



7. Education.....	89
8. Worker Training.....	95
9. Private Sector Investment.....	96
10. Entrepreneurial Activity.....	99
11. Job Creation and Economic Growth.....	103
12. Other National Purposes.....	105
G. Relationship between the Recovery Act and Other Statutory Provisions.....	107
H. Improving Government Performance and Coordination with Stakeholders.....	113
IV. CONCLUSION.....	124
V. PROCEDURAL MATTERS.....	125
A. Paperwork Reduction Act.....	125
B. Ex Parte Presentations.....	126
C. Comment Filing Procedures.....	128
D. Accessible Formats.....	129
VI. ORDERING CLAUSE.....	130
APPENDIX	

## I. INTRODUCTION

1. This Notice of Inquiry seeks comment to inform the development of a national broadband plan for our country. Its focus is to enable the build-out and utilization of high-speed broadband infrastructure. But “infrastructure” barely hints at the importance of what we are undertaking. High-speed ubiquitous broadband can help to restore America’s economic well-being and open the doors of opportunity for more Americans, no matter who they are, where they live, or the particular circumstances of their lives. It is technology that intersects with just about every great challenge facing our nation.

2. In the forty years since ARPANET first connected four academic research labs in 1969, the Internet has transformed the way those who have access to it live their lives.<sup>1</sup> Indeed, since the last major revision of the Communications Act<sup>2</sup> in 1996 in which the Internet was mentioned only briefly, the Internet has become an integral part not only of American life, but of global life. In 1996, Americans who accessed the Internet did so largely through dial-up connections. A small percentage of the population subscribed to cell phone service. Cable was a locally-regulated video delivery platform; satellite-to-the-home and the World Wide Web were in their infancy. Today, the majority of U.S. businesses and households have broadband connections, and access to the Internet through a variety of technologies – fiber, copper, cable, wireless, and satellite<sup>3</sup> – is an integral and critical part of American life.

3. Both wireless and wireline broadband providers continue to upgrade their networks to provide additional broadband capabilities and services to existing and potential consumers. However, there is much work to be done. While Internet access – whether provided by wireline, wireless, or

<sup>1</sup> ARPANET is an acronym for Advanced Research Projects Agency Network, which was the world's first operational packet switching network and the predecessor of the global Internet, developed by the Advanced Research Projects Agency at the United States Department of Defense. See Kevin Werbaeh, *Digital Tornado: The Internet and Telecommunications Policy*, Office of Plans and Policy Working Paper Series 29, 15 (1997).

<sup>2</sup> Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996 Act) (amending the Communications Act of 1934).

<sup>3</sup> Consumers use a variety of broadband access service technologies to access the Internet. See *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*, GN Docket No. 07-45, Fifth Report, 23 FCC Rcd 9615 (2008) (*Section 706 Fifth Report*).

satellite technology – is now available at faster speeds, in more locations, and on smaller, easier-to-use devices, its benefits are not yet ubiquitous.

4. New, innovative broadband products and applications – whether provided by wireline, wireless, or satellite technology – are fundamentally changing not only the way Americans communicate and work, but also how they are educated and entertained, and care for themselves and each other. Individuals increasingly take advantage of broadband today for everyday communications with family and friends, sharing files with co-workers when away from the office, uploading videos and photos, collaborating on articles, blogging about local happenings and world events, creating new jobs and businesses, finding nearby restaurants, shopping, banking, interacting with government, getting news and information when on the go, communicating through relay services, and countless additional applications.

5. While all of these developments are encouraging, we have not yet met the challenge of bringing broadband to everyone.<sup>4</sup> Nor have we managed to keep up with the growing demand for faster and more reliable connections for those who have only basic access now. Many of us, even most of us, have access to broadband. Our goal must be for every American citizen and every American business to have access to robust broadband services. Our goal must be for the United States to be a model for the world in creating a partnership between government and industry to ensure that all citizens have access to broadband. But a goal without a plan is just a wish.<sup>5</sup>

6. In the recently passed American Recovery and Reinvestment Act of 2009,<sup>6</sup> the “stimulus” legislation, Congress charged the Department of Agriculture’s Rural Utilities Service and the Department of Commerce’s National Telecommunications and Information Administration with making grants and loans to expand broadband deployment and for other important broadband projects. Congress provided \$7.2 billion for this effort—no small sum. But even this level of funding is insufficient to support nationwide broadband deployment. With this realization, the Recovery Act charges the Commission to create a national broadband plan. By February 17, 2010, the Commission must and will deliver to Congress a national broadband plan that seeks to ensure that every American has access to broadband capability and establishes clear benchmarks for meeting that goal.

7. We recognize that achieving this goal requires the wholehearted effort of both the private and the public sector. Coupling the dynamic innovations and flexibility of the private sector with the far-seeing policy goals of the public sector can help our nation achieve its broadband goals more efficiently and effectively than either could achieve alone.

8. We seek comment in this Notice from all interested parties on the elements that should go into a national broadband plan. Our plan must reflect an understanding of the problem, clear goals for the future, a route to those goals, and benchmarks along the way. Our plan must also allow for modification as we learn from our experience. And our plan must reflect the input of all stakeholders—industry, American consumers; large and small businesses; federal, state, local, and tribal governments; non-profits; and disabilities communities. With this Notice, we begin to make our plan.

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<sup>4</sup> Some surveys indicate that the United States lags far behind in broadband speed and penetration. See, e.g., Organization for Economic Cooperation and Development, *Broadband Growth and Policies in OECD Countries* (2008), available at <http://www.oecd.org/sti/ict/broadband> (ranking the United States as 14th in the world in average download speed, 15th in the world in broadband penetration, and 18th in the world in price per megabit per second download speed). The Commission recently sought comment on international comparisons in a separate proceeding. See *Comment Sought on International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act*, GN Docket No. 09-47, Public Notice, DA 09-741 (rel. Mar. 31, 2009).

<sup>5</sup> Many attribute this quotation to Antoine de Saint-Exupery. See <http://www.quotationspage.com/quote/34212.html> but see Anonymous quotation in PREPARING: WEBSTER’S QUOTATIONS, FACTS AND PHRASES 7 (2001).

<sup>6</sup> American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009) (Recovery Act). The Recovery Act was signed into law on February 17, 2009.

## II. BACKGROUND

9. We provide a brief overview here and at length in the attached appendix of recent legislation concerning broadband deployment, mapping and future planning.<sup>7</sup> This legislation includes the Recovery Act, which provides up to \$7.2 billion in broadband stimulus funds to develop and expand broadband in order to facilitate economic development. The Recovery Act also tasks the Commission with developing a national broadband plan by February 17, 2010. By Congress's direction, this plan shall seek to ensure that all people of the United States have access to broadband capability and shall establish benchmarks for meeting that goal.<sup>8</sup> The Recovery Act specifies that the Commission's plan must include an analysis of several specific elements of broadband deployment. First, the Commission must analyze the most effective and efficient mechanisms for ensuring broadband access by all people of the United States. Second, the Commission must include a detailed strategy for achieving affordability of such service and maximum utilization of broadband infrastructure and service by the public. Third, the Commission must include an evaluation of the status of deployment of broadband service, including progress of projects supported by the grants made pursuant to this section. Finally, the Commission must include a plan for use of broadband infrastructure and services in advancing a broad array of public interest goals, including consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.

10. Recent legislation also includes the 2008 Farm Bill, which calls for a comprehensive rural broadband strategy and interagency response, and the Broadband Data Improvement Act of 2008, which focuses on data collection that will identify areas still unserved and provide insights on consumer needs related to broadband. A separate background appendix also provides a brief outline of the Commission's efforts to date to expand broadband availability through universal service policies, to make spectrum available for wireless broadband services, and to improve broadband data collection.<sup>9</sup>

## III. DISCUSSION

11. In this section, we describe our approach to developing this plan and request comment on key terms of the statute. We also discuss a number of specific policy goals outlined for the plan in the Recovery Act and how the various governmental agencies and other participants at all levels can best coordinate to achieve these goals.

### A. Approach to Developing the National Broadband Plan

12. The Recovery Act states that "[n]ot later than 1 year after the date of enactment of this section, the Commission shall submit to the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, a report containing a national broadband plan."<sup>10</sup> In creating a national broadband plan, we ask, ultimately, how the Commission can identify and promote the best and most efficient means of achieving this congressional mandate.

13. As we consider this task, we keep in mind and follow the instruction Congress provided to the Commission in the Recovery Act and seek comment on each element of the instruction. First, we seek comment on how to implement a plan "to ensure that all people of the United States have access to broadband capability," including how to address the Congressional directive to "establish benchmarks for

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<sup>7</sup> See *infra* Appendix.

<sup>8</sup> Recovery Act § 6001(k)(2).

<sup>9</sup> See *infra* Appendix.

<sup>10</sup> Recovery Act § 6001(k)(1).

meeting that goal.”<sup>11</sup> How should broadband capability be defined going forward, and what does it mean to have access to it? Second, we seek comment on how to provide “an analysis of the most effective and efficient mechanisms for ensuring broadband access by all people of the United States.”<sup>12</sup> Third, we seek comment on how to develop “a detailed strategy for achieving affordability of such service and maximum utilization of broadband infrastructure and service by the public.”<sup>13</sup> Fourth, we ask about how the Commission should evaluate “the status of deployment of broadband service, including progress of projects supported by the grants made pursuant to this section.”<sup>14</sup> Fifth, we seek comment on how to develop “a plan for use of broadband infrastructure and services in advancing” a variety of policy goals.<sup>15</sup> We also seek comment on how we should evaluate the development of a national broadband plan in light of a variety of other related statutory directives and whether additional elements should be included in the national broadband plan. Finally, because this plan will not be solely the Commission’s to implement, we seek comment on how the Commission, in both the development and implementation of a national broadband plan, should work collaboratively with other agencies at all levels of government, with consumers, with the private sector, and with other organizations.<sup>16</sup>

## **B. Establishing Goals and Benchmarks**

14. In this subsection, we seek comment on how to implement a plan “to ensure that all people of the United States have access to broadband capability,” including how to address the interrelated Congressional directive to “establish benchmarks for meeting that goal.”<sup>17</sup>

### **1. Defining Broadband Capability**

15. Broadband can be defined in myriad ways. In order to ensure that all people of the United States have access to broadband capability, we must make sure that the Commission appropriately identifies goals and benchmarks in this regard. Here, we seek comment on how the Commission should define “broadband capability.”<sup>18</sup> In the discussion below, we seek comment on how this definition should capture the various issues we should consider as we define broadband capability, including how to take into account the various existing and emerging technologies.

