans use the Internet for work and to build career skills"), http://www.whitehouse.gov/sites/default/files/broadband_report_final.pdf.

[11] *Ninth Broadband Progress Notice of Inquiry*, 27 FCC Rcd at 10526-27, para. 4; *USF/ICC Transformation Order*, 26 FCC Rcd at 17696-702, paras. 90-104.

[12] 47 U.S.C. § 1302(d)(1); *see Protecting and Promoting the Open Internet*, GN Docket No. 14-28, Notice of Proposed Rulemaking, 29 FCC Rcd 5561, 5611, para. 145 (2014) (*Open Internet NPRM*) ("It is clear that broadband Internet access service is such 'advanced telecommunications capability,' but we also seek comment on what other broadband-enabled services may fall within the definition of 'advanced telecommunications capability.' Should the Commission interpret the term 'advanced telecommunications capability' to require that certain practices accompany a broadband provider's deployment to ensure that end users receive 'high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications?'").

[13] Throughout this *Inquiry*, we may refer to "high-quality voice, data, graphics, and video telecommunications" as "services" or "applications."

[14] We recognize that subscribers' decisions may reflect factors besides speed, such as latency, usage, and price. We seek comment on those factors below. *See infra* paras. 25-30.

[15] Sandvine Intelligent Broadband Networks, Global Internet Phenomena Report 2, 5-6 (2014) (*2014 Sandvine Report*), https://www.sandvine.com/downloads/general/global-internet-phenomena/2014/1h-2014-global-internet-phenomena-report.pdf; Pew, Pew Internet, Digital Differences 11-12 (2012), http://pewinternet.org/Reports/2012/Digital-differences.aspx; Darrell M. West, Center for Technology Innovation at Brookings, The Evolution of Video Streaming and Digital Content Delivery 1-2 (2014),

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particular, we have seen tremendous growth in the online video and audio markets in the past few years.[16] In its most recent report, Sandvine, a company that researches global Internet trends, indicates that real-time entertainment, such as streaming video and audio, continues to be the largest traffic category on virtually every network.[17] Sandvine adds that real-time entertainment "is responsible for over 63% of downstream bytes during peak period."[18] Given the demand for video services and the introduction and use of new services on the market, the Commission may find that the 4 Mbps/1 Mbps speed benchmark no longer allows consumers the ability to "originate and receive" the broadband services identified in section 706. We seek comment on whether we should continue to benchmark broadband based on actual speeds, rather than advertised speeds, to the extent the two are different.[19]

7. Below, we seek comment on ways the Commission could determine speed requirements, and in particular seek comment on assessing common household broadband uses or relying on broadband adoption rates as bases for establishing a speed benchmark. We also seek comment on adopting multiple speed benchmarks.

8. *Assessing Common Household Broadband Use*. We seek comment on setting a speed benchmark based on our assessment of common household broadband use. To do that, we first estimate the typical number of users in a household and then estimate the typical uses of broadband by a household during peak demand hours. We then assess the download and upload speeds necessary to meet the demands of a common household. We seek comment on whether and to what extent such an approach is reasonable under section 706(b).

9. The Commission seeks comment on whether we should consider multiple simultaneous uses of broadband in a household when adopting the next speed benchmark.[20] Is it reasonable under section 706 to set a speed benchmark by looking at whether every member of a household can use multiple devices simultaneously? We seek specific comment on assessing speeds by evaluating the needs of a household size of three broadband users. The U.S. Census Bureau estimates that of the total population in 2010, 300.8 million people lived in 116.7 million households for an average of 2.58 people

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http://www.brookings.edu/~/media/research/files/papers/2014/05/02%20video%20streaming/west_evolution%20of%20videostreaming%20and%20digital%20content%20delivery_final.pdf. In the *Open Internet NPRM*, the Commission noted that the number of hours Americans spend watching video over the Internet has grown 70% since June 2010. *Open Internet NPRM*, 29 FCC Rcd at 5572, para. 32.

[16] Americans are also using numerous devices, such as tablets, to access the Internet. In the *Open Internet NPRM*, the Commission indicated that "[t]he number of tablet users in the United States has increased from 9.7 million in 2010 to almost 70 million by the end of 2012, and is projected to grow to more than 160 million (approximately 50 percent of the U.S. population) by 2016." *Id*. at para. 31.

[17] *See 2014 Sandvine Report* at 2; Ookla Speed Test, What Speeds Do I Need for Skype, Netflix, Video Games, etc.?, https://support.speedtest.net/entries/20893327-What-speeds-do-I-need-for-Skype-Netflix-video-games-etc (last visited July 29, 2014) (listing the requirements for streaming video and audio via YouTube, Hulu, Skype and Spotify).

[18] *2014 Sandvine Report* at 5.

[19] *See 2010 Sixth Broadband Deployment Report*, 25 FCC Rcd at 9563, para. 11 ("Specifically, we benchmark broadband as a transmission service that actually enables an end user to download content from the Internet at 4 Mbps and to upload such content at 1 Mbps over the broadband provider's network."); *2011 Seventh Broadband Progress Report*, 26 FCC Rcd at 8019, para. 15; *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10360-61, para. 19.

[20] *See, e.g.*, *Ninth Broadband Progress Notice of Inquiry*, 27 FCC Rcd at 10530, para. 10 ("We also have observed that an increasing number of households are attaching multiple devices to a single, shared household broadband connection. The bandwidth requirements of a household can increase as the number of devices sharing a broadband connection increases, particularly if multiple users are accessing video content with that connection. How should this usage pattern affect our speed threshold analysis?").

per household.[21] We seek comment on whether we should assume that a household has three broadband users. Alternatively, because the section 706 benchmark should be sufficient to accommodate "advanced telecommunications capability," should we assume that there are more (or fewer) broadband users in a typical household? If so, why and how many users would be reasonable? Should we take into account any geographically significant variations in household size? How could we do so, and would the administrative burden outweigh the costs of determining the variations across the nation?

10. Americans use a wide array of broadband-capable devices, such as tablets, netbooks, computers, and e-readers.[22] Moreover, members of a household routinely use multiple broadband devices and sometimes do so simultaneously.[23] For example, a household of three people might simultaneously use multiple high-bandwidth services – e.g., streaming video, interactive services such as Skype or online gaming – and low-bandwidth services – e.g., paying bills online, sending and receiving emails, viewing web pages, or streaming audio. Indeed, one person may be utilizing multiple broadband-capable devices at one time (e.g., surfing the web using a personal computer while streaming a movie on a tablet).

11. We seek comment on whether to consider typical household use in setting the benchmark. Is it reasonable under section 706 to set a speed benchmark by looking at whether every member of a household can use multiple devices simultaneously? We seek comment on the bandwidth recommendations for households in the *FCC 2011 Household Broadband Guide*, reproduced in Table 1 below.[24] In the *FCC 2011 Household Broadband Guide*, the Commission compared the minimum download speed needs for light, moderate, and high household use with one, two, three, or four users/devices at a time. Since the *FCC 2011 Household Broadband Guide* was developed, consumers may well use, and depend on, even more broadband devices and require more bandwidth. For example, Americans are beginning to have "connected homes," where home appliances, thermostats, security alarms, and door locks are always connected to the Internet and accessible to the consumer.[25] We seek comment on whether the Commission's assessment in the *2011 Household Broadband Guide* reflects

[21] U.S. Census Bureau, *2010 Census Briefs Households and Families: 2010* 1 (April 2012), https://www.census.gov/prod/cen2010/briefs/c2010br-14.pdf.

[22] A White House report last year stated that "[a]s of the first quarter of 2013, 500 million Internet-connected devices were in American homes [and] [t]hese include smartphones, tablets, and other Internet-connected devices that run applications." *Four Years of Broadband Growth* at 7.

[23] U.S. Census Bureau, *Computer and Internet Use in the United States* 6 (May 2013) (indicating an Internet "connectivity continuum" with households accessing the Internet both inside and outside the homes with multiple devices), http://www.census.gov/prod/2013pubs/p20-569.pdf; Olga Karif, *Average Household Has 5 Connected Devices, While Some Have 15-Plus*, Bloomberg.com Tech Blog (Aug. 29, 2012) ("The average U.S. household owns five devices connected to the Internet via Wi-Fi, wired or cellular networks."), http://go.bloomberg.com/tech-blog/2012-08-29-average-household-has-5-connected-devices-while-some-have-15-plus/.

[24] Federal Communications Commission, Office of Engineering and Tech. & Consumer and Governmental Affairs Bureau, *Household Broadband Guide* (2011) (*FCC 2011 Household Broadband Guide*), http://www.fcc.gov/guides/household-broadband-guide. We also seek comment on the *FCC 2011 Broadband Speed Guide*. Federal Communications Commission, Office of Engineering and Tech. & Consumer and Governmental Affairs Bureau, *Broadband Speed Guide* (2011) (*FCC 2011 Broadband Speed Guide*), https://www.fcc.gov/guides/broadband-speed-guide. The *FCC 2011 Household Broadband Guide* reflects staff conversations with network service providers, and application and content providers, as well as publicly available information.

[25] Claire Cain Miller, *Is 2014 The Year of the Connected Home?*, New York Times Bits (Jan. 3, 2014), http://bits.blogs.nytimes.com/2014/01/03/is-2014-the-year-of-the-connected-home/?_php=true&_type=blogs&_r=0. We note that a household with fixed broadband could have several Internet-capable devices, such as smart phones or tablets, which they use regularly through their home fixed Wi-Fi network. The number of these devices is likely to grow. *See, e.g.*, Cisco, Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2013–2018 3 (2012) (*Cisco Visual Networking Index: 2013-18*), http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white_paper_c11-520862.pdf.

common household demand today. If not, what broadband speeds are necessary for households to "originate and receive high-quality voice, data, graphics, and video" services, particularly in light of the increasing demand for video services and continuous introduction of services?