16. For instance, the Commission currently uses the terms “advanced telecommunications capability,”<sup>19</sup> “broadband,” and “high-speed Internet.”<sup>20</sup> Should these definitions be unified, or should

<sup>11</sup> Recovery Act § 6001(k)(2).

<sup>12</sup> Recovery Act § 6001(k)(2)(A).

<sup>13</sup> Recovery Act § 6001(k)(2)(B).

<sup>14</sup> Recovery Act § 6001(k)(2)(C).

<sup>15</sup> Recovery Act § 6001(k)(2)(D). Specifically, the national broadband plan must include “a plan for use of broadband infrastructure and services in advancing consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.” *Id.*

<sup>16</sup> See Recovery Act § 6001(k)(3) (“In developing the plan, the Commission shall have access to data provided to other Government agencies under the Broadband Data Improvement Act (47 U.S.C. 1301 note)”).

<sup>17</sup> Recovery Act § 6001(k)(2).

<sup>18</sup> Recovery Act § 6001(k)(2).

<sup>19</sup> We note that Section 706 of the 1996 Act states, “The term ‘advanced telecommunications capability’ is defined, without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology.” 47 U.S.C. § 157 nt (d).

<sup>20</sup> Section 706 Fifth Report, 23 FCC Rcd at 9716, para. 2.

they have separate meanings for different purposes, keeping in mind that current and future broadband platforms will increasingly support “high-speed Internet” as one of several offered services including voice, video, private data applications, and the like? In addition, to the extent that broadband is defined by “speed,” should the Commission consider raising the speeds that define broadband? Should we distinguish among the various broadband technologies? Are there specific Commission actions that could encourage more rapid adoption of these more advanced broadband deployments using mobile wireless technologies, such as Worldwide Interoperability for Microwave Access (WiMAX), Long Term Evolution (LTE), or wireline broadband deployments, such as fiber, DSL, or coaxial deployments supporting DOCSIS 3.0, for example? Are there other advanced broadband technologies that, if deployed, might better position the nation’s broadband infrastructure for continued evolution?

17. We also seek comment on whether a definition of “broadband” should be tethered to a numerical definition or, instead, an “experiential” metric based on the consumer’s ability to access sufficiently robust data for certain identifiable broadband services. In this regard, should we define broadband in terms of bandwidth and latency, capability to download a certain type of media in a certain amount of time, ability to access a certain online service or operate a certain application without depreciation in quality, or by some other metric? Furthermore, should such performance metrics apply only for the local access link, for the end-to-end path, or some other portion of the network? To what extent should our consideration of access to broadband capability take account of the middle mile? Much of the focus on broadband deployment has been on last mile connections. Is there a need, for instance in rural areas, for a greater focus on broadband capabilities in the network beyond last-mile connections? How robust are broadband capabilities in backbone and feeder networks throughout the country?

18. We also request comment on whether a definition of broadband should be static or dynamic, with speed tiers that adjust with changes in technology.<sup>21</sup> Further, we seek comment on the definitions for broadband used by other government agencies and how any such definition by the Commission would impact the various government programs designed to improve consumers’ access to or use of broadband services. For example, should the Commission define broadband in the same manner as other agencies charged with implementing parts of the Recovery Act? We also seek comment on any definitions for “broadband” used in other nations or international organizations that may be useful to the Commission in this proceeding.

19. Because a range of technologies may be used to provide broadband services in a variety of situations,<sup>22</sup> we seek comment on whether to adopt different definitions or standards of what constitutes broadband based on the technology being used to provide the service or the context in which the service is applied, or some combination of both. For instance, should a different set of standards be used to identify mobile broadband services – which allow mobility or portability but may have lower throughputs – and fixed broadband services? Should the definitions vary depending on whether the

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<sup>21</sup> The Commission sought comment on a dynamic definition of broadband in 2007, but ultimately did not adopt this type of definition in the *2008 Data Gathering Order*. See *Deployment of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscriberhip Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscriberhip*, WC Docket No. 07-38, Notice of Proposed Rulemaking, 22 FCC Rcd 7760, 7769-70, paras. 20-21 (2007) (*2007 Data Gathering Notice*); *Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscriberhip Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscriberhip*, WC Docket No. 07-38, Report and Order and Further Notice of Proposed Rulemaking, 23 FCC Rcd 9691, 9702, para. 22 (2008) (*2008 Data Gathering Order*).

<sup>22</sup> Wireless broadband deployments could include Advanced Wireless Service (AWS), Broadband Radio Service (BRS), PCS, WiFi, UNII, TV White Spaces Devices, etc. that use technologies, such as Worldwide Interoperability for Microwave Access (WiMAX) or Long Term Evolution (LTE), HSPA, EVDO, etc., and wireline broadband deployments could include fiber, DSL, or coaxial deployments supporting DOCSIS 3.0, for example.

broadband service is used to serve residential or business customers and if so, how? Should rural regions, with their inherently higher deployment costs, have different definitions or standards for broadband than urban areas? How should satellite technology with comparatively limited bandwidth and higher latency but potentially lower cost of deployment in rural regions be accounted for? Should our definition include some baseline dependability metric? Are there other dependability concerns, such as susceptibility to weather disruptions, that need to be addressed now or in the future?

20. In shared bandwidth broadband access technologies, how should actual speed delivered to consumers be determined, taking into account that for wireline systems, frequency bandwidth, the number of simultaneous users, and distance to the end user affect the data rates delivered? In addition to the bandwidth and number of simultaneous users, the data rates delivered to wireless end users depend upon, among other factors, transmitter power, frequency re-use, and the distance between the end user and the base station. More specifically for actual speeds on a wireless network, should they be determined at the edge of the service contour, and if so, what service contour level would define the edge of service? To what extent should the number of simultaneous users be considered when defining the individual end user data rates since the network capacity may be shared with many other users at the local level? In general, how should the speeds and other characteristics of services delivered to consumers be determined?

21. We also recognize that broadband services are provided under our provisions for the operation of unlicensed radio transmitters.<sup>23</sup> For example, Wi-Fi hotspots provide access to broadband service at hundreds of thousands of locations throughout the United States and the world at locations such as airports, hotels, coffee shops, and retail establishments. Unlicensed technologies are often used by Wireless Internet Service Providers (WISPs) to offer broadband service in urban, suburban and rural communities.<sup>24</sup> Unlicensed technologies are increasingly incorporated in devices operating under our licensed radio services rules to enhance consumers' broadband experience, such as cell phones that include Wi-Fi broadband access capability. We also note that the Commission recently established provisions for unlicensed devices to operate in the TV white spaces, which hold promise for the introduction of new broadband services.<sup>25</sup> In addition, the Commission has established rules to provide for broadband over power line service where the electrical distribution grid can be used for delivery of broadband services.<sup>26</sup> We invite comment as to the state of deployment of broadband services that are offered under our rules for unlicensed devices. Should they be considered as a means of providing broadband service, particularly where no other service exists? If so, how should that service be defined or quantified since unlicensed devices are not necessarily associated with specific areas of operation? We note that unlicensed devices operate on a non-interference basis and must share spectrum with all other such devices. Accordingly, a particular quality of service or data speed often cannot be assured. Should we treat data speeds and metrics for unlicensed devices and services differently because the sharing scenarios and their impact on reliability and data speeds are difficult to predict?

22. With technology developing at such a rapid pace, it is important that we do not lose sight of the potential for monumental shifts in technological platforms that would render definitions obsolete or indeed harmful to developments that might otherwise take place in the market. We thus seek comment on how potential definitions that we apply in furtherance of a national broadband plan can be effectively designed, *i.e.*, appropriately focused to achieve important social goals but sufficiently flexible to adapt to a continuously and rapidly changing technological environment.

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<sup>23</sup> See 47 C.F.R. Part 15.

<sup>24</sup> See [www.WISPA.org](http://www.WISPA.org) and [www.Part-15.org](http://www.Part-15.org) for information on broadband services deployed by WISPs.

<sup>25</sup> See *Unlicensed Operation in the TV Broadcast Bands*, ET Docket 04-186, Second Report and Order and Memorandum Opinion and Order, 23 FCC Red 16807 (2008).

<sup>26</sup> See 47 C.F.R. Part 15, Subpart G.

## 2. Defining Access to Broadband

23. The Recovery Act sets a goal for the national broadband plan of seeking “to ensure that all people of the United States *have access* to broadband capability.”<sup>27</sup> We seek comment on what it means to have access to broadband capability. For instance, we seek comment on whether our determination of availability should take into consideration the provision of broadband at locations, such as at home, at work, in schools, in transit, in libraries and other similar community centers, and at public Wi-Fi hotspots. Further, we seek comment on how to interpret this term regarding access for businesses and other non-residential entities, including those that may serve as anchor tenants in a community. We also seek comment on whether to interpret the term differently depending on the technology used or whether it is used in a fixed, nomadic, or mobile context. Further, we seek comment on any similar definitions of access to broadband used by other nations or international organizations that may be useful to the Commission in this proceeding.

24. We seek comment on whether (and if so, how) the Commission should evaluate the term “access” with certain basic consumer expectations in mind. In 2005 the Commission adopted an *Internet Policy Statement* in which it committed “to preserve and promote the vibrant and open character of the Internet as the telecommunications marketplace enters the broadband age” by incorporating four consumer-based principles into its ongoing policymaking activities.<sup>28</sup> We seek comment on whether, in developing a national broadband plan, we should consider applying these principles more broadly in light of the evolving ways providers store, distribute, and otherwise provide service via broadband access facilities, particularly in ways that are not carried over the Internet. We ask if these principles require elaboration or explanation in light of the telecommunications environment that has evolved since their adoption, and whether the Commission should turn the principles into rules through a rulemaking. We ask, too, that commenters describe the relevant distinctions between the technical capabilities of the broadband connectivity and the source and nature of the services made available via broadband. Overall, we seek comment on how the Commission should develop a national broadband plan in light of these policies.<sup>29</sup>

25. To what extent should the Commission consider price or marketplace competition for broadband as it considers whether people have access to broadband capability? For example, how should the Commission consider the benefits of consumers in a particular area having only a single provider, using one type of technology, versus the competitive benefits that could result from having one or more providers using similar or different technologies? How should the national broadband plan establish priorities for unserved areas versus areas with limited competition and capability?

26. What benefits to consumers are unique to different broadband technologies? How should the Commission consider the different qualitative features discussed above in the definition of broadband, such as latency, peak download speed, and mobility? What metric should be used to define wireless access? For instance would an end user have access if located within a particular service contour? Or

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<sup>27</sup> Recovery Act § 6001(k)(2) (emphasis added).

<sup>28</sup> “To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet” the Commission established the following four policies: (1) “consumers are entitled to access the lawful Internet content of their choice”; (2) “consumers are entitled to run applications and use services of their choice, subject to the needs of law enforcement”; (3) “consumers are entitled to connect their choice of legal devices that do not harm the network”; and (4) “consumers are entitled to competition among network providers, application and service providers, and content providers.” *Internet Policy Statement*, 20 FCC Rcd 14986, 14987-88, para. 4 (2005). The extent to which the principles in the Internet Policy Statement apply to wireless service providers is currently before the Commission in the Skype proceeding. See *Petition of Skype Communications S.A.R.L. to Confirm a Consumer’s Right to Use Internet Communications Software and Attach Devices to Wireless Networks*, RM-11361, filed February 20, 2007.

<sup>29</sup> See *infra* Section III.C.5 (discussing open network policies).

would it be based on measured data rates at the end user location? Should the Commission consider access to wireless broadband from satellite or cellular providers in areas that are not served by wireline systems differently from areas where wireline services are available? Moreover, how should the Commission view the price constraining and substitutability relationships between various fixed wireline services and between fixed wireline services and fixed or mobile wireless services, including both terrestrial and satellite services? How would speed definitions and other regulations attached to grants, loans and universal service distributions affect affordability and pricing of services?

27. We also seek comment on the extent to which access hinges on affordability.<sup>30</sup> For instance, how should the Commission consider broadband services fully deployed to an area, but set at a subscription cost that is unaffordable to some or many residents of the area? Commenters should discuss other distinctions that may be relevant and should be taken into consideration in developing a national broadband plan.

28. *Access for People with Disabilities.* We seek comment on what it means for a person with disabilities to “have access” to broadband capabilities.<sup>31</sup> Both Congress and the Commission have understood the tremendous value that broadband networks can bring to improving communications with and among people with disabilities and bringing opportunities to them.<sup>32</sup> We also seek comment on how broadband services, including, for example, Internet-based telecommunications relay services, have a positive impact on the ability to communicate for persons with disabilities, as well as how the needs of people with disabilities should be included in the national broadband plan.<sup>33</sup> For example, we seek comment on whether, and if so, how, to ensure that the technical characteristics of current and future broadband networks align with the needs of disabled citizens.

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<sup>30</sup> See *infra* para. 54 (discussing affordability).

<sup>31</sup> See generally 47 U.S.C. § 255; see also *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*; *Universal Service Obligations of Broadband Providers*; *Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services*; *Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services*; *1998 Biennial Regulatory Review – Review of Computer III and ONA Safeguards and Requirements*; *Conditional Petition of the Verizon Telephone Companies for Forbearance Under 47 U.S.C. § 160(c) with Regard to Broadband Services Provided Via Fiber to the Premises*; *Petition of the Verizon Telephone Companies for Declaratory Ruling or, Alternatively, for Interim Waiver with Regard to Broadband Services Provided Via Fiber to the Premises*; *Consumer Protection in the Broadband Era*, CC Docket Nos. 02-33, 95-20, 98-10, 01-337, WC Docket Nos. 04-242, 05-271, Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 14853 (2005) *aff’d* *Time Warner Telecom, Inc. v. FCC*, 507 F.3d 205 (3d Cir. 2007) (*Wireline Broadband Order* or *Consumer Protection in the Broadband Era NPRM*); *Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks*, WT Docket No. 07-53, Declaratory Ruling, 22 FCC Rcd 5901 (2007).

<sup>32</sup> See, e.g., The Assistive Technologies Act of 2004, Pub. L. No. 108-364, 118 Stat. 1707 (2004) (codified at 29 U.S.C. §§ 3001-07) (supporting state efforts to improve provision of assistive technology to individuals with disabilities); The Americans with Disabilities Act of 1990, Pub. L. No. 101-336, 104 Stat. 327, Title IV (1990) (codified at 47 U.S.C. § 225) (requiring common carriers to provide telecommunications relay services for deaf and speech-impaired individuals); *Amendment of the Commission’s Rules Governing Hearing Aid-Compatible Mobile Handsets*; *Petition of American National Standards Institute Accredited Standards Committee C63 (EMC) ANSI ASC C63®*, WT Docket No. 07-250, First Report and Order, 23 FCC Rcd 3406 (2008) (adopting hearing aid compatibility requirements for mobile wireless devices); 47 C.F.R. § 64.601-06 (Commission’s telecommunications relay service rules).

<sup>33</sup> See, e.g., *Provision of Improved Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*; *Petition for Clarification of WorldCom, Inc.*, CC Docket No. 98-67, Declaratory Ruling and Second Further Notice of Proposed Rulemaking, 17 FCC Rcd 7779, 7781-82, paras. 7-9 (2002) (describing the benefits of IP Relay).

### 3. Measuring Progress

29. In order to develop a national broadband plan, we need up-to-date and complete information on existing broadband deployment and possible future deployments. The Commission collects a variety of information regarding broadband subscribership.<sup>34</sup> We seek comment on how the Commission's existing data collections, as well as ones that we could undertake, can play a role in measuring our nation's progress toward the goal of ensuring that all Americans have access to broadband. Specifically, we seek comment on which metrics the Commission should use to measure progress and how such metrics capture the variety of communities and technologies across the nation. Further, we seek comment on how the information collected from consumers based on the periodic consumer surveys may assist the Commission in establishing or measuring progress.<sup>35</sup>

30. We seek comment on the interrelationship between the various reporting obligations the Commission is tasked with under the BDIA and the NTIA and RUS grant projects. How well do these varied reporting obligations mesh and what revisions might be appropriate? For example, as we consider how to measure progress in the United States, how should we consider the comparative analyses of international broadband required by the BDIA?<sup>36</sup>

31. What can the Commission learn from the efforts of other countries as it develops a national broadband plan? Have other nations developed similar plans or other programs that assist them in measuring broadband deployment that could inform our development of a national broadband plan? How have other countries addressed various barriers to deployment, such as sparsely populated areas?

32. We recognize that accurate and comprehensive data plays a critical role in assuring the success of a national broadband plan. As such, we seek comment on how we can ensure that any and all data collected in furtherance of developing and implementing a national broadband plan can be as accurate as possible. We also seek comment on what types of necessary public and private sector data are not being collected, how we can obtain such data, and how we should use such data in furtherance of a national broadband plan. Further, we ask how the Commission should balance legitimate confidentiality interests in the data it collects against goals of accountability and openness, as well as allowing the public to measure and review progress.

33. We seek comment on whether the Commission should, as a part of its national broadband plan, seek to collect additional data from broadband providers, consumers, health care providers, schools, libraries or other governmental organizations. If so, what specific additional data would be needed to provide a more comprehensive measurement of progress? We seek comment on how to factor in the broadband metrics study by the Government Accountability Office (GAO) that is scheduled to be submitted to Congress by October 10, 2009.<sup>37</sup> Additionally, we seek comment on whether statistics relevant to this inquiry are collected by other governmental or non-governmental entities. For example, are there appropriate quantifiable measures for the utilization of broadband in various aspects of American lives, such as home life, work, innovation, education, telecommuting, medical care, public safety and first response?

34. The Government Performance and Results Act<sup>38</sup> requires Federal agencies to develop performance measures for major functions and operations. Guidance issued by the Office of Management

<sup>34</sup> See *infra* App., paras. 13-16 (describing the Commission's broadband data collection).

<sup>35</sup> Broadband Data Improvement Act of 2008, Pub. L. No. 110-385, 122 Stat. 4096 § 103(c) (2008) (BDIA).

<sup>36</sup> See *infra* App., para. 6 (describing the international broadband comparison the Commission will conduct in its section 706 report).

<sup>37</sup> See *infra* App., para. 7 (describing the requirement for the GAO to study and report on additional broadband metrics).