Table 1
FCC 2011 Household Broadband Guide
FCC Recommended Download Speeds for Multiple Users/Devices

Users/Devices	**Light Use** Basic functions only: email, web surfing, basic streaming video	**Moderate Use** Basic functions plus one high-demand application: streaming high-definition (HD), video conferencing, OR online gaming	**High Use** Basic functions plus *more than one* high demand application running at the same time
1 User on 1 Device (e.g., laptop, tablet, or game console)	1-2 Mbps	1-2 Mbps	6-15 Mbps
2 Users or Devices at a time	1-2 Mbps	1-2 Mbps	6-15 Mbps+
3 Users or Devices at a time	1-2 Mbps	1-15 Mbps	More than 15 Mbps
4 Users or Devices at a time	1-15 Mbps	6-15 Mbps	More than 15 Mbps

12. We seek comment on the household bandwidth scenarios in the *FCC 2014 Household Bandwidth Scenarios* in Table 2 below. The purpose of Table 2 is to estimate the amount of download and upload bandwidth a typical household may need today. Table 2 estimates low to high household broadband use as reflected in a range of specific applications. The estimates below are based on a household with fixed broadband service and three broadband users. The scenarios are designed to reflect preliminary assessments of what we believe may reflect typical applications/services used by a household during the peak usage time of 7 pm to 11 pm weeknights. To refine the analysis, we seek comment on the Table 2 below. Are the broadband applications identified in the *FCC 2014 Household Bandwidth Scenarios* reasonable? Are the broadband estimates accurate? Are consumers using significantly different broadband applications or services than those captured in Table 2? We note that the *FCC 2014 Household Broadband Guide* and the *FCC 2014 Household Bandwidth Scenarios* reflect a wide range of speed requirements, and further note that network capacity would likely need to exceed these amounts to fully utilize these services and applications without substantial buffering, packet loss, and delay.

Table 2 FCC 2014 Household Bandwidth Scenarios[26]				
Scenario	**Application**	**Activity**	**Download**	**Upload**
Low Use Household	Streaming Video[27]	1 user watching a standard definition (SD) movie	3.0 Mbps	0.1 Mbps
	VoIP[28]	1 user making a high-quality voice call	0.1 Mbps	0.1 Mbps
	Browser[29]	1 user browsing on the web	0.5 Mbps	0.25 Mbps
	Background[30]	Syncing email, alerts, and weather	0.4 Mbps	0.2 Mbps
Total			**4.0 Mbps**	**0.65 Mbps**
Moderate Use Household	Streaming Video	1 user watching a HD movie	5.0 Mbps	0.1 Mbps
	Interactive Education[31]	1 user taking an online education course	2.0 Mbps	0.5 Mbps
	Browser	1 user browsing on the web	0.5 Mbps	0.25 Mbps
	Background	Syncing email, alerts, and weather	0.4 Mbps	0.2 Mbps
Total			**7.9 Mbps**	**1.05 Mbps**
High Use Household	Streaming Video	1 user watching a super HD movie	7.0 Mbps	0.1 Mbps
	Video Call	1 user making a HD video call	1.5 Mbps	1.5 Mbps
	Cloud Storage[32]	1 user saving files to and from the cloud	1.1 Mbps	1.1 Mbps
	Background	Syncing email, alerts, and weather	0.4 Mbps	0.2 Mbps
Total			**10.0 Mbps**	**2.9 Mbps**

[26] We recognize that our estimates may not capture every use-case scenario and we seek comment on what is a reasonable amount of bandwidth required for households today.

[27] Netflix, Internet Connection Speed Recommendations, https://support.netflix.com/en/node/306 (last visited Mar. 31, 2014).

[28] Skype, How Much Bandwidth Does Skype Need?, https://support.skype.com/en/faq/FA1417/how-much-bandwidth-does-skype-need (last visited July 29, 2014); *see also* Internet Speedometer, Internet Speed Requirements for Skype, http://www.einternetspeedometer.com/index.php/internet-speed-requirements-for-skype/ (last visited July 29, 2014).

[29] General web surfing is an asynchronous activity and we estimate typical bandwidths needed for a satisfactory user experience.

[30] When calculating the amount of bandwidth used for syncing a mobile phone with the cloud (e.g., Gmail), we rely on data from Google Apps that limits bandwidth per account to 750 megabytes (MB) per hour download, which translates to 1.7 Mbps. *See* Google Apps Administrator, Bandwidth Limits, https://support.google.com/a/answer/1071518?hl=en (last visited July 29, 2014). Google limits upload to 300 MB per hour, or 0.67 Mbps. *Id*. For calculating the bandwidth for our scenarios, we assume that a typical user consumes one quarter of the maximum allowed.

[31] Udacity.com, Technology Requirements, https://www.udacity.com/tech-requirements (last visited July 29, 2014).

[32] For cloud storage services such as Dropbox, we base our estimate on the bandwidth required to transmit 1 GB of data per hour. *See* Dropbox, What are the System Requirements to Run Dropbox, https://www.dropbox.com/help/3/en (last visited July 29, 2014); *see also* Dropbox, How do I make Dropbox Sync Faster or Control the Bandwidth Used?, https://www.dropbox.com/help/26/en (last visited July 29, 2014). For calculating the bandwidth for this scenario, we assume that a high-use household will require 50% of this maximum-allowed downstream throughput.

13. *Relying Upon Peak Usage Time.* We seek comment on whether we should assess bandwidth requirements for a typical household during peak Internet usage periods, from 7 pm to 11 pm on weeknights.[33] We seek comment on the types of broadband uses that are common, often used simultaneously, within a household during peak periods, and the appropriate bandwidth that would be necessary to accommodate those uses, to the extent that we determine that it is reasonable under section 706(b) to consider multiple simultaneous uses of broadband. We also seek comment on whether it is reasonable under the statute to set a speed benchmark on the basis of "peak usage time." Is peak usage time an efficient metric? Should we instead consider the average household usage over a 24-hour period or over some other time period, or in some other manner entirely? We recognize that every household is unique, and that the services each household member uses will vary. We seek comment on whether establishing a reasonable household usage scenario during peak periods will assist the Commission in identifying a benchmark that is a necessary component of "advanced telecommunications capability."

14. In light of the *FCC 2011 Household Broadband Guide* and the *FCC 2014 Household Bandwidth Scenarios*, we seek comment on whether the Commission should adopt a higher download speed benchmark, such as 10 Mbps, to more appropriately reflect the statutory requirements in section 706.[34] According to the *FCC 2011 Household Broadband Guide*, service meeting a 10 Mbps download benchmark would fall within the mid-range needed by a three-user household with moderate broadband use, but would not accommodate demand for a three-user household with high use.[35] The *FCC 2014 Household Bandwidth Scenarios* suggests that a 10 Mbps download speed could accommodate a "Moderate Use Household," including allowing a family of three at peak periods to stream a movie, participate in online education, surf the web, and have a mobile device syncing to its email account.[36]

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[33] In recent years, the Commission has tested and adopted broadband requirements based on peak usage periods. Federal Communications Commission, Office of Engineering and Technology & Consumer and Governmental Affairs Bureau, *2014 Measuring Broadband America Fixed Broadband Report: A Report On Consumer Fixed Broadband Performance in the U.S.* 5 (2013) (*Fourth Measuring Broadband America Report*) ("These Reports focus on performance during peak usage period, which is defined as weeknights between 7:00 pm to 11:00 pm local time."), http://data.fcc.gov/download/measuring-broadband-america/2014/2014-Fixed-Measuring-Broadband-America-Report.pdf; *Connect America Fund Phase II Service Obligations Order*, 28 FCC Rcd at 15073, para. 29 ("We believe that measurements conducted during the peak period [weeknights from 7:00 pm to 11:00 pm] will demonstrate the latency experienced by the majority of customers.").

[34] In the past, we have estimated broadband deployment by relying on the broadband data collected by the National Telecommunications and Information Administration (NTIA) and the states, in coordination with the Commission, as part of the State Broadband Initiative (SBI), called "SBI Data." Department of Commerce, NTIA, State Broadband Data and Development Grant Program, Docket No. 0660-ZA29, Notice of Funds Availability, 74 Fed. Reg. 32545 (July 8, 2009) (*NTIA SBI Deployment Data NOFA*), *available at* http://www.ntia.doc.gov/files/ntia/publications/fr_broadbandmappingnofa_090708.pdf. The SBI Data are categorized into nine predetermined speed tiers of advertised download speeds and 11 tiers of advertised upload speeds, including 10 Mbps download. *Id*. at 32559. Because the SBI and FCC Form 477 (Form 477) collections do not collect data for the 4 Mbps/1 Mbps speed tier, we have relied on 3 Mbps/768 kilobits per second (kbps) as a proxy for the 4 Mbps/1 Mbps benchmark. *See 2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10364, para. 29. The Commission will begin collecting deployment data from its revised Form 477 collection without requiring providers to submit data in predetermined speed tiers in the future. *See Modernizing the FCC Form 477 Data Program*, WC Docket No. 11-10, Report and Order, 28 FCC Rcd 9887, 9899, para. 25 (2013) (*Modernizing Form 477 Order*). We do not expect that the Commission will be able to use the new Form 477 data in the *Tenth Broadband Progress Report* because providers will not file the new Form 477 until October 1, 2014. New data collections typically require time to validate. *See* FCC, Form 477 Resources for Filers, http://transition.fcc.gov/form477/.

[35] *See supra* para. 11 Tbl. 1.

[36] *See supra* para. 12 Tbl. 2; *see also* U.S. Government Accountability Office, *Report to Congressional Requesters, Telecommunications: Projects and Policies Related to Deploying Broadband in Unserved and Underserved Areas*

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15. We seek comment on whether a download speed of 10 Mbps would adequately reflect Congress's goal of evaluating *advanced* telecommunications capability.[37] Does 10 Mbps satisfy current demand, especially during peak time? Even assuming that it does, should the benchmark be higher than the minimum necessary to meet existing demand, i.e., should the benchmark be set to accommodate some level of anticipated future demand, particularly if the Commission does not intend to adjust the benchmark annually? Some forecasts of broadband household needs suggest a higher download speed may be necessary.[38] For example, would a significantly higher download speed, such as 15 or 25 Mbps, more accurately fulfill Congress's intent? How should the Commission forecast future household broadband uses to justify such a benchmark?

16. We seek comment on whether a 1 Mbps upload speed will suffice to meet the requirements set forth in section 706. The *FCC 2014 Household Bandwidth Scenarios* suggests that a service capable of 1 Mbps upload speed may not accommodate all household types.[39] A "Moderate-Use Household," for example, may be able to stream a movie, engage in online education, surf the web, and have a mobile device syncing to its email account all at the same time. A "High-Use Household" could have difficulty simultaneously streaming a movie, making a video call, using cloud storage, and have a mobile device syncing to its email account. Even if a consumer is primarily using its broadband for intensive download applications, such as streaming a movie, a consumer's viewing experience could be affected if the consumer does not have sufficient upload speeds.[40] For purposes of the next report, should the Commission retain or increase the 1 Mbps benchmark? If the Commission continues to rely on 1 Mbps upload, we seek comment on whether we should continue to rely on 768 kbps as a proxy for 1 Mbps upload speed.[41]

17. Other data suggest that it might be appropriate for the Commission to increase the upload speed benchmark for purposes of addressing the statutory requirements in section 706.[42] Consumers

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6, Fig. 1 (April 2014) (*GAO Deploying Broadband Report*) (providing broadband technologies and examples of applications performing at various speeds), http://www.gao.gov/products/GAO-14-409.