<sup>38</sup> Government Performance and Results Act of 1993, Pub. L. No. 103-62, 107 Stat. 285 (GPRA).

and Budget (OMB)<sup>39</sup> to implement the Recovery Act states that program plans must include measures of quantifiable outcomes supported by corresponding quantifiable output measures. According to OMB, outcomes describe the intended external results of carrying out a program for its intended beneficiaries and/or the public. Also, according to OMB, outputs are an internal measure of the level of program activity that will be provided over a period of time.<sup>40</sup> Similarly, the GAO has addressed performance planning and practices.<sup>41</sup> It recommends that agency plans articulate a results orientation by creating performance measures that address important dimensions of a program. Again, in its report on the Universal Service Fund's High-Cost Program,<sup>42</sup> GAO emphasized that "outcome-based performance goals and measures will help illustrate to what extent, if any, the program's structure is fulfilling the guiding principles set forth by the Congress."<sup>43</sup> We seek comment on quantifiable outcome measures and corresponding output measures that would be useful in assessing progress toward the goals of a national broadband plan. We also seek comment on how progress can be measured relative to progress that would have occurred in the absence of any program to better understand the impact of the program.

#### 4. Role of Market Analysis

35. In addition to the particular inquiries outlined in the Recovery Act, should the Commission, in formulating its broadband plan, undertake a traditional market analysis with respect to any relevant market related to broadband? What are the relevant markets? Do they extend beyond broadband service provider markets to encompass backbone networks, equipment markets, applications markets or others? Within each relevant market, who are the providers, potential providers and customers? What is the appropriate geographic area for examining any relevant market? Where is competitive supply adequate? Where is demand adequate or not? What are the barriers to entry in any particular relevant market? We seek comment on these and other questions related to broadband markets that commenters think the Commission should examine in developing a plan to ensure that all Americans have access to broadband capability.

#### C. Effective and Efficient Mechanisms for Ensuring Access

36. In the development of a national broadband plan, the Commission is charged by the Recovery Act with including "an analysis of the most effective and efficient mechanisms for ensuring broadband access by all people of the United States."<sup>44</sup> We seek comment generally on how effective and efficient existing mechanisms have been, whether they are marketplace mechanisms, or activities of governmental or non-governmental entities that supplement or complement the market mechanisms. What mechanisms currently exist at the federal, tribal, state, and local levels, whether implemented by broadband providers or by governmental or non-governmental entities? We also seek comment on how the additional mechanisms being implemented pursuant to the Recovery Act, particularly the grant programs at NTIA and the rural broadband programs at the RUS should inform our analysis and development of a national broadband plan. Similarly, we seek comment on the extent to which programs that provide training and assistance to potential users of broadband are effective and how such programs

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<sup>39</sup> Office of Management and Budget, "Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009," Memorandum, M-09-10 (Feb. 18, 2009).

<sup>40</sup> Office of Management and Budget, "Preparation and Submission of Strategic Plans, Annual Performance Plans, and Annual Program Performance Reports," Circular No. A-11, Part 6 (June 2008).

<sup>41</sup> United States Government Accountability Office, "Agency Performance Plans: Examples of Practices That Can Improve Usefulness to Decisionmakers," GAO/GGD/AIMD-99-69 (February 1999).

<sup>42</sup> United States Government Accountability Office, "Telecommunications: FCC Needs to Improve Performance Management and Strengthen Oversight of the High-Cost Program," GAO-08-633 (June 2008).

<sup>43</sup> *Id.* at 30.

<sup>44</sup> Recovery Act § 6001(k)(2)(A).

might fit into the national broadband plan.<sup>45</sup> Are there additional mechanisms, or changes to existing mechanisms, that the Commission should consider? Further, we seek comment on the extent to which existing mechanisms adequately serve the goals of the Recovery Act and can meet the needs of all communities and people across the nation, including people with disabilities as well as people in urban, rural, insular, Native American and economically distressed communities.

### 1. Market Mechanisms

37. Market mechanisms have been successful in ensuring access to broadband in many areas of the country. What is the best way to attract risk capital to broadband infrastructure projects? We also seek comment on the role of regulation in broadband infrastructure and service markets, as well as its efficacy and efficiency in achieving the important policy objectives contemplated by Congress in its directive to establish a national broadband plan. Where have market-based policies been unsuccessful in ensuring access, and why? For example, what lessons can be learned with regard to whether market forces alone can deliver broadband to rural areas, or areas such as many tribal lands, where marketplace forces alone have not yet delivered even older technologies, such as telephone service? Further, we seek comment on the extent to which our plan can, and should, encourage the combination of market-based policies with other mechanisms to achieve the goals of the Recovery Act. How can any such combinations be implemented effectively and efficiently? For instance, what factors should we consider as we evaluate how government funds for broadband development are distributed, in light of the market's current patchwork of broadband build-out? Is there a way to distinguish between those areas that would receive service without government funding and those that would not? What have been the results of consolidation in some parts of the telecommunications industry with regard to broadband deployment? What is the role of spectrum policy, tax incentives, and other initiatives in promoting market-based delivery of the goals of a national broadband plan?

### 2. Determining Costs

38. In order to capably develop a national broadband plan, how useful or necessary is it for the Commission to understand the costs of deploying broadband networks to the unserved and underserved areas of our country?<sup>46</sup> Should the national broadband plan seek to bring broadband to 100 percent of the country? If so, what are the costs and benefits of bringing broadband to the least densely populated areas? We seek comment on how we can better estimate the cost of deploying various alternative broadband technologies to those areas that the market is not serving, or not adequately serving. Which broadband technologies might work best and deliver the most effective, efficient services in various parts of the nation? For this task, are cost models a viable tool, or are there other appropriate ways for estimating deployment costs? If cost models are appropriate tools, how should the Commission develop or otherwise obtain them?<sup>47</sup> Can these methods be verified in some objective, dependable manner?

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<sup>45</sup> See *infra* paras. 54-57; see also Recovery Act § 6001(b)(3) (Among the purposes of the grant program at NTIA is to “provide broadband education, awareness, training, access, equipment, and support to . . . (B) organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband service by low-income, unemployed, aged, and otherwise vulnerable populations.”).

<sup>46</sup> We note that the costs of deploying such networks are related to the full utilization of these networks. See *infra* Section III.D.

<sup>47</sup> What can we learn from the Commission's experience using cost models? See *Federal-State Joint Board on Universal Service*, CC Docket Nos. 96-45, 97-160, Further Notice of Proposed Rulemaking (1997); *Federal-State Joint Board on Universal Service*, CC Docket Nos. 96-45, 97-160, Fifth Report and Order (1998); *Federal-State Joint Board on Universal Service*, CC Docket Nos. 96-45, 97-160, Further Notice of Proposed Rulemaking (1999); *Federal-State Joint Board on Universal Service*, CC Docket Nos. 96-45, 97-160, Tenth Report and Order (1999).

### 3. Universal Service Programs

39. We seek comment on the impact of broadband on our existing universal service programs, and how we should conduct our analysis of the High-Cost, Schools and Libraries, Rural Health Care (including the Rural Health Care Pilot program), and Low-Income programs. Specifically, for each program, we seek comment on the program's effectiveness and efficiency as a mechanism to help achieve national broadband goals.<sup>48</sup> Further, we seek comment on what modifications to these programs, if any, should be considered as a part of a national broadband plan. We seek comment on how these programs might be better targeted to address broadband deployment, particularly because these programs treat the support of broadband differently. Although the High-Cost program does not explicitly support the provision of broadband, as do the Schools and Libraries and Rural Health Care programs, a carrier providing broadband services indirectly receives the benefits of high-cost universal service support when its network provides both the supported voice services and broadband services.<sup>49</sup> While the Low-Income programs do not currently support broadband, the Commission recently sought comment on a pilot project designed to make broadband affordable to low-income consumers.<sup>50</sup>

40. In particular, we seek comment on the impact of broadband stimulus funds on the Commission's broader efforts to reform the distribution of high-cost support and the collection of universal service contributions. To the extent that financial support is necessary to ensure that adequate broadband is available in high-cost deployment areas, including those currently unserved or underserved, how do we most effectively address this need? Are there opportunities to leverage the stimulus program funds and universal service funds to maximize broadband deployment, and at the same time prevent "double dipping"? To what extent will broadband deployment require continued funding for operations and maintenance?

41. Should we modify existing universal service programs? For example, should we make broadband a "supported service" eligible to receive support directly from the High-Cost and Low-Income programs? Should we create new programs specifically to provide broadband support? Should such programs be designed around the delivery of broadband? What policies or mechanism do we use to prioritize funding in an efficient manner? For instance, should unserved areas get priority? Should multiple providers in an area get support? Should we give priority to funding the construction of networks, or is ongoing support for operations and maintenance essential? If we create new programs, should these programs replace the existing programs or supplement them? If broadband services become eligible to receive high-cost and low-income support, should we also require contributions to universal service from broadband providers? What effect would such a requirement have on the economics of broadband deployment? What effect would including broadband as a supported service have on the size of the universal service fund, and on contribution requirements?

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<sup>48</sup> See *infra* App., paras. 8-11; *infra* Sections III.F.5, III.F.7.

<sup>49</sup> The public switched network is not a single-use network, and modern network infrastructure can provide access not only to voice service, but also to data, graphics, video, and other services. The Commission's policies do not impede the deployment of modern plant capable of providing access to advanced service. See *Federal-State Joint Board on Universal Service, Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, Fourteenth Report and Order, Twenty-Second Order on Reconsideration, and Further Notice of Proposed Rulemaking in CC Docket No. 96-45, and Report and Order in CC Docket No. 00-256, 16 FCC Rcd 11244, 11322, para. 200 (2001) (*Rural Task Force Order*).