[37] Recently, the Commission proposed to increase the minimum download speed achieved with universal service funding to 10 Mbps. *Connect America Fund FNPRM* at para. 10. *See also, e.g.*, *Ninth Broadband Progress Notice of Inquiry*, 27 FCC Rcd at 10530, para. 11 (seeking comment on how "to ensure that we remain forward thinking and are prepared to satisfy future needs as well as immediate demands").

[38] The *Domestic Demand for Bandwidth*, which forecasted broadband demand in the United Kingdom, found that "[l]ooking across all households, the model indicates that the median household will require bandwidth of 19 Mbps by 2023, whilst the top 1% of high usage households will have demand of 35-39 Mbps." *See, e.g.*, Robert Kenny and Tom Broughton, Broadband Stakeholder Group, Domestic Demand for Bandwidth: An approach to forecasting requirements for the period 2013-2023 3 (2013) (*Domestic Demand for Bandwidth*), http://www.broadbanduk.org/wp-content/uploads/2013/11/BSG-Domestic-demand-for-bandwidth.pdf. This model also forecasts, for example, the median download demand in 2013 and 2018, as 8 and 12 Mbps, respectively. *Id*. at 54.

[39] *See supra* para. 12 Tbl. 2.

[40] Intensive download applications, such as HD video streaming, are based upon connection-oriented protocols, such as Transmission Control Protocol (TCP), Real-Time Streaming Protocol (RTSP) and variants. These protocols use acknowledgements from the consumer to the server to control the flow of downstream video to the consumer. If these upstream acknowledgements are delayed, then the downstream flow of video packets can be reduced and can result in, for example, lower picture quality and frozen frames.

[41] *See 2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10364, para. 29; *NTIA SBI Deployment Data NOFA*, 74 Fed. Reg. at 32559 (showing the various upload speed tiers options).

[42] *GAO Deploying Broadband Report* at 6, fig. 1; *id*. at 23 (stating that "project sponsors told us that while they are required to meet the federal benchmark of 4 Mbps download/1 Mbps upload when applying for some types of federal funding, this benchmark generally does not allow for the use of advanced Internet applications such as video
(continued…)

increasingly use interactive real-time services and upload content, such as pictures, documents, and engage in video calls.[43] How should we consider the use of symmetrical services, such as two-way video calling; the uploading of media to social networks; and cloud storage? Which do consumers use more – standard or HD video calls? Today, consumers can have a real-time video consultation over their broadband connection at home with doctors many miles away and this type of service may require higher upload speeds.[44] In addition, some states have adopted a 1.5 Mbps upload speed as a benchmark.[45] We thus seek comment on whether a 1 Mbps upload speed is sufficient to meet the goals set forth in section 706. We also seek comment on whether there is a basis for the disparity between download and upload speeds in any speed threshold(s) used by the Commission. For example, if the Commission increases the download speed benchmark, should it also increase the upload speed benchmark?[46] Why or why not?

18. *Setting a Speed Benchmark Based on Adoption Rates*. We seek comment on whether the Commission should consider the rates at which consumers are adopting particular speeds when setting a speed benchmark. We seek comment on whether a higher benchmark is appropriate when the *Fourth Measuring Broadband America Report* indicates that consumers continue to migrate to higher broadband speeds.[47] In setting a speed benchmark, should we consider the speeds available in urban areas, as compared to the speeds available in other areas, and if so, how should we take any disparities into account?[48] How should we consider that one report indicates that the average connection speeds in nine

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conferencing for online education and telemedicine, which project sponsors said their communities would like to have").

[43] Ana Pesovic & Randy Sharpe, *Is Symmetrical Bandwidth a Myth or a Must?*, Alcatel-Lucent TechZine (Oct. 16, 2012) (stating, for example, that broadband speeds "started as highly asymmetrical traffic with downstream volume 10 times greater than upstream . . . . [n]ow upstream-hungry services, such as picture and video storage in the cloud, social media and video chatting, are being rapidly adopted"), http://www2.alcatel-lucent.com/techzine/is-symmetrical-bandwidth-a-myth-or-a-must/.

[44] *See, e.g.*, Thomas Klobucar, PhD, Presentation at FCC Rural Broadband Workshop, *Caring for Rural Veterans and the Smart Rural Community* 11 (Mar. 19, 2014) (indicating that the Department of Veterans Affairs implemented a new initiative that offers veterans in rural areas telemedicine services through video conferencing directly to their home requiring at least 1.2 Mbps symmetrical speeds), http://transition.fcc.gov/presentations/03192014/Thomas-Klobucar.pptx.

[45] Matthew S. Schwartz and Kery Murakami, *More Questions Than Answers as FCC Tackles Rural Broadband Buildout Challenges*, Communications Daily (Mar. 20, 2014) (the Commissioner of the California Public Utilities Commission (CPUC), Catherine Sandoval, stated that the CPUC considers an underserved area as one below 6 Mbps download and 1.5 Mbps upload and recommended that FCC consider raising its standards to support educational and health care applications); *id*. (David Salway, Director of the New York State Broadband Program Office also indicated that New York also uses the 6 Mbps/1.5 Mbps threshold).

[46] *See* Cisco, *Cisco Visual Networking Index, The Zettabyte Era – Trends and Analysis* 17 (June 2014) (stating that "video calling is gaining momentum, and the nascent mobile video calling market appears to have promise [and] [i]f high-end video calling becomes popular, traffic will move toward greater symmetry"), http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/VNI_Hyperconnectivity_WP.pdf. Yet, Cisco continues to report that the largest segment of consumer IP traffic is Internet video, which is highly asymmetric (i.e., much less upstream bandwidth needed than downstream) and forecasts Internet video to have the highest growth rate through 2017. *See id*. at 15, fig. 11.

[47] *Fourth Measuring Broadband America Report* at 12; Federal Communications Commission, Office of Engineering and Technology & Consumer and Governmental Affairs Bureau, 2013 Measuring Broadband America February Report: A Report On Consumer Wireline Broadband Performance in the U.S. 6 (2013) (*Third Measuring Broadband America Report*), http://transition.fcc.gov/cgb/measuringbroadbandreport/2013/Measuring-Broadband-America-feb-2013.pdf; *see also id*. at 52 ("Consumers are continuing to show the importance of higher speed tiers for their needs by migrating their service plans to those tiers.").

[48] *See infra* at para. 40.

countries are higher than the United States' average speed or that the average connection speed in the United States is almost three times the global average when setting a speed benchmark in the next report?[49]

19. Should the benchmark be based on the fastest speed tier to which a substantial portion of consumers subscribe? How should the Commission define "substantial portion" and how should we interpret such demand? Would using such a metric accurately reflect the market choices and needs of consumers based on the service offerings available to them? Does a particular adoption rate (to be determined) by consumers with access to broadband demonstrate that there is sufficient demand for that speed tier? Does adoption at a certain speed demonstrate or suggest that service of that speed is necessary to enable users to originate and receive high-quality voice, data, graphics, and video telecommunications? How should we account for the fact that higher speed services may not be offered in parts of the country? Should we look exclusively at adoption rates in areas where a given speed has been deployed if we select an adoption-based benchmark?[50]

20. If we were to set our benchmark based on adoption, the Commission would need to determine what adoption rate would be necessary to ensure the speed benchmark was reasonable. For example, the Bureau assumed a subscription rate of 70 percent in modeling the costs of deploying broadband to rural America, although we note that was in a different context, and represents a modeling assumption rather than a substantive determination.[51] Would a benchmark based on a 70 percent adoption rate ensure that our benchmark is reasonable, attainable, and sustainable? Would a lower or higher benchmark be better and if so, why? If the median household chooses to adopt a speed tier, does that demonstrate that there is sufficient demand for that speed tier to suggest that all consumers should have the option of subscribing to it? What about a more forward-leaning adoption rate, such as 30 percent? Note that based on SBI Data and Form 477 Data, as of June 2013, 58 percent of households adopted fixed services of at least 3 Mbps/768 kbps, 47 percent of households adopted fixed services of at least 10 Mbps/768 kbps, 41 percent of households adopted fixed services of at least 10 Mbps/1.5 Mbps, 30 percent of households adopted fixed services 10 Mbps/3 Mbps, and 21 percent of households adopted fixed services of 25 Mbps/3 Mbps. To what extent should we evaluate the relationship between price and adoption and if so, how? For example, if a provider charges nominally more for a 25 Mbps download service than a 10 Mbps download service, consumers may adopt the higher speed service regardless of

[49] According to the *Akamai's State of the Internet Report Q4 2013 Report*, the U.S. ranked tenth in the world when comparing average connection speeds. The U.S. averaged 10 Mbps, whereas the global average was 3.8 Mbps. *See, e.g.*, *Akamai's State of the Internet Report, Q4 2013 Report, Volume 6 Number 4* 17 (2014) (*Akamai's State of the Internet Report Q4 2013 Report)*, http://www.akamai.com/dl/akamai/akamai-soti-q413.pdf?WT.mc_id=soti_Q413. *Akamai's State of the Internet Report Q1 2014 Report* indicates that the U.S. has fallen further in comparative rank and the global average connection speed increased to 3.9 Mbps. *Akamai's State of the Internet Report Q1 2014 Report*, *Volume 7 Number 1* 14 (2014), http://www.akamai.com/dl/akamai/akamai-soti-q114.pdf?WT.mc_id=soti_Q114 (*Akamai's State of the Internet Report Q1 2014 Report*). In the *2012 Eighth Broadband Progress Report*, the Commission found that the available international broadband data, although not fully comparable to U.S. data, suggest that the United States lags behind a number of other developed countries with regard to some broadband metrics but leads in other respects. *See 2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10346, para. 5. The Commission added that Organization for Economic Co-operation and Development (OECD) data ranks the United States first out of 28 countries in cable modem coverage and that the United States is the "world leader in [Long Term Evolution (LTE)] adoption," but noted that a review of data on download speeds reported by a sample of consumers from 38 countries found that the United States ranked 17th or 24th in average actual speeds purchased and experienced by consumers, depending on the statistical method used. *Id*. at 10393, para. 118.