<sup>50</sup> See *High-Cost Universal Service Support; Federal-State Joint Board on Universal Service; Lifeline and Link Up; Universal Service Contribution Methodology; Numbering Resource Optimization; Implementation of the Local Competition Provisions in the Telecommunications Act of 1996; Developing a Unified Intercarrier Compensation Regime; Intercarrier Compensation for ISP-Bound Traffic; IP-Enabled Services*, CC Docket Nos. 01-92, 99-200, 99-68, 96-98, 96-45, WC Docket Nos. 06-122, 05-337, 04-36, 03-109, Order on Remand and Report and Order and Further Notice of Proposed Rulemaking, FCC 08-262, Apps. A, C (rel. Nov. 5, 2008) (*November 2008 Further Notice*).

#### 4. Wireless Service Policies

42. In the *Wireless Terrestrial Rural Report and Order*, the Commission concluded that steps were needed to promote greater deployment of wireless services, including steps to eliminate disincentives to serve or invest in rural areas, and to help reduce the costs of market entry, network deployment and continuing operations.<sup>51</sup> Therefore, the Commission adopted measures designed to increase carrier flexibility, reduce regulatory costs of providing service to rural areas, and promote access to both spectrum and capital resources for entities seeking to provide or improve wireless services in rural areas. Should the Commission employ other mechanisms to encourage wireless broadband deployment in rural and tribal areas? For example, have bidding credits for carriers proposing to serve tribal lands been successful in encouraging deployment of wireless services, including broadband, to Indian Country?

43. We also seek comment on how different regulatory approaches that the Commission has adopted in the past, such as facilitating more efficient spectrum use, developing licensing rules and construction requirements, designating spectrum for licensed versus license-exempt use, secondary markets, cognitive radio, or other policies can ensure efficient and effective access to broadband.<sup>52</sup> For example, what about the adoption of more rigorous buildout obligations for wireless services, such as were recently adopted by the Commission with regard to the 700 MHz band?<sup>53</sup> How effective will these policies be with regard to ensuring delivery of broadband services in rural areas, or how may they discourage investment? More importantly, how can the Commission ensure that any measures to encourage wireless broadband service coincide with and complement other broadband platforms (and vice versa)?

44. We seek comment on the extent to which access to spectrum may pose a constraint on broadband access and development. We also seek suggestions for approaches toward spectrum allocation, assignment, management, and use that will best promote national access to broadband service. For example, should the Commission conduct a “spectrum census” or “spectrum inventory” to identify spectrum bands that may be suitable for wireless broadband services?<sup>54</sup> If so, which portions of the spectrum would be most appropriate for examination? There are a variety of ways in which the

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<sup>51</sup> See *Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies to Provide Spectrum-Based Services; 2000 Biennial Regulatory Review Spectrum Aggregation Limits For Commercial Mobile Radio Services; Increasing Flexibility To Promote Access to and the Efficient and Intensive Use of Spectrum and the Widespread Deployment of Wireless Services, and To Facilitate Capital Formation*, WT Docket Nos. 02-381, 01-14, 03-202, Report and Order and Further Notice of Proposed Rule Making, 19 FCC Rcd 19078 (2004) (*Wireless Terrestrial Rural Report and Order*).

<sup>52</sup> See, e.g., *Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, WT Docket No. 00-230, Report and Order and Further Notice of Proposed Rulemaking, 18 FCC Rcd 20604 (2003).

<sup>53</sup> See *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; Section 68.4(a) of the Commission's Rules Governing Hearing Aid-Compatible Telephones; Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services; Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010; Declaratory Ruling on Reporting Requirement under Commission's Part 1 Anti-Collusion Rule*, WT Docket Nos. 07-166, 06-169, 06-150, 03-264, 96-86, PS Docket No. 06-229, CC Docket No. 94-102, Second Report and Order, 22 FCC Rcd 15289 (2007) (*700 MHz Second Report and Order*).

<sup>54</sup> In a 2006 Report, the GAO recommended that the FCC engage in a “spectrum census.” See United States Government Accountability Office, “Telecommunications: Options for and Barriers to Spectrum Reform,” GAO-06-526T (Mar. 2006), at 15.

Commission might conduct a “spectrum census” or “spectrum inventory”, including review of spectrum allocations, licenses, spectrum monitoring, and user surveys. What approaches would be most effective in assessing the actual use of existing spectrum and gauging potential opportunities for wireless broadband services? How should we measure “use” of spectrum, accounting for different technical properties, licensing framework, and the like, in determining whether spectrum is being fully utilized? In conducting such a census or inventory, how should “underutilized spectrum” be defined and what actions should be taken if the spectrum is underutilized? Would such a census or inventory, especially if conducted along with a similar census or inventory by the National Telecommunications and Information Administration of Federal Government spectrum use, be helpful in implementing a more efficient use of spectrum or locating spectrum used for other purposes that could be reallocated and made available to meet growing demand for broadband communications and data services? More broadly, in developing a national broadband plan, we seek comment on how the Commission’s joint spectrum policy responsibilities with NTIA should inform this plan.<sup>55</sup> To what extent can new technologies such as cognitive radio enable more efficient use of existing spectrum allocations or create new opportunities for sharing spectrum with existing services?

45. The Commission has recently adopted the *White Spaces Order*, which opens up the use of significant spectrum in the core TV spectrum bands for use by unlicensed devices.<sup>56</sup> Many see these rules as creating an important new mechanism that can help ensure broadband services become available for more Americans. Given the importance to wireless broadband services of backhaul to the PSTN and the Internet, how can this spectrum be maximized to provide point-to-point backhaul in rural areas?<sup>57</sup> Several other bands are currently used by WISPs to provide broadband through the use of unlicensed devices.<sup>58</sup> What more should the Commission do with respect to permitting the use of unlicensed devices? How should the Commission measure “subscriberhip” or use of devices utilizing unlicensed spectrum? What more should the Commission do to promote the development of cognitive radio devices in order to ensure more availability of spectrum for broadband uses?<sup>59</sup> To what extent should unlicensed wireless play a role in a national broadband plan?

46. The Commission has fostered opportunities for new satellite services capable of delivering broadband from satellite-based platforms. In implementing the Broadcasting-Satellite Service in the 17/24 GHz band, the Commission has created the potential for a new generation of broadband services to the public, providing a mix of local and domestic video, audio, data, video-on-demand and multi-media services to U.S. consumers.<sup>60</sup> Satellite operators have also been authorized to maximize

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<sup>55</sup> See United States Government Accountability Office, “Telecommunications: Options for and Barriers to Spectrum Reform,” GAO-06-526T (Mar. 2006); United States Government Accountability Office, “Telecommunications: Comprehensive Review of U.S. Spectrum Management with Broad Stakeholder Involvement Is Needed,” GAO-03-277 (Jan. 2003).

<sup>56</sup> *Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, ET Docket Nos. 04-186, 02-380, Second Report and Order, 23 FCC Red 16807 (2008) (*White Spaces Second Report and Order*).

<sup>57</sup> *White Spaces Second Report and Order*, 23 FCC Rcd 16807, at para. 160.

<sup>58</sup> WISPs operate primarily on unlicensed spectrum in 900 MHz, 2.4 GHz, 3.6 GHz, 5.3 GHz and 5.8 GHz bands and have shown strong interest in the use of white space frequencies. See Wireless Internet Service Providers Association (WISPA), Ex Parte Presentation, WT Docket Nos. 04-186, 02-380 at 2 (filed Oct. 22, 2008) available at [http://www.nab.org/Xert/CorpComm/PressRel/Releases/102208\\_WISPA\\_WhiteSpaces.pdf](http://www.nab.org/Xert/CorpComm/PressRel/Releases/102208_WISPA_WhiteSpaces.pdf).

<sup>59</sup> *Facilitating Opportunities for Flexible, Efficient, and Reliable Spectrum Use Employing Cognitive Radio Technologies; Authorization and Use of Software Defined Radios*, ET Docket Nos. 03-108, 00-47, Notice of Proposed Rulemaking and Order, 18 FCC Rcd 26859 (2003).

<sup>60</sup> *The Establishment of Policies and Service Rules for the Broadcasting-Satellite Service at the 17.3-17.7 GHz Frequency Band and at the 17.7-17.8 GHz Frequency Band Internationally, and at the 24.75-25.25 GHz Frequency Band* (continued...)

spectrum utilization through the provision of ancillary terrestrial component services, including wireless broadband. Moreover, the Commission continues to license satellite-based broadband services for consumers in aeronautical, land-mobile and maritime environments.<sup>61</sup> The Commission has also streamlined non-routine earth station processing rules, which has facilitated access to terrestrial communications facilities by satellite-based broadband service providers.<sup>62</sup> Given the ubiquitous coverage capabilities of satellites, we seek comment on what further actions the Commission can take to promote the use of satellite-based platforms for access to broadband, especially in rural and remote communities.

## 5. Open Networks

47. We seek comment on the value of open networks as an effective and efficient mechanism for ensuring broadband access for all Americans, and specifically on how the term “open” should be defined. For example, should it incorporate access, interconnection, nondiscrimination, or infrastructure sharing principles? The Commission, through its *Computer Inquiry* proceedings, developed specific nondiscrimination requirements for facilities-based telecommunications carriers,<sup>63</sup> although several of

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*Band for Fixed Satellite Services Providing Feeder Links to the Broadcasting-Satellite Service and for the Satellite Services Operating Bi-directionally in the 17.3-17.8 GHz Frequency Band*, IB Docket No. 06-123, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd 8842 (2007).

<sup>61</sup> See, e.g., *ViaSat, Inc. Application for Blanket Authority for Operation of 1,000 Technically Identical Ku-Band Aircraft Earth Stations in the United States and Over Territorial Waters*, Order and Authorization, 22 FCC Rcd 19964 (IB & OET 2007); *RaySat Antenna Systems, LLC Application for Authority to Operate 400 Land Mobile-Satellite Service Earth Stations in the 14.0-14.5 GHz and 11.7-12.2 GHz Frequency Bands*, Order and Authorization, 23 FCC Rcd 1985 (IB & OET 2008); *Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in the 5925-6425 MHz/3700-4200 MHz Bands and 14.0-14.5 GHz/11.7-12.2 GHz Bands*, IB Docket No. 02-10, Report and Order, 20 FCC Rcd 674 (2005).

<sup>62</sup> *Streamlining the Commission's Rules and Regulations for Satellite Applications and Licensing Procedures*, IB Docket Nos. 95-117 and 00-248, Eighth Report and Order and Order on Reconsideration, 23 FCC Rcd 15099 (2008).

<sup>63</sup> See *Amendment of Section 64.702 of the Commission's Rules and Regulations*, CC Docket No. 85-229, Phase I, 104 FCC 2d 958 (1986) (*Computer III Phase I Order*), recon., 2 FCC Rcd 3035 (1987) (*Computer III Phase I Reconsideration Order*), further recon., 3 FCC Rcd 1135 (1988) (*Computer III Phase I Further Reconsideration Order*), second further recon., 4 FCC Rcd 5927 (1989) (*Computer III Phase I Second Further Reconsideration Order*); *Phase I Order and Phase I Recon. Order vacated sub nom. California v. FCC*, 905 F.2d 1217 (9th Cir. 1990) (*California I*); CC Docket No. 85-229, Phase II, 2 FCC Rcd 3072 (1987) (*Computer III Phase II Order*), recon., 3 FCC Rcd 1150 (1988) (*Computer III Phase II Reconsideration Order*), further recon., 4 FCC Rcd 5927 (1989) (*Phase II Further Reconsideration Order*); *Phase II Order vacated, California I*, 905 F.2d 1217 (9th Cir. 1990); *Computer III Remand Proceeding*, CC Docket No. 90-368, 5 FCC Rcd 7719 (1990) (*ONA Remand Order*), recon., 7 FCC Rcd 909 (1992), *pets. for review denied sub nom. California v. FCC*, 4 F.3d 1505 (9th Cir. 1993) (*California II*); *Computer III Remand Proceedings: Bell Operating Company Safeguards and Tier I Local Exchange Company Safeguards*, CC Docket No. 90-623, 6 FCC Rcd 7571 (1991) (*BOC Safeguards Order*), *BOC Safeguards Order vacated in part and remanded sub nom. California v. FCC*, 39 F.3d 919 (9th Cir. 1994) (*California III*), cert. denied, 514 U.S. 1050 (1995); *Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services*, CC Docket No. 95-20, Notice of Proposed Rulemaking, 10 FCC Rcd 8360 (1995) (*Computer III Further Remand Notice*), Further Notice of Proposed Rulemaking, 13 FCC Rcd 6040 (1998) (*Computer III Further Remand Further Notice*); Report and Order, 14 FCC Rcd 4289 (1999) (*Computer III Further Remand Order*), recon., 14 FCC Rcd 21628 (1999) (*Computer III Further Remand Reconsideration Order*); see also *Further Comment Requested to Update and Refresh Record on Computer III Requirements*, CC Docket Nos. 95-20, 98-10, Public Notice, 16 FCC Rcd 5363 (2001) (asking whether, under the ONA framework, information service providers can obtain the telecommunications inputs, including digital subscriber line (DSL) service, they require) (collectively referred to as *Computer III*).

these obligations have been scaled back by the courts and by the Commission's revised regulatory framework for wireline broadband Internet access services and other deregulatory measures.<sup>64</sup> However, as the regulatory framework for broadband Internet access services changed, the Commission has taken steps to clarify the importance of open networks.<sup>65</sup> For instance, the Commission published its *Internet Policy Statement* establishing four principles "to ensure that broadband networks are widely deployed, open, affordable, and accessible to all consumers."<sup>66</sup> More recently, the Commission clarified its authority to enforce those principles and has initiated a proceeding to review broadband industry practices generally.<sup>67</sup> In addition, as discussed below, the Commission adopted a requirement for licensees in the 700 MHz Upper C Block to provide an open platform for devices and applications, subject to certain conditions in the 700 MHz auction.<sup>68</sup> We also note that the Recovery Act requires the Commission to coordinate with NTIA on the publication of "non-discrimination and interconnection obligations" that will apply to grants received from NTIA "including, at a minimum, adherence to the principles contained in the Commission's [*Internet Policy Statement*]."<sup>69</sup>

48. We seek comment on the state of broadband infrastructure and service competition, interconnection, nondiscrimination, and openness, and whether these should factor into development of a national broadband plan. We ask commenters to address the value of open networks, and specifically, the impact on investment, innovation and entrepreneurship, content, competition and affordability of broadband, among other things. For instance, has the private sector sufficiently produced open platforms, and if so, to what extent? Would further regulation encourage or discourage more open platform innovation? We seek comment on how and whether open network principles should be incorporated into a national broadband plan. We note that some have suggested the need for a so-called "fifth principle" on

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<sup>64</sup> See, e.g., *Wireline Broadband Order*, 20 FCC Rcd 14853 (2005); *National Cable & Telecommunications Ass'n v. Brand X Internet Services*, 125 S. Ct. 2688 (2005) (*NCTA v. Brand X*), *aff'g Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities; Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities*, GN Docket No. 00-185, CS Docket No. 02-52, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd 4798 (2002) (*Cable Modem Declaratory Ruling and NPRM*); *Qwest Petition for Forbearance Under 47 U.S.C. § 160(c) from Title II and Computer Inquiry Rules with Respect to Broadband Services*, WC Docket 06-125, Memorandum Opinion and Order, 23 FCC Rcd 12260 (2008).

<sup>65</sup> See *infra* App., para. 17. In addition, as discussed in para. 99 *infra*, the Commission adopted a requirement for licensees in the 700 MHz Upper C Block to provide an open platform for devices and applications, subject to certain conditions in the 700 MHz auction.

<sup>66</sup> *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities; Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services; Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review – Review of Computer III and ONA Safeguards and Requirements; Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities Internet Over Cable Declaratory Ruling; Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities*, Policy Statement, 20 FCC Rcd 14987-88, para. 4 (2005) (*Internet Policy Statement*).

<sup>67</sup> See generally *Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications; Broadband Industry Practices; Petition of Free Press et al. for Declaratory Ruling that Degrading an Internet Application Violates the FCC's Internet Policy Statement and Does Not Meet an Exception for "Reasonable Network Management,"* File No. EB-08-IH-1518, WC Docket No. 07-52, Memorandum Opinion and Order, 23 FCC Rcd 13028 (2008) (*Comcast Order*) *pet. for review pending, Comcast Corporation v. FCC*, No. 08-1291 (D.C. Cir. Sept. 4, 2008) (asserting the Commission's authority to enforce the *Internet Policy Statement* and addressing network management practices and consumer notice issues); *Broadband Industry Practices*, WC Docket No. 07-52, Notice of Inquiry, 22 FCC Rcd 7894 (2007).

<sup>68</sup> See *infra* para. 99.

<sup>69</sup> Recovery Act § 6001(j); see *infra* App., para. 3 & n.11.

nondiscrimination.<sup>70</sup> If the Commission were to adopt such a principle, what would be a definition of “nondiscrimination”? We ask commenters to address whether such a principle is necessary in light of the current state of competition and the four existing Internet policy principles. What would be the impact of adopting a principle requiring nondiscrimination? What would be the result if the Commission chose not to adopt such a principle, or if its *Internet Policy Statement* principles were found to be unenforceable? Should the underlying facilities over which service is provided have any impact on how open network policy should be applied to broadband providers? With regard to applying open network policies to wireless networks, what are the costs and benefits, technical considerations, bandwidth constraints, or constraints associated with the capacity of mobile wireless devices or networks that should be given consideration?<sup>71</sup>

## 6. Competition

49. We seek comment on the extent to which competition between various broadband network providers, application and service providers, and content providers should be evaluated as an effective and efficient mechanism to achieve the goals of the Recovery Act.<sup>72</sup> We seek comment on whether multiple providers of broadband services are useful or necessary for achieving our goal of providing broadband services to unserved and underserved areas. While competition between multiple providers may lower prices and provide a greater diversity of services, how does subsidizing more than one provider in areas with low population density affect the ability of the providers to achieve optimal economies of scale and to continue to operate effectively? Does it make a difference if the providers utilize different technological broadband platforms? How should we evaluate the potentially increased costs of supporting multiple providers relative to any benefits to consumer welfare from competition? We also seek comment on how we should define sufficient competition as we evaluate competition as a potentially effective and efficient mechanism for broadband deployment. Are there any other factors that we should consider in determining if a service provider should be counted as a competitor? Further we seek comment on additional metrics to assess the effects of competition in the provision of broadband services.

## 7. Other Mechanisms

50. Are there other policies or programs that the Commission should review as a part of its analysis of effective and efficient mechanisms to achieve the goals of the Recovery Act? For instance, there are numerous proceedings impacting competition among broadband providers of all types in which parties advocate that certain changes will help to expedite the deployment of broadband facilities and services.<sup>73</sup> More generally, to what extent do tower siting, pole attachments, backhaul costs, cable

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<sup>70</sup> See, e.g., *Broadband Industry Practices*, WC Docket No. 07-52, Notice of Inquiry, 22 FCC Rcd 7894, 7898, para. 10 (2007).

<sup>71</sup> We note that the extent to which the principles in the *Internet Policy Statement* apply to wireless service providers is currently before the Commission in the Skype proceeding and we do not prejudge that issue here. See Petition of Skype Communications S.A.R.L. to Confirm a Consumer’s Right to Use Internet Communications Software and Attach Devices to Wireless Networks, RM-11361, filed February 20, 2007.