[50] For example, if we select a 10 Mbps/1 Mbps or a 25 Mbps/3 Mbps speed as the appropriate speed, should we look exclusively at adoption rates in areas where the selected speed is available?

[51] *Connect America Fund et al.*, WC Docket No. 10-90 et al., Report and Order, 29 FCC Rcd 3964, 4039, para. 177 (Wireline Comp. Bur. 2014).

whether they use or need more than 10 Mbps. How, if at all, should we take that into account in setting a speed benchmark? We ask parties to provide input on ways the Commission may use adoption rates to set the next broadband benchmark.

21. *Other Approaches to Establishing a Speed Benchmark.* We recognize that there are other methods the Commission could use to set a speed benchmark. We also recognize that, if the Commission were to rely on a "typical use" scenario or an adoption-based approach, as the basis for setting a speed benchmark, other tools might be helpful to verify that the selected benchmark is reasonable. We seek comment on other ways we might set, or verify, a speed benchmark.

22. *Multiple Speed Benchmarks*. The foregoing discussion focuses on selecting a single speed benchmark. We also seek comment on whether the Commission should consider establishing multiple benchmarks. Multiple benchmarks could improve our ability to assess whether advanced telecommunications capability is being deployed in a reasonable and timely manner by recognizing that broadband requirements are not uniform throughout the nation. For example, while the "typical use" 10 Mbps download speed benchmark described above is intended to satisfy common household broadband demand, some users, such as larger families or teleworkers, will have significantly greater bandwidth needs.[52] We seek comment on whether the Commission should adopt more than one speed benchmark and if so, how we should use the different benchmarks to evaluate whether deployment is occurring in a reasonable and timely manner.

23. In particular, we seek comment on whether the Commission should adopt a forward-looking benchmark to ensure that we can accommodate the nation's more advanced broadband needs as they develop. Is a forward-looking benchmark reasonable under section 706(b)? If we adopt a forward-looking benchmark, how should we determine whether broadband "is being deployed" in a reasonable and timely manner? For example, should we adopt a forward-looking benchmark of 25 Mbps/6 Mbps in addition to a 10 Mbps/1 Mbps speed benchmark? The statute directs us to inquire "in particular" about broadband availability in schools and classrooms.[53] Should the Commission establish a speed benchmark for schools? Should we establish a speed benchmark for libraries? If so, what would be an appropriate benchmark or benchmarks? If we were to establish a forward-looking benchmark, how should we use it as an assessment tool under the statute? For example, would we evaluate whether at least some portion (e.g. 10 percent) of households have access to that forward-looking benchmark, in addition to assessing the availability of the broadband benchmark set in the next report? We note that the *2010 National Broadband Plan* set a goal that 100 million U.S. homes should have affordable access to actual speeds of at least 100 Mbps/50 Mbps by 2020, and as an interim milestone, by 2015, 100 million U.S. homes should have affordable access to actual speeds of 50 Mbps/20 Mbps.[54] Should we adopt these goals as benchmarks?

24. *Mobile Speed Benchmark(s)*. We ask parties to provide information on which of the section 706 services Americans are using most today with mobile services and how they affect the need for broadband services at a particular speed. Given the discussion above, we seek comment on ways the Commission could determine the bandwidth requirements for mobile service.[55] How do the *2011 Household Broadband Guide* and *FCC 2014 Household Bandwidth Scenarios* apply to mobile services? How should we calculate typical mobile users bandwidth needs i.e., when the user is at home and on the go? What kind of speed thresholds would be appropriate in a mobile environment? How should we view users/devices in the context of mobile service such as shared data plans or mobile prepaid data plans? Is there a peak period for mobile users similar to fixed services? Should we adopt different download and

[52] *See supra* para. 14.

[53] 47 U.S.C. § 1302(b).

[54] *2010 National Broadband Plan* at 9.

[55] *See supra* paras. 5-23.

upload speeds for mobile services? Why or why not? Do bandwidth requirements differ when, for example, a mobile user's only access is through a smart device, such as mobile phone or tablet?

2. Broadband Benchmark: Latency

25. The Commission seeks comment, as it has in the past, on whether to include latency as part of the benchmark for assessing broadband deployment under section 706(b).[56] Latency is a measure of the time it takes for a packet of data to travel from one point to another in a network and often is measured by round-trip time in ms. For example, real-time VoIP services can be supported with speed rates as low as 100 kbps, but require low latency for users to converse normally.[57] High-quality one-way video, such as Video on Demand, by contrast, can be delivered satisfactorily with somewhat higher latencies, but requires higher bandwidth.[58] In the *Connect America Fund Phase II Service Obligations Order*, the Bureau implemented the Commission's decision to require latency adequate to accommodate real time applications for recipients of Connect America funding, concluding that latency should be measured between the customer premises to the Internet exchange point during peak periods and specifying a network round trip set latency requirement of 100 ms or less for price cap carriers accepting model-based support for Phase II-funded locations.[59]

26. We seek comment on whether the Commission should adopt the same latency threshold for purposes of benchmarking advanced telecommunications capability and how the Commission would implement the threshold. While the Commission now has information on distribution of latencies for fixed and satellite services from the *Fourth Measuring Broadband America Report*,[60] similar findings on the distribution of latency using mobile services will be released in an upcoming report and may not be available in time for the next 706 report.[61] We seek comment on whether the Commission could rely on the latency findings in the *Fourth Measuring Broadband America Report* or future reports and what data are available to measure latency, particularly for mobile services. Do high latencies experienced by satellite services affect a consumer's ability to "originate and receive" VoIP or video calls or any other broadband service? We seek comment in particular on the increased latency[62] experienced by satellite

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[56] *See, e.g.*, *Ninth Broadband Progress Notice of Inquiry*, 27 FCC Rcd at 10531-32, paras. 14-17.

[57] *Third Measuring Broadband America Report* at 12-13 ("VoIP services, which can be used with a data rate as low as 100 kilobits per second (kbps) but also have latency and jitter requirements were adequately supported by all of the service tiers discussed in this Report. However, VoIP quality may suffer during times when household bandwidth is shared by other services.").

[58] *Id*. at 13 (discussing higher bandwidth needs commensurate with the quality of the video).

[59] *Connect America Fund Phase II Service Obligations Order*, 28 FCC Rcd at 15060-61, 15068-76, paras. 2, 19-38. In the *Connect America Fund FNPRM*, the Commission proposed to apply that metric to recipients of Phase II support awarded through a competitive bidding process and to rate-of-return carriers. *Connect America Fund FNPRM* at paras. 149-52.

[60] *Fourth Measuring Broadband America Report* at 16 ("Satellite systems involve the transmission of information over long distances and have correspondingly higher latencies than for terrestrial technologies. ViaSat had a measured latency of 671.1 ms, approximately 19 times the terrestrial average."); *Third Measuring Broadband America Report* at 30 ("While the test results found variance in latencies among technologies, the latencies measured here for all of the terrestrial-based technologies should be adequate for common latency-sensitive Internet applications, such as VoIP. As noted, the situation is more complex for satellite, and dependent on a number of factors, including application sensitivity to latency and user perception of latency's effects.").

[61] *Fourth Measuring Broadband America Report* at 55 ("We expect to release [mobile broadband performance] data associated with this program by no later than 3Q 2014.").

[62] The International Telecommunication Union (ITU) Standard G.114 provides that consumers are "very satisfied" with the quality of VoIP calls up to a mouth-to-ear latency of approximately 200 ms. International Telecommunication Union, *Telecommunication Standardization Sector, Series G: Transmission Systems and Media, Digital Systems and Networks*, *G.114* 3 (fig. 1/G.114—Determination of the effects of absolute delay by the E-model) (May 2003) (*ITU G.114 Standard*), http://www.itu.int/rec/dologin_pub.asp?lang=e&id=T-REC-G.114-

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services during one-hop or double-hop calls, where both the caller and called party subscribe to satellite service, and are using, for example, VoIP or two-way video calls.[63]

3. Broadband Benchmark: Usage and Other Characteristics

27. The Commission has indicated that it might consider data usage allowance as a core characteristic that affects what consumers can do with their broadband service.[64] Should we include usage in our section 706 assessment? If so, how? We seek comment on what data usage allowances most broadband providers offer today, and the impact of these usage allowances on setting a benchmark. For example, do consumers routinely exceed the usage allowance for the service to which they subscribe and if so, is additional capacity available for an additional fee? If so, how frequently do consumers avail themselves of that option?

28. Should the Commission adopt a usage threshold in evaluating broadband availability pursuant to section 706 and if so, what should it be? We note that, on October 31, 2013, in the *Connect America Fund Phase II Service Obligations Order*, the Bureau implemented an initial 100 GB minimum usage allowance for price cap carriers accepting model-based support for Phase II-funded locations.[65] However, that decision was made in the context of ensuring that consumer-funded subsidies were being used to provide a minimum level of service. Does an assessment of the economic terms of a service offering—including price and usage allowances—affect whether the service satisfies the definition of advanced telecommunications capability? We ask parties to provide any reliable data sources that would identify providers' broadband offerings and consumers' use.[66] We also seek comment on how prices and other terms and conditions should factor into our analysis of any data capacity limits included in service offerings.

29. How would the Commission implement a broadband usage threshold? Should the Commission focus on the amount of data that consumers actually use each month, instead of what broadband providers typically offer? What information, reports, or other sources are available to measure the amount of data consumers use monthly? In particular, are there any sources concerning usage that the Commission could use to assess which carriers meet or do not meet the usage threshold? Consumers are increasingly using free or pay-per-use Wi-Fi spots with their mobile or Internet-capable devices, which

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200305-I!!PDF-E&type=items; *see also Connect America Fund Phase II Service Obligations Order*, 28 FCC Rcd at 15068, para. 20. The ITU has noted that while latency delays above 400 ms are unacceptable for network planning, latency up to 300 ms provides acceptable voice quality for most users with an increasing number of users becoming dissatisfied if latency exceeds 300 ms. *ITU G.114 Standard* at 2-3. The metric adopted by the Bureau for price cap carriers accepting model-based support is consistent with an overall mouth-to-ear latency limit of 200 ms. *Connect America Fund Phase II Service Obligations Order*, 28 FCC Rcd at 15068-69, para. 20.