<sup>72</sup> We note that a similar concept is captured in the fourth principle in the Commission’s *Internet Policy Statement*. See 20 FCC Rcd at 14987-88, para. 4 (“To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet, consumers are entitled to competition among network providers, application and service providers, and content providers.”) (emphasis in original).

<sup>73</sup> See, e.g., *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers; AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, WC Docket No. 05-25, RM-10593, Order and Notice of Proposed Rulemaking, 20 FCC Rcd 1994 (2005) (special access rates); *Implementation of Section 224 of the Act; Amendment of the Commission’s Rules and Policies Governing Pole Attachments*, WC Docket No. 07-245, RM Docket Nos. 11293, 11303, Notice of Proposed Rulemaking, 22 FCC Rcd 20195 (2007) (pole attachments); *Reexamination of Roaming Obligations of Commercial* (continued....)

franchising and rights of way issues, as well as others, stand as impediments to further broadband deployments where such deployments would be made by market participants in the absence of any government-funded programs? We also note that the development of equipment and protocol standards is a key element in broadband deployment and seek comment on the appropriate role of the Commission in facilitating the development of such standards. We seek comment on how this variety of proceedings and policies could or should be evaluated by the Commission as a part of its development of a national broadband plan. We also ask whether there are requirements or policies contained in any current federal, state, or local broadband grant or loan programs that act as strong incentives or disincentives for the deployment of broadband.

51. Finally, we seek comment on any national broadband policies or programs adopted by other nations or international organizations that may be useful to the Commission in this proceeding. We seek information on specific plans or other initiatives designed to enhance broadband development in other countries and the appropriateness of introducing the same or similar plans here. These may include: consumer outreach, such as education designed for underserved communities, and the promotion of consumer access to service pricing and capacity information; subsidy programs, especially information on how projects are identified and prioritized and how funds are disbursed, (including such mechanisms as reverse auctions); competition policy, including reviews for dominance or significant market power; and other regulatory actions, such as rules for licensing, unbundling, and open networks. We also are interested in hearing about how other countries have overcome any challenges. For instance, how have other countries accounted for any differences between actual and advertised speeds? What do other countries consider to be robust broadband speeds? How have they addressed challenges relating to geography, population density and dispersion, household size, GDP per capita, income distribution, education, population age, relative size of the country's largest cities, size of businesses, telephone penetration, consumer preferences, purchasing power parity, and any other potentially relevant factors? How have other countries determined the types of data to collect and the sources of that data (e.g., consumer survey versus industry census), and how have they developed methodologies that ensure the reliability and accuracy of the data that they do collect? Finally, how does consumer satisfaction vary among countries?

#### **D. Affordability and Maximum Utilization**

52. The Recovery Act requires that the Commission formulate "a detailed strategy for achieving affordability of such service and maximum utilization of broadband infrastructure and service by the public."<sup>74</sup> We seek comment generally on how to interpret this task, including how the goals of affordability and maximum utilization work together, or separately. As broadband becomes more affordable, will more consumers use broadband? Beyond affordability, what factors, such as digital literacy, affect consumers' choices regarding broadband? Are issues of privacy inhibiting consumer use and adoption of broadband technology? Also, as these various broadband platforms are deployed, what steps should the Commission take to ensure that delivery of services is competitive, and thus protects consumers and helps promote lower prices? Should the Commission revise its competitive review policies to take intermodal competition into account more or less?

53. We seek comment on how consumers and businesses are using broadband. Similarly, we seek comment on who is (and is not) using broadband – children, immigrants, small businesses, seniors, persons of color, tribal communities, people with disabilities, people with low income, and others. We seek comment on how we would monitor or measure affordability and maximum utilization of

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*Mobile Radio Service Providers*, WT 05-26, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd 15817 (2007) (wireless data roaming); *November 2008 Further Notice*, FCC 08-262, paras. 30-37, Apps. A-C (intercarrier compensation).

<sup>74</sup> Recovery Act § 6001(k)(2)(B).

infrastructure, and how we might address any problems, including changes or additions to regulatory requirements that need to be made to better address affordability and maximum utilization? How could the Commission establish benchmarks or measure progress toward this goal? Are there existing data sources the Commission could draw upon, or are there specific data the Commission should collect itself? In this regard, we seek comment on how we should incorporate the analysis and recommendations of the Government Accountability Office, which is tasked with developing a report analyzing additional metrics for broadband cost, capability, deployment, and penetration.<sup>75</sup> Further, we seek comment on any programs or policies adopted by other nations or international organizations aimed at achieving affordability for broadband services that may be useful to the Commission in this proceeding.

### 1. Affordability

54. We seek comment on how the Commission should define “affordability” with respect to broadband access. How should affordability be measured? To what extent does the fact that service providers typically offer different levels of broadband capability and access at different price points affect this definition? We seek comment on the role that other programs, at the Commission or elsewhere, may have in our evaluation of this topic. For instance, we seek comment on how to evaluate affordability for broadband services consistent with our obligation to base universal service policies on the principle that “[q]uality services should be available at just, reasonable, and *affordable* rates.”<sup>76</sup> How should the Commission encourage consumers to more fully utilize broadband access already available to them?<sup>77</sup> For example, through the Lifeline and Link-Up programs, the Commission partially supports the monthly subscription costs and initial hook-up fees for telephone service.<sup>78</sup> How do existing government subsidies of traditional telephone networks and services impact broadband uptake, deployment, and affordability? We seek comment on whether subsidizing the recurring subscription cost for broadband service, or subsidizing the fixed costs of obtaining computer equipment could address the affordability of broadband for all Americans.<sup>79</sup> We also seek comment on how particular consumer communities of interest should be evaluated in such programs.<sup>80</sup>

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<sup>75</sup> BDIA § 104.

<sup>76</sup> 47 U.S.C. § 254(b)(1) (emphasis added); *see also* 47 U.S.C. § 151 (the purposes of the Act include “to make available, so far as possible, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges.”).

<sup>77</sup> *See* Pew Internet & American Life Project Survey, Adoption Stalls for Low-Income Americans Even as Many Broadband Users Opt for Premium Services That Give Them More Speed, at iii (July 2008), at [http://www.pewinternet.org/~media/Files/Reports/2008/PIP\\_Broadband\\_2008.pdf](http://www.pewinternet.org/~media/Files/Reports/2008/PIP_Broadband_2008.pdf) (indicating that “19% of dial-up users said nothing would convince them to get broadband”).

<sup>78</sup> *See infra* App., para. 9 & n.33.

<sup>79</sup> *See November 2008 Further Notice*, FCC 08-262, App. A, paras. 64-91, App C., paras. 60-87 (proposed extension of Lifeline/Linkup programs to broadband).

<sup>80</sup> For example, parties have recommended that the Commission modify its Lifeline and Link Up programs to subsidize the cost of broadband connections for deaf and blind users who rely on video relay services (VRS) and telecommunications relay services (TRS) services to communicate. GoAmerica Comments at 2-3 in *High-Cost Universal Service Support, Federal-State Joint Board on Universal Service, Lifeline and Link Up, Universal Service Contribution Methodology, Numbering Resource Optimization, Implementation of the Local Competition, Provisions in the Telecommunications Act of 1996, Developing a Unified Intercarrier Compensation Regime, Intercarrier Compensation for ISP-Bound Traffic, IP-Enabled Services*, WC Docket No. 05-337, CC Docket No. 96-45, WC Docket No. 03-109, WC Docket No. 06-122, CC Docket No. 99-200, CC Docket No. 96-98, CC Docket No. 01-92, CC Docket No. 99-68, WC Docket No. 04-36 (filed Nov. 26, 2008).

## 2. Maximum Utilization

55. A full understanding of the value of broadband networks and the Internet may not be grasped by all Americans. Moreover, many Americans may lack the complement of computer or other skills necessary to fully participate in the digital broadband era. Accordingly, we seek comment on how improving the digital literacy skills of Americans would create additional demand for broadband, thus more fully utilizing the broadband infrastructure. Along these lines, how does lack of a computer or other broadband access device affect broadband utilization and, if lack of broadband access device ownership is an obstacle to maximum utilization, how can that obstacle be reduced?<sup>81</sup> Further, are there media literacy skills that could educate our children, for example, to better understand and use all of the information available to them over this technology? How do content protections, like copyright, affect how broadband networks are deployed and used? How do such protections affect what individuals can do with broadband services and how should the Commission consider these questions in the formulation of a national broadband plan?

56. To what extent should programs that address consumer training and education about broadband play a role in a national broadband plan? For example, the Recovery Act directs NTIA to provide grants to “provide broadband education, awareness, training, access, equipment, and support to . . . organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband service by low-income, unemployed, aged, and otherwise vulnerable populations.”<sup>82</sup> Are there ways to encourage maximum utilization of broadband infrastructure and services via the universal service programs, through federal, tribal, state, and local government initiatives, or through private and public/private initiatives? Are there specific communities that such policies should focus more heavily on, such as rural, low-income, tribal, insular, persons of color, senior citizens, or persons with disabilities? What opportunities are there to leverage federal, tribal, state, and local initiatives unrelated to broadband in an effort to increase broadband utilization? For example, are there “smart housing” initiatives that promote the connection of broadband to affordable housing?<sup>83</sup>

57. We also seek comment on the extent to which a centralized clearinghouse for outreach and computer and broadband training initiatives should be a component of the national broadband plan. For instance, what can the Commission learn from prior outreach campaigns?<sup>84</sup> If outreach programs or the development of a clearinghouse of information and programs is warranted, we seek comment on the best ways to incorporate these practices into a national broadband plan.

## 3. Broadband Privacy

58. Americans are using broadband to perform everyday tasks in which they pass personal and confidential information over broadband connections, raising important consumer privacy concerns.<sup>85</sup>

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<sup>81</sup> See *supra* para. 54.