[63] Some satellites (but not all) are capable of switching links or routing within the satellite. If both the caller and called party each used a compatible satellite service capable of switching calls within the satellite, the consumer would experience a one-hop delay. Double-hop refers to a call that requires two satellite hops to complete. *Policy for Licensing Domestic Satellite Earth Stations in the Bush Communities of Alaska*, IB Docket No. 02-30 et al., Report and Order, 18 FCC Rcd 16874, 16877, para. 8 (2003). This occurs when a satellite provider uses a hub arrangement, where each link terminates at a hub and is switched on the ground. Even if both parties use the same satellite provider or they use different satellite providers, they would have a double-hop scenario.

[64] *See, e.g.*, *Ninth Broadband Progress Notice of Inquiry*, 28 FCC Rcd at 10532-33, paras. 18-21.

[65] *Connect America Fund Phase II Service Obligations Order*, 28 FCC Rcd at 15060, para. 2. The 100 GB usage allowance must be offered at a price that is reasonably comparable to the rates charged for similar services in urban areas. *Id*. at 10563, para. 7. Recipients of model-based support are free, however, to offer an array of services with usage allowances above and below this limit. *Id*. at 15062, para. 6 n.12. In the *Connect America Fund FNPRM*, the Commission proposed to apply that same approach to recipients of Phase II support awarded through a competitive bidding process and to rate-of-return carriers. *Connect America Fund FNPRM* at paras. 149-52.

[66] *Id*.

helps consumers stay below their usage limits.[67] How should the Commission consider Wi-Fi access in its analysis of usage allowances? Should the Commission consider the fact that some consumers may take broadband service from both fixed and mobile providers, and that one or both of such services might provide unlimited usage? Is a certain amount of data capacity needed, per person or per household, on a monthly basis to meet the objectives of section 706?[68] Can usage be analyzed without reference to the price and how should we consider the ability to purchase additional usage? If not, are there data available with which the Commission could analyze price adequately, or should the Commission collect such data as part of its Form 477 program?[69]

30. We seek comment on whether other characteristics of a service in addition to those specifically discussed above might be relevant to a determination of whether it should be considered "advanced telecommunications capability" within the meaning of section 706.[70] What technical and/or economic characteristics of a broadband service should be considered necessary in order for that service to constitute "advanced telecommunications capability?" Are there any other technical issues that we should consider when establishing a benchmark, such as jitter, or consistency (i.e., reliability) of service?[71] How should the Commission interpret the term "advanced telecommunications capability" to ensure broadband providers continue to enable end-users the ability to originate and receive high quality voice, data, graphics, and video telecommunications?

4. Relationship Among Fixed, Mobile, and Satellite Services

31. If we are able to provide estimates concerning mobile and satellite deployment in the next report, should we establish a single speed benchmark regardless of the network technology?[72] If so, what would be an appropriate benchmark? For example, would 10 Mbps/1 Mbps be an appropriate speed threshold? Or, are there reasons to develop speed benchmarks independently for each technology platform?[73] Should the Commission set different latency, data usage, or other criteria for fixed and

[67] *Cisco Visual Networking Index: 2013-18* at 2 (reporting that "[g]lobally, 45 percent of total mobile data traffic was offloaded onto the fixed network through Wi-Fi or femtocell in 2013").

[68] *See, e.g., Fourth Measuring Broadband America Report* at 50-51 (the report indicates that approximately less than 25% of DSL, 38% of fiber, and 45% of the panelists use more than 60 GB per month).

[69] *Modernizing the FCC Form 477 Data Program et al.*, WC Docket No. 11-10 et al., Notice of Proposed Rulemaking, 26 FCC Rcd 1508, 1533-36, paras. 66-76 (2011) (seeking comment on whether and how to collect data on pricing); *Modernizing Form 477 Order*, 28 FCC Rcd at 9892, para. 13 n.29 ("We do not address the collection of price data or service quality and customer satisfaction data at this time, and those issues remain open for consideration.").

[70] *Ninth Broadband Progress Notice of Inquiry*, 27 FCC Rcd at 10528, para. 7.

[71] *Third Measuring Broadband America Report* at 12; *Fourth Measuring Broadband America Report* at 11; *Technology Transitions et al.*, GN Docket No. 13-5 et al., Order et al., 29 FCC Rcd 1433, 1527, Appx. B para. 33 (2014) (*Technology Transitions Order and NPRM)* ("For example, in reviewing proposals, it will be important for the Commission to understand in detail any changes in the speed, latency, or jitter of the Internet access services offered in the experiment area."); *Rural Health Care Support Mechanism*, WC Docket No. 02-60, Report and Order, 27 FCC Rcd 16678, 16732, para. 116 (2012) ("The Commission also sought comment on the minimum quality of service standards necessary to meet health IT needs, and whether the broadband services program should include a minimum quality of service requirement (including metrics such as reliability, bit delay, jitter, packet dropping probability, and/or bit error rate)."); *USF/ICC Transformation Order*, 26 FCC Rcd at 17701, para. 104.

[72] In the last report, the Commission excluded mobile and satellite services from its section 706 finding due to data concerns. *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10366-68, paras. 35-41. Below, we seek comment on how to best estimate mobile and satellite deployment. *See infra* paras. 34-35.

[73] *See* Agricultural Act of 2014, Pub. L. No. 113-79, § 6104, 128 Stat. 649, 854 (2014), modifying 7 U.S.C. § 950(bb) (2012) (allowing the Secretary of Agriculture to "consider establishing different transmission rates for fixed broadband service and mobile broadband service").

mobile services? Why or why not, and what criteria should the Commission use to set such benchmarks? What are the capacity constraints with satellite service? How should we measure and account for satellite capacity limitations when benchmarking broadband in the next report? How should we consider increases in average speeds when benchmarking broadband in the next and future reports?

32. There may be unique advantages and limitations to mobile and fixed services. For example, mobility is a valuable trait, but in the past, we have indicated that mobile services also have been more constrained than fixed services in terms of speed and capacity.[74] We seek comment on how consumers value mobility today. If consumers value mobile and fixed services differently, should we take that into consideration in the context of our section 706 inquiry? The Commission could, for example, establish separate benchmarks for fixed and mobile services, or continue to establish a single benchmark that would apply to all technologies. Under what circumstances does mobile service serve as a functional equivalent for fixed broadband service? If we establish different benchmarks for mobile and fixed service, we seek comment about whether a household or geographic area should be considered served by "advanced telecommunications capability" only if it has access to both fixed and mobile services, as defined using the respective benchmarks. If an area is served by a mobile network that provides broadband service that meets our benchmarks, should that alone be sufficient to determine that area has access to "advanced telecommunications capability?"

B. How Should Broadband Deployment Be Measured?

1. Fixed Terrestrial Services

33. In previous reports, the Commission has relied on the SBI Data collected by NTIA for estimates of fixed residential broadband deployment.[75] We intend to continue relying on SBI Data to provide fixed deployment estimates in the next report and welcome comment on how to improve our analysis.[76] We also seek comment on how we can improve upon our identification of unserved areas and our demographic analysis.[77] Because much of the SBI Data are publicly available, we encourage commenters to conduct and submit their own analyses of the SBI Data and estimates of broadband deployment. Are there ways to refine the accuracy of the SBI Data?[78] We seek comment on whether SBI Data overstates or understates fixed broadband deployment.

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[74] The *USF/ICC Transformation Order* indicated that "while 4G mobile broadband services may meet our speed requirements in many locations, meeting minimum speed and capacity guarantees is likely to prove challenging over larger areas, particularly indoors." *USF/ICC Transformation Order*, 26 FCC Rcd at 17701, para. 104. In the recent *Connect America Fund FNPRM*, the Commission sought to update the record on the role of alternative technologies in Connect America Phase II. *Connect America Fund FNPRM* at paras. 153-56.

[75] *See, e.g., 2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10363, para. 28; *2011 Seventh Broadband Progress Report*, 26 FCC Rcd at 8023, para. 24.

[76] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10369-82, paras. 44-84.

[77] *Id*.

[78] In the *Connect America* proceeding, the Commission has recognized the value of allowing parties to provide information to supplement the SBI Data in its implementation of universal service reforms. *See, e.g., Connect America Fund*, WC Docket No. 10-90, Report and Order, 28 FCC Rcd 7766, 7777-79, paras. 2, 28-33 (2013)(*Connect America Fund Challenge Order*); *Connect America Fund*, WC Docket No. 10-90, Report and Order, 28 FCC Rcd 7211, 7211, 7216-21, paras. 2, 12-22 (Wireline Comp. Bur. 2013). The purpose of the challenge process is to ensure that funding is not provided in areas served by other broadband providers based on SBI Data as of June 2012. *Connect America Fund Challenge Order*, 28 FCC Rcd at 7776, para. 28; *id*. at 7775, para. 23. The Bureau reached some conclusions for Phase I based on the evidence before it regarding whether SBI Data census block as of June 2012 should be treated as served or unserved and has begun the Phase II challenge process. *Connect America Fund*, WC Docket No. 10-90, Order, 29 FCC Rcd 181, para. 1 (Wireline Comp. Bur. 2014); *Wireline Competition Bureau Commences Connect America Phase II Challenge Process*, WC Docket No.

(continued…)

2. Mobile Services

34. We seek comment on how to address mobile services in our report. Previous reports have included an expanded discussion of mobile deployment.[79] In its last report, the Commission used two sources of mobile deployment data—SBI Data and Mosaik Data.[80] Ultimately, however, the Commission determined that the available mobile data should not affect the ultimate statutory deployment determination because the available data sources appeared to be not reliable and overstated deployment to a significant degree.[81] The Commission also noted concerns about the latency and usage allowances of available mobile services.[82] Are those concerns valid today? Pursuant to the new rules adopted in the *Modernizing Form 477 Order*, mobile providers must submit deployment data to the Commission, which will result in more reliable mobile deployment estimates in the future.[83] Are there additional data that the Commission should consider when determining the extent of mobile broadband deployment in the United States? Commenters should address any additional considerations the Commission should take into account in benchmarking mobile broadband, such as whether mobile service is consistently available throughout a provider's service area (e.g., inside buildings, across different topographies) and how we could assess mobile adoption rates at a sufficiently granular level.[84]

3. Satellite Services

35. We seek comment on how to incorporate satellite services into our report. In the *2012 Eighth Broadband Progress Report*, the Commission explained the reasons why it did not include satellite services as part of its section 706 finding.[85] Are those concerns valid today? Pursuant to the new rules adopted in the *Modernizing Form 477 Order*, satellite providers must submit deployment data to the

(Continued from previous page)
10-90 et al., DA 14-942 (Wireline Comp. Bur. rel. June 30, 2014). Should the Commission incorporate those findings or any future findings on SBI Data into its section 706 analysis in the next report? Why or why not?

[79] *See, e.g.*, *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10342, 10382-85, paras. 85-91; *2011 Seventh Broadband Progress Report*, 26 FCC Rcd at 8089-90, para. 34.

[80] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10383, para. 88.

[81] *Id*. at 10366-68, paras. 35-40 (explaining that both the SBI Data and the Mosaik Data have certain limitations that would likely cause the Commission to overstate the extent of mobile broadband deployment meeting any defined broadband thresholds); *2011 Seventh Broadband Progress Report*, 26 FCC Rcd at 8023-24, para. 26.

[82] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10366, para. 35 n.175 (stating "the nature of the available data, and concerns about data caps and latency characteristics of these services limits our ability to make concrete findings about mobile deployment at this time").

[83] *See Modernizing Form 477 Order*, 28 FCC Rcd at 9888, para. 4. However, we do not expect those data to be available for the *Tenth Broadband Progress Report* given that the filing deadline to submit new Form 477 data is October 1, 2014. *See* FCC, *Form 477 Resources for Filers*, http://transition.fcc.gov/form477/ (last visited July 29, 2014).

[84] Form 477 collects mobile broadband handset data at the state level. *See* Federal Communications Commission, Industry Analysis and Technology Division, Wireline Competition Bureau, Local Telephone Competition: Status as of December 31, 2012 2, fig. 1 & 29, tbl.18 (November 2013), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-324413A1.pdf; *Wireline Competition Bureau Releases Data Specification for Form 477 Data Collection*, WC Docket No. 11-10, Public Notice, 28 FCC Rcd 12665 (Wireline Comp. Bur. 2013). More granular data might include, for example: (1) the average number of mobile handsets per household; (2) whether households have multiple mobile handsets; and (3) does the average number of handsets per household vary across geographic areas, such as on Tribal lands.

[85] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10368, para. 41 ("Finally, as in the Commission's last report, we also exclude satellite from our deployment finding."); *id*. at 10368, para. 41 n.187 (noting that the *2011 Seventh Broadband Progress Report* also excluded "satellite due to incomplete SBI Data and evidence that these services were offered below 4 Mbps/1 Mbps"); *id*. at 10368, para. 42 (noting that "[s]atellite service generally has latency over 100 milliseconds").

Commission, which will result in more reliable satellite deployment estimates in the future.[86] Are there additional data that the Commission should consider when determining the extent of satellite broadband deployment in the United States? Commenters also should address any additional considerations the Commission should take into account in benchmarking satellite broadband, including availability to consumers who lack a clear view of the southern sky.[87]

4. Elementary and Secondary Schools and Classrooms

36. In the *E-rate Modernization NPRM*, the Commission sought comment on a number of cross-cutting issues regarding the collection of accurate, relevant and timely data to track our progress in meeting the goals, including the connectivity goals proposed in the *E-rate Modernization NPRM*.[88] We welcome suggestions for other data sources or ways we can improve our data collection and analysis of broadband availability to elementary and secondary schools and classrooms.

5. Other Data

37. We seek comment on ways to improve the Commission's annual broadband progress reports, such as incorporating new data sources or conducting our analysis differently. Are there other ongoing efforts to collect broadband deployment or availability data that were not available, or that we did not include, in prior reports? We seek input on whether there are any particular surveys or other reports that would be particularly beneficial to our section 706 analysis.

C. Is Broadband Being Deployed to All Americans in a Reasonable and Timely Fashion?

38. The present *Inquiry* concerns the status of broadband availability and deployment to *all* Americans, including elementary and secondary schools and classrooms.[89] The Commission has repeatedly said that the statutory inquiry requires us to examine not only physical availability but also broadband price, quality, and adoption.[90] When assessing broadband deployment and availability, the Commission previously considered such factors as end-user price, quality, and adoption.[91] We seek

[86] *See Modernizing Form 477 Order*, 28 FCC Rcd at 9900-01, para. 28. However, we do not expect those data to be available for the *Tenth Broadband Progress Report*.

[87] *See, e.g.*, *Ninth Broadband Progress Notice of Inquiry*, 27 FCC Rcd at 10532, 10537, paras. 17, 36; *see also* HughesNet, *What Equipment Do you Need for Satellite Internet?*, http://www.hughesnetinternet.net/internet-guide/what-equipment-do-you-need-for-satellite-internet/ (last visited July 29, 2014) ("All you need in order to access great satellite Internet is a clear view of the southern sky.").

[88] *Modernizing the E-rate Program for Schools and Libraries*, WC Docket No. 13-184, Notice of Proposed Rulemaking, 28 FCC Rcd 11304, 11320, para. 52 (2013) (*E-rate Modernization NPRM*); *see also Modernizing the E-rate Program for Schools and Libraries*, WC Docket No. 13-184, Report and Order et al., FCC 14-99 (rel. July 23, 2014).

[89] 47 U.S.C. § 1302(b) (requiring the Commission annually to "initiate a notice of inquiry concerning the availability of advanced telecommunications capability to *all Americans* (including, in particular, elementary and secondary schools and classrooms)") (emphasis added). In conducting this inquiry, the Commission must "determine whether advanced telecommunications capability is being deployed to *all* Americans in a reasonable and timely fashion." *Id*. (emphasis added).

[90] The Commission concluded in the *2012 Eighth Broadband Progress Report* that Congress intended the annual section 706(b) inquiries to be broader than a narrow examination of physical network deployment and should also include "an assessment of a variety of factors indicative of broadband availability, such as broadband cost, quality, and adoption by consumers." *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10363, para. 27; *see also 2011 Seventh Broadband Progress Report*, 26 FCC Rcd at 8020-21, paras. 18-20; *Open Internet NPRM*, 29 FCC Rcd at 5611, para. 145 ("In addition, we note that Congress did not define 'deployment.' We believe Congress intended this term to be construed broadly, and thus, consistent with precedent, we have interpreted it to include the extension of networks as well as the extension of the capabilities and capacities of those networks.").

[91] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10363, para. 27.

comment on that interpretation and how we should measure and analyze broadband deployment and availability in the next report. What other factors, if any, does our analysis lack for evaluating broadband availability, and how should these factors be measured? How would the inclusion of additional factors affect our assessment?

39. The Commission has interpreted "all Americans" as used in section 706 as having its ordinary meaning, and thus as establishing a goal of universal broadband deployment.[92] We seek comment on this interpretation. In prior reports, the Commission has interpreted the phrase "is being deployed" as referring to "existing deployment and current actions that will meaningfully affect broadband deployment in the near future . . . [but not] general plans or goals to deploy broadband, particularly long-range plans or goals that are uncertain to be realized."[93] As part of the assessment required by section 706, the Commission must also include information comparing the extent of broadband service capability in a total of 75 communities in at least 25 countries abroad.[94] The Commission has found that broadband deployment is more likely to be reasonable and timely if communities in the United States compare favorably to foreign communities on broadband service capability metrics and is less likely to be reasonable and timely if U.S. communities compare unfavorably.[95] We seek comment on whether the Commission's interpretations of "all Americans," "is being deployed," and "reasonable and timely" remain appropriate. We seek comment on what factors the Commission should consider in determining whether broadband "is being deployed to all Americans in a reasonable and timely fashion."[96] What is reasonable and timely deployment? Should deployment be understood as measuring the degree of progress toward availability of advanced telecommunications capability to all Americans?

40. *All Americans.* In the *2012 Eighth Broadband Progress Report*, the Commission found that lack of access to broadband is particularly pronounced for certain groups of Americans indicating that nearly one quarter of Americans living in rural areas lack access to 4 Mbps/1 Mbps broadband, and 29 percent of Americas living on all Tribal lands are without such access.[97] The Commission added that for Americans residing on Tribal lands in *rural* areas, the percentage of people without access to fixed broadband meeting the speed threshold rises to 49.5 percent.[98] This lack of access to broadband continues today, as June 2013 SBI Data suggest that 22 percent of Americans living on rural areas lack access to 4 Mbps/1 Mbps broadband, and 18 percent of Americans living on Tribal lands are without such access**.** The discrepancy persists for higher speeds as well. For example, June 2013 SBI Data suggest that 98 percent of Americans living in urban areas have access to 10 Mbps/1 Mbps service while only 67 percent of Americans residing in rural areas have access to this same service. Additionally, June 2013 SBI Data suggest that 64 percent of Americans living in urban areas have access to 25 Mbps/10 Mbps service while only 25 percent of Americans residing in rural areas have access to this same service.

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[92] *Id*. at 10401, para. 135 n.347; *2011 Seventh Broadband Progress Report*, 26 FCC Rcd at 8033, para. 48; *2010 Sixth Broadband Deployment Report*, 25 FCC Rcd at 9574, para. 28 n.119.

[93] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10400-01, para. 135 n.347; *see also 2011 Seventh Broadband Progress Report*, 26 FCC Rcd at 8033, para. 47.

[94] 47 U.S.C. § 1303(b)(1) ("As part of the assessment and report required by section 1302 of this title, the Federal Communications Commission shall include information comparing the extent of broadband service capability . . . in a total of 75 communities in at least 25 countries abroad.").

[95] *2012 Eighth Broadband Progress* Report, 27 FCC Rcd at 10400-01, para. 135 n.347.

[96] 47 U.S.C. § 1302(b).

[97] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10370-71, paras. 48, 50.

[98] *See id.* at 10371, para. 51; *id*. at para. 52 (indicating the percentage of unserved Americans living on Tribal lands in rural areas is more than eight times the national average).

41. We also note the deployment trends in urban and rural areas over the last three years. For example, the availability of broadband at 10 Mbps/1 Mbps has gone from 95 to 98 percent of Americans living in urban areas, while the availability of the same service in rural areas has gone from 60 to 67 percent of Americans living in rural areas.[99] Similarly, the availability of broadband at 25 Mbps/10 Mbps has gone from 43 to 64 percent of Americans living in urban areas, while the availability of the same service has gone from 10 to 21 percent of Americans living in rural areas. How should the disparity between rural and urban deployment and the trend in such disparities over time inform our inquiry? Should we base our conclusion about whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion on whether rural Americans have access to broadband that is "reasonably comparable" to that available in urban areas?[100] For example, if 90 percent of urban residents have access to broadband with particular characteristics, should the fact that a similar service is not available to at least half of rural residents weigh against a determination that deployment to all Americans is reasonable and timely?

42. *Is Broadband Being Deployed in a Reasonable and Timely Manner*. We seek comment on our interpretation of the term "reasonable." In the *2012 Eighth Broadband Progress Report*, the Commission indicated that "broadband deployment is more likely to be reasonable and timely if communities in the United States compare favorably to comparable foreign communities on broadband service capability metrics, and less likely to be reasonable and timely if U.S. communities compare unfavorably."[101] Are there limits to the usefulness of such an analysis? Other countries can have very different characteristics in terms of density and terrain, as well as different regulatory and marketplace structures. Therefore, we seek comment on how best to interpret the term reasonable, including whether to expand the interpretation. For example, should we find that deployment is reasonable if sufficient progress has been made as compared to the prior year? Have there been sufficient changes in broadband deployment and availability that would warrant a different conclusion regarding the reasonableness and timeliness of broadband deployment in the next report? How would we define "sufficient?" In addition, should we take into account the challenges of deploying in rural and other high-cost portions of the country in determining whether broadband deployment has been reasonable? Are there non-rural areas where broadband has not been deployed, and what are the barriers, if any, to deployment there? To the extent that broadband has not been deployed in certain areas, either urban or rural, are there explanations that should inform our understanding of what is reasonable and timely? On the other hand, should we read the word "reasonable" to refer objectively to a degree of progress that is "appropriate?" To what extent should adoption rates be relevant to such an assessment of broadband deployment? We also seek comment on the interplay between the terms "advanced telecommunications capability" and "reasonable." In recent reports and inquiries, the Commission has interpreted "advanced telecommunications capability" and the accompanying definition to require an evolving broadband standard instead of viewing the term "advanced" and the accompanying definition as merely a way to distinguish this particular type of service – broadband – from other types of basic telecommunications services that were available at the time the provision was drafted. Does the inclusion of the term "reasonable" inform our current interpretation of "advanced telecommunications capability" as an evolving standard?"

43. We seek comment on the extent that broadband providers of all types are investing in their networks to deploy broadband. What are providers doing to upgrade their networks, and where are they making those investments? How much are providers investing, and what are the sources of those

[99] Our estimates compare SBI Data as of June 2011 with SBI Data as of June 2013.

[100] Congress directed the Commission to base its universal service policies on, among other things, its goal that "[c]onsumers in all regions of the Nation, including . . . those in rural, insular, and high cost areas, should have access to telecommunications and information services, including . . . advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas." 47 U.S.C. § 254(b)(3).

[101] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10400-01, para. 35 n.347.

funds? Are broadband providers deploying advanced telecommunications capability to their customers, and if so, how quickly? Are non-traditional broadband providers entering the market, and if so, where?

44. We also seek comment on the impact of the Commission's universal service actions and other government projects concerning broadband deployment since the last report. Specifically, aside from our implementation of Connect America Phase I, Mobility Fund Phase I, and Tribal Mobility Fund Phase I, how have our actions and other government actions helped spur or hinder the further deployment of fixed and mobile networks in unserved areas? For example, the Commission is an active member of the interagency Working Group established by Executive Order 13616 to facilitate broadband deployment on Federal buildings and rights-of-way.[102] Have any rights-of-way actions promoted broadband deployment? What government programs and/or private investment are helping with the unique challenges in deploying broadband to rural areas and Tribal lands? How can the Commission better assess the impact of any deployment investments in unserved areas in the next report?

45. *Price, Quality, and Adoption.* Price continues to be among the leading reasons why some consumers do not subscribe to broadband.[103] The Commission has begun to collect limited and highly targeted price data through the Urban Rate Survey.[104] Given the limited nature of this data collection, how can the Commission use the data to evaluate the impact of pricing on availability? How should the Commission factor the price of broadband into its assessment of broadband deployment and availability in the next report using this data? When we evaluate whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion, how should we consider whether broadband service is affordable to all Americans and how would we make that determination?[105] Could we rely on other surveys to estimate whether broadband prices are affordable? In evaluating price, should we consider how incomes or the cost of living vary across the country? Are there any sources of data the Commission could use in its assessment? Are there third party data sets that would further the Commission's understanding of broadband-service prices or affordability studies?

46. The quality of broadband services deployed and available to consumers also is an important factor impacting availability. How should the Commission factor service quality, or other

[102] Accelerating Broadband Infrastructure Deployment, Exec. Order 13616, 77 Fed. Reg. 36903 (June 14, 2012). In August 2013, the Working Group released a report on its accomplishments to date. *See* Broadband Deployment on Federal Property Working Group, Implementing Executive Order 13616: Progress on Accelerating Broadband Infrastructure and Deployment (2013), http://www.whitehouse.gov/sites/default/files/microsites/ostp/broadband_eo_implementation.pdf. The Commission also released a Notice of Proposed Rulemaking seeking comment on various wireless facilities siting issues as well as expediting federal review for the deployment of small cells, DAS, and other small scale wireless facilities, including possibly excluding these facilities from review under certain statutes and exempting certain temporary towers from the requirement for environmental notification. *See generally Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies*, WT Docket No. 13-328 et al., Notice of Proposed Rulemaking, 28 FCC Rcd 14238 (2013).

[103] John Horrigan, Joint Center for Political and Economic Studies, *Broadband Adoption and Usage: What Has Four Years Taught Us?* 2, http://moody.utexas.edu/sites/communication.utexas.edu/files/images/content/tipi/Horrigan.FCC_.Summit.02.06.pdf (Feb. 6, 2013) (stating that cost continues to be a barrier to adoption since it was included in a series of factors in the *2010 National Broadband Plan*); Department of Commerce, Economics and Statistics Administration & NTIA, Exploring the Digital Nation: America's Emerging Online Experience 36 (June 2013), http://www.ntia.doc.gov/files/ntia/publications/exploring_the_digital_nation_-_americas_emerging_online_experience.pdf.

[104] *See Wireline Competition Bureau Announces Posting of Broadband Data from Urban Rate Survey and Seeks Comment on Calculation of Reasonable Comparability Benchmark for Broadband Services*, WC Docket No. 10-90, Public Notice, DA 14-944 (Wireline Comp. Bur. rel. June 30, 2014).

[105] *See, e.g.*, Bureau of Labor Statistics, BLS Reports 1046, Consumer Expenditures in 2012 (Mar. 2014), http://www.bls.gov/cex/csxann12.pdf.

characteristics of a service, into its assessment of broadband availability?[106] The Commission continues to expand the Measuring Broadband America project and is expected to publish additional reports in the future, including results on mobile broadband performance.[107] We seek comment on the most recent Measuring Broadband America report. Are there other data sources the Commission should use to assess broadband quality in the next report? Should an assessment of the economic terms of a service offering, such as price, usage allowances, or other ways the service is provided, affect the extent to which a service is reasonably deployed?

47. A 2010 Commission staff paper found 78 percent of those that responded to a 2009 survey were already Internet users and 65 percent were broadband users and that 39 percent of broadband users expressed security concerns, while non-adopters were almost 50 percent more likely than broadband users to raise concerns about security of personal information online. The staff paper also deduced that "[t]his is one factor linked to their lower likelihood of adoption" and there was "significant positive correlation between high levels of worries about personal privacy and non-adoption" of broadband.[108] We seek comment on the staff paper, including the use of a consumer survey as a basis for such findings and whether the work can be validated. What is the correlation between such worries and non-adoption today? Are there other more recent studies or surveys that may complement or contradict the staff paper's findings? How does the data from 2009 compare to the Commission's recent status reports on Internet Access Services? Are there differences in levels of concern in accessing the Internet in general, as compared to accessing it via broadband? If so, what would justify these differences? What is the relevance of privacy and/or security to our section 706(b) determination? Do concerns over personal privacy or security deter consumers from adopting broadband? If so, how are broadband providers addressing these concerns? What other factors or concerns about privacy and security may account for broadband adoption by consumers? Do these other factors have a greater correlation to the lower likelihood of adoption and deployment? What do consumers know about providers' current privacy or security practices and how much of their understanding is accurate? What information do broadband providers voluntarily share with consumers about their privacy and security practices, including regarding their security risk management programs? If privacy and/or security statements are offered voluntarily, are there any obligations, contractual or otherwise, for broadband providers to comply with such commitments? Are there other obligations regarding privacy and/or security which broadband providers may be subject? If so, what are these, and what relevance, if any, would they have to our determination? What is the relationship, if any, between increased consumer awareness of online privacy and security practices and adoption of broadband? How, if at all, do the answers to these questions differ between urban and rural consumers, or between customers of large or small companies?

48. We seek comment on our adoption estimates as an indicator of broadband availability.[109] In the *2012 Eighth Broadband Progress Report*, we presented geographically-specific fixed broadband adoption rates by comparing deployment data (SBI Data) and subscription data (Form 477 Data).[110] We seek comment on this methodology and whether any changes should be made to obtain better estimates of

[106] *Ninth Broadband Progress Notice of Inquiry*, 27 FCC Rcd at 10542, para. 49.

[107] *Fourth Measuring Broadband America Report* at 55.

[108] *See* John B. Horrigan, *Broadband Adoption and Use in America, OBI Working Paper Series No. 1* at 4 (2010) (finding that "[a]lthough this concern is not necessarily a causal factor behind non-adoption decisions, there is a significant positive correlation between high levels of worries about personal privacy and non-adoption"), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296442A1.pdf.

[109] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10363, para. 27.

[110] *Id*. The Commission stated that "[o]nly 40 percent of Americans that have the option to do so adopt fixed broadband meeting the speed benchmark, citing barriers such as lack of affordability, lack of digital literacy, and a perception that the Internet is not relevant or useful to them." *Id*. at 10346, para. 5.

broadband adoption.[111] The Commission is currently collecting broadband adoption information about Lifeline subscribers participating in projects selected for the Lifeline Broadband Pilot Program.[112] To what extent can the Commission rely on those data for the purposes of the next report? What is the relevance of low adoption rates to our section 706(b) determination? If adoption in particular populations, or of service with certain characteristics, is low, should we view that as evidence that deployed services are unattractive to consumers and/or that they fail to "enable[] users to originate and receive high-quality voice, data, graphics, and video telecommunications"? What factors influence adoption generally?

D. What Actions Can Accelerate Deployment?

49. Under section 706, if the Commission finds that broadband is not being deployed to all Americans in a reasonable and timely fashion, then the Commission must "take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market."[113] The Commission has previously identified numerous barriers to infrastructure investment. We seek comment on what immediate actions we could take to accelerate deployment by utilizing "price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment."[114]

50. We also seek comment on the relationship between adoption and deployment of broadband service.[115] We seek comment on the following: (1) costs and delays in building out networks; (2) broadband service quality; (3) lack of affordable broadband Internet access services; (4) lack of trust in broadband and Internet content and services, including concerns about inadequate privacy protections; and (5) lack of access to devices and other broadband-capable equipment.[116] To what extent do these factors affect broadband deployment and availability? Are there other barriers we should consider in the next report? How can we reduce the impact caused by these barriers? What actions should the Commission take to accelerate broadband deployment and availability? Should those actions be different in rural and non-rural areas? Tribal lands face unique challenges and significant obstacles to the deployment of broadband infrastructure.[117] We seek comment on how the Commission can better

[111] *Id*. at 10363, para. 27.

[112] *See generally Lifeline and Link Up Reform and Modernization*, WC Docket No. 11-42, Order, 27 FCC Rcd 15842, 15842, para. 1 (Wireline Comp. Bur. 2012) (announcing the selection of 14 projects for the Lifeline broadband pilot program).

[113] 47 U.S.C. § 1302(b).

[114] *Id.* § 1302(a).

[115] The Commission has observed that barriers to adoption can advance or deter broadband deployment because providers will invest money to build and upgrade services where they reasonably expect to receive a return on investment. *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10403-04, para. 140; *see also Verizon v. FCC*, 740 F.3d 623, 634, 649 (D.C. Cir. 2014) (finding reasonable the Commission's determination that increased end-user demand for broadband access leads to increased investment in broadband network infrastructure and technologies).

[116] *Id*. at 10403, para. 140; *see GAO Deploying Broadband Report*, Highlights ("Some municipalities, cooperatives, and non-traditional private providers are exploring ways to sponsor and fund broadband projects in unserved and underserved areas.").

[117] *See Improving Communications Services for Native Nations*, CG Docket No. 11-41, Notice of Inquiry, 26 FCC Rcd 2672, 2673, para. 2 (2011) (obstacles include "rural, remote, rugged terrain and areas that are not connected to a road system that increase the cost of installing infrastructure, limited financial resources to pay for telecommunications services that deter investment by commercial providers, a shortage of technically trained Native Nation members to plan and implement improvements, and difficulty in obtaining rights-of-way to deploy infrastructure across some Tribal lands").

accelerate broadband deployment on Tribal lands.[118] What additional concrete steps should the Commission take to assess and improve the state of broadband on Tribal lands?

E. Fourth International Broadband Data Report

51. We seek comment on the next *International Broadband Data Report* and how the Commission can best include this international comparison in the report.[119] Section 706 requires that the Commission include an international comparison of broadband service capability in its annual broadband progress report.[120] Specifically, the Commission must "include information comparing the extent of broadband service capability (including data transmission speeds and price for broadband service capability) in a total of 75 communities in at least 25 countries abroad for each of the data rate benchmarks for broadband service utilized by the Commission to reflect different speed tiers."[121] In previous reports, the Commission noted that the available international broadband data suggest that the United States may lag behind a number of other developed countries in the availability of broadband; the data are not perfectly comparable.[122] How can the Commission further improve the data and analysis included in the *Fourth International Broadband Data Report*?[123]

III. PROCEDURAL MATTERS

A. Ex Parte Rules

52. This proceeding shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.[124] Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made,

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[118] *See Tribal Mobility Fund Phase I Auction Closes; Winning Bidders Announced for Auction 902*, AU Docket No. 13-53, Public Notice, 29 FCC Rcd 1974, 1975, para. 1 (Wireless Tel. Bur. 2014) ("The winning bidders are eligible to receive a total of up to $49,806,874 in one-time Tribal Mobility Fund Phase I universal service support to provide 3G or better mobile voice and broadband services covering a population of 56,932 in 80 biddable areas."); *Technology Transitions Order and NPRM*, 29 FCC Rcd at 1463, para. 83 ("First, we adopt an experiment in which we will solicit proposals to bring advanced services to rural Americans, including residents of Tribal lands, with support from the Connect America Fund, which will allow the Commission to examine different approaches to ensuring universal access to these advanced services in an all-IP world.").

[119] *See generally Third International Broadband Data Report*, GN Docket No. 11-121, IB Docket No. 10-171, Report, 27 FCC Rcd 9884 (2012) (*Third International Broadband Data Report*).

[120] 47 U.S.C. § 1303(b).

[121] *Id.* § 1303(b)(1); *see also id.* § 1303(b)(2) ("The Commission shall choose communities for the comparison under this subsection in a manner that will offer, to the extent possible, communities of a population size, population density, topography, and demographic profile that are comparable to the population size, population density, topography, and demographic profile of various communities within the United States. The Commission shall include in the comparison under this subsection—(A) a geographically diverse selection of countries; and (B) communities including the capital cities of such countries."); *id.* § 1303(b)(3) ("The Commission shall identify relevant similarities and differences in each community, including their market structures, the number of competitors, the number of facilities-based providers, the types of technologies deployed by such providers, the applications and services those technologies enable, the regulatory model under which broadband service capability is provided, the types of applications and services used, business and residential use of such services, and other media available to consumers.").

[122] *2012 Eighth Broadband Progress Report*, 27 FCC Rcd at 10346, para. 5.

[123] *See generally Third International Broadband Data Report.*

[124] 47 C.F.R. § 1.1200 *et seq.*

and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.*, .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

B. Comment Filing Procedures

53. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 Fed. Reg. 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: http://fjallfoss.fcc.gov/ecfs2/.

- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

    - All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of *before* entering the building.

    - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

    - U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

C. Accessible Formats

54. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an email to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

IV. ORDERING CLAUSE

55. Accordingly, IT IS ORDERED that, pursuant to section 706 of the Telecommunications Act of 1996, as amended, 47 U.S.C. §§ 1302, 1303, this Notice of Inquiry IS ADOPTED.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

STATEMENT OF
CHAIRMAN THOMAS E. WHEELER

Re: *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 14-126.

Congress has instructed us that all Americans should have access to robust broadband services, no matter where they live. Because consumers demand increasing levels of bandwidth capacity to support the applications they want to use online, we are asking if it is time to update the benchmark broadband speed. And as more people adopt faster broadband speeds, we are asking if all consumers, even in the most rural regions, should have greater access to better broadband.

STATEMENT OF
COMMISSIONER AJIT PAI
APPROVING IN PART AND CONCURRING IN PART

Re: *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 14-126.

Today, we launch yet another inquiry into the "availability of advanced telecommunications capability to all Americans," starting the 180-day clock on our next broadband deployment report.[1] I am encouraged by the willingness of my colleagues to accept some important suggestions for improving this item. For example, we now ask how, not whether, to incorporate mobile services and satellite operations into our analysis.[2] We also include in our deployment calculus how much private enterprise, and not just the government, has invested in broadband networks.[3] Accordingly, I am voting to approve in part.

I concur to the extent this notice perpetuates the recent trend of reading section 706 of the Telecommunications Act of 1996 as a roving mandate to do something—*anything*—about broadband. In recent years, the Commission has treated statutory terms like "availability" and "deployment" as open-ended invitations to intervene into the marketplace, rather than the deregulatory guideposts they are (and Congress intended them to be). And the Commission has invoked section 706 to advance whatever issue seemed appealing at the time—digital literacy,[4] consumers' views regarding the relevance of broadband to their daily lives,[5] or, as in today's order, "the information . . . broadband providers voluntarily share with consumers about their privacy and security practices, including . . . their security risk management programs."[6]

Aside from flouting the spirit if not the letter of section 706, this scattershot, any-shoe-that-fits approach to regulation distracts us from what consumers want and what the statute demands: immediate action to promote new competition and new infrastructure investments by the private sector in the broadband market.[7] I hope that we will avoid distractions and focus instead on enabling greater deployment—and I look forward to working with my colleagues to get us there.

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[1] 47 U.S.C. § 1302(b) (requiring Commission to initiate an annual inquiry into the "availability of advanced telecommunications capability to all Americans").

[2] *See Notice* at paras. 34, 35.

[3] *Compare Notice* at para. 43 ("We seek comment on the extent that broadband providers of all types are investing in their networks to deploy broadband."), *with Notice* at para. 44 ("We also seek comment on the impact of the Commission's universal service actions and other government projects concerning broadband deployment since the last report.").

[4] *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 11-121, Eighth Broadband Progress Notice of Inquiry, 26 FCC Rcd 11800, 11814, para. 29 (2011).

[5] *Id.*

[6] *See Notice* at para. 47.

[7] 47 U.S.C. § 1302(b) (Commission inquiry must "determine whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion," with a negative determination requiring "immediate [Commission] action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market.").

STATEMENT OF
COMMISSIONER MICHAEL O'RIELLY
APPROVING IN PART AND CONCURRING IN PART

Re: *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 14-126.

I approve the initiation of this inquiry, which is required by section 706(b) of the Telecommunications Act of 1996. While I appreciate the opportunity to vote on an item that ostensibly complies with the statute, I am troubled that the Commission failed to meet its statutory obligation to complete the 2012 inquiry within 180 days after its initiation. The Commission simply has no authority or excuse for skipping deadlines imposed by Congress. Hopefully, we have put that disturbing practice behind us for purposes of this inquiry requirement going forward.

I am also concerned that, with each inquiry, the Commission invents new analyses, contorting itself in an effort to justify a finding that broadband is not being deployed to all Americans in a reasonable and timely fashion so that it can regulate broadband service. If you believe (and I have made clear that I do not believe that section 706 provides any authority whatsoever) that the Commission has independent regulatory authority under section 706(a), then there is no need for these analytical acrobatics in conducting the report under section 706(b). We should perform an honest and straightforward assessment of "whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion," which does not mean whether "each person in every household across America can simultaneously stream video while using Skype during peak hours on weeknights." After all, the term "reasonable" has to carry at least some weight since it is actually in the statute. In the end, many of the questions posed appear designed to achieve an already predetermined outcome that is both unnecessary and dubious.

I am also troubled by the expansion of this inquiry into areas that are outside the expertise of the agency and may conflict with responsibilities of other federal agencies, as provided by Congress. In particular, the Commission's newfound interest in privacy and security by broadband providers are issues already subject oversight and enforcement by other federal agencies, including the Federal Trade Commission. I am concerned that this line of inquiry ultimately could result in the FCC creating duplicative and potentially conflicting burdens on broadband providers, leading to cost increases for consumers. Hopefully, we will get a robust record of submissions in this proceeding highlighting the full range of requirements that broadband providers are already subject to and how those existing structures operate.

Therefore, I must concur on the inquiry itself.