<sup>82</sup> Recovery Act § 6001(b)(3).

<sup>83</sup> See, e.g., California Emerging Technology Fund, Annual Report 2009 at 14, available at [http://cetfund.org/files/CETF\\_Annual\\_Report\\_web\\_Accessible.pdf](http://cetfund.org/files/CETF_Annual_Report_web_Accessible.pdf).

<sup>84</sup> For instance, the Commission and USDA launched a “Broadband Opportunities for Rural America” website in 2008 and conducted regional workshops designed to provide communities, organizations, and businesses in rural America seeking to bring the benefits of broadband to their communities with an opportunity to learn about the resources, programs, and policies of the Commission and USDA. See FCC, Broadband Opportunities for Rural America, [http://wireless.fcc.gov/outreach/index.htm?job=broadband\\_home](http://wireless.fcc.gov/outreach/index.htm?job=broadband_home); FCC, Broadband Opportunities for Rural America, [http://wireless.fcc.gov/outreach/index.htm?job=broadband\\_home](http://wireless.fcc.gov/outreach/index.htm?job=broadband_home), and FCC/USDA Rural Broadband Educational Workshops, <http://wireless.fcc.gov/outreach/index.htm?job=workshop>; FCC, Making the Rural Connection: FCC Satellite Rural Forum, <http://www.fcc.gov/cgb/rural/ruralforum.html>.

<sup>85</sup> For instance, millions of Americans pay bills, file their taxes, and send and receive financial information over broadband connections. See, e.g., Russell, Roger, *IRS Survey: Online Filing Continuing to Grow*, 22 Accounting

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As a result, it is important to consider the privacy implications of such use in connection with our development of a national broadband plan.

59. The last several years have witnessed significant growth in multi-platform services, such as mobile wireless telephones enabled with broadband Internet access; bundled service offerings of voice, video, and broadband communications; and voice services offered over broadband. What are consumer expectations of privacy when using broadband services or technology and what impact do privacy concerns have on broadband adoption and use? We also note that certain broadband providers have purchased the behavioral advertising<sup>86</sup> services of companies that advertise an ability to “deliver[] the most actionable consumer intelligence by extending [those companies’] reach dynamically to encompass the ever-growing network of sites that consumers visit.”<sup>87</sup> These companies track the webpages customers visit, the searches they perform, and the ads they click, among other information.<sup>88</sup> Consumers may also be aware of the technological ability that broadband providers have to perform functions such as deep packet inspection.<sup>89</sup> What is the impact of this type of activity on consumers’ willingness to use

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Today, 10 (Apr. 14, 2008) (noting that an increasing number of taxpayers are filing their tax returns online with alternatives such as IRS E-file and Free File, and some of these include direct deposit options for refunds). We also participate in the political process, order prescriptions, and even obtain health care remotely. *See Maimonides Medical Center Deploys the PGP Encryption Platform*, Health and Medicine Week 2007, WLNR 6995121 (Apr. 16, 2008) (stating that “email communication has become a primary communications tool in health care, enabling doctors, hospital administrators, and insurance representatives to exchange email with patients and employees.”). We also research all kinds of topics, some of which may be intensely personal.

<sup>86</sup> Behavioral advertising is the tracking of a consumer’s activities online – including the searches the consumer has conducted, the webpages visited, and the content viewed – in order to deliver advertising targeted to the individual consumer’s interests. Congress has taken note of the issue, looking at how deep packet inspection (*see* definition at note 89) technologies affect consumer privacy and related issues. *See* House Subcommittee on Telecommunications and Internet Hearing: “What Your Broadband Provider Knows About Your Web Use: Deep Packet Inspection and Communications Laws and Policies,” July 18, 2008; Senate Committee on Commerce, Science, and Transportation Hearing: “Privacy Implications of Online Advertising,” July 9, 2008. Also, in November 2007, the Federal Trade Commission (FTC) hosted a Town Hall meeting to focus on privacy issues raised by behavioral advertising. *See* FTC Staff Proposes Online Behavioral Advertising Privacy Principles, Dec. 20, 2007, *available at* <http://www.ftc.gov/opa/2007/12/principles.shtml>. On December 20, 2007, the staff of the FTC released a set of proposed principles to guide the development of self-regulation in online behavioral advertising, and sought comment from the public. *See* Behavioral Advertising, Moving the Discussion Forward to Possible Self-Regulatory Principles, *available at* <http://www.ftc.gov/os/2007/12/P859900stmt.pdf>.

<sup>87</sup> *See, e.g.*, Letter from Neil Smit, President & CEO, Charter Communications, to Congressmen John D. Dingell, Joe Barton, Edward J. Markey, and Cliff Sterns, *available at* [http://markey.house.gov/docs/telecomm/charter\\_communications\\_080808.pdf](http://markey.house.gov/docs/telecomm/charter_communications_080808.pdf) (dated Aug. 8, 2008) (stating that Charter planned a limited pilot with NebuAd).

<sup>88</sup> *See NebuAd Advertising Network Policy: US Version*, *available at* [http://www.nebuad.com/privacy/ad\\_network\\_privacy\\_policy.php](http://www.nebuad.com/privacy/ad_network_privacy_policy.php) (describing its policies regarding the collection, use, and sharing of consumers’ Internet activity data) (last visited Apr. 7, 2009). NebuAd states that its vendors collect consumer IP addresses for a limited purpose and that they are immediately discarded. *Id.* We understand that broadband providers generally know to whom they have assigned IP addresses, even in the case of dynamic IP addresses because such providers generally keep a log of the date, time, duration and dynamic IP address given to the Internet user. For this reason, certain European regulators view an IP address as personal data. *See, e.g.*, Article 29 Data Protection Working Party, WP 136 (June 20, 2007), *available at* [http://ec.europa.eu/justice\\_home/fsj/privacy/docs/wpdocs/2007/wp136\\_en.pdf](http://ec.europa.eu/justice_home/fsj/privacy/docs/wpdocs/2007/wp136_en.pdf).

<sup>89</sup> Deep packet inspection (DPI) involves examining the content of a packet – the actual data the packet carries – in addition to the packet header that contains the routing information that directs the packet to its destination. In other words, DPI involves examining the contents of a Web browsing session, email, instant message, or whatever other data the packet contains. The Commission has received considerable input from parties on this issue. *See Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer* (continued...)

broadband services? We seek comment on how the Commission should treat issues such as deep packet inspection and behavioral advertising in developing a national broadband plan and whether there are issues related to other types of information connected with the provision of broadband services that the Commission should consider. Do these practices discourage consumers from “access[ing] the lawful Internet content of their choice” for fear of having that access tracked or revealed?<sup>90</sup> If consumers view this negatively, is it something that Congress or government agencies should address, or can privacy protections be achieved through industry self-regulation, such as industry best practices? Would protection of customers’ private information spur consumer demand for broadband connections, and consequently encourage more broadband investment and deployment consistent with the goals of section 706?<sup>91</sup>

60. The Commission has long been committed to safeguarding customer privacy and repeatedly has taken steps to ensure that private customer information is adequately protected. In fact, the Commission has already stated that consumers’ privacy needs are no less important when consumers communicate over and use broadband Internet access than when they rely on telecommunications services.<sup>92</sup> Should the Commission consider as part of its plan whether to exercise its ancillary jurisdiction to address broadband privacy issues, or are other approaches available?<sup>93</sup>

## E. Status of Deployment

### 1. Subscribership Data and Mapping

61. The Recovery Act requires the Commission to develop a national broadband plan that includes “an evaluation of the status of deployment of broadband service, including progress of projects supported by the grants made pursuant to this section.”<sup>94</sup> We note that the Commission recently revised its Form 477 collection of data regarding broadband subscribership. In particular, the Commission is beginning to collect broadband subscribership data at the Census Tract level, including data on the number of subscribers using different technologies, and at various upload and download speeds.<sup>95</sup> We seek comment on how the Commission can use these data to report on the status of broadband deployment, including any benefits and limitations inherent in these data. We also seek comment on how

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*Applications; Broadband Industry Practices Petition of Free Press et al. for Declaratory Ruling that Degrading an Internet Application Violates the FCC’s Internet Policy Statement and Does Not Meet an Exception for “Reasonable Network Management,”* File No. EB-08-IH-1518, WC Docket No. 07-52, Memorandum Opinion and Order, 23 FCC Rcd 13028 (2008); *Broadband Industry Practices*, WC Docket No. 07-52, Notice of Inquiry, 22 FCC Rcd 7894 (2007); *Petition to Establish Rules Governing Network Management Practices by Broadband Network Operators of Vuze, Inc.*, WC Docket No. 07-52 (filed Nov. 14, 2007).

<sup>90</sup> *Internet Policy Statement*, 20 FCC Rcd at 14988, para. 4.

<sup>91</sup> Section 706 of the Act, among other things, directs the Commission to encourage the deployment of advanced telecommunications capability to all Americans by using measures that “promote competition in the local telecommunications market.” 47 U.S.C. § 157 nt.

<sup>92</sup> *See Consumer Protection in the Broadband Era*, 20 FCC Rcd at 14903, para. 148.

<sup>93</sup> The Commission has already used this authority to address customer privacy concerns related to broadband-enabled voice services. *See, e.g., Implementation of the Telecommunications Act of 1996: Telecommunications Carriers’ Use of Customer Proprietary Network Information and Other Customer Information; IP-Enabled Services*, CC Docket No. 96-115, WC Docket No. 04-36, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd 6927, 6954-57, paras. 54-59 (2007) (exercising ancillary jurisdiction under Title I to extend the CPNI obligations of section 222 of the Communications Act to interconnected VoIP providers).

<sup>94</sup> Recovery Act § 6001(k)(2)(C).

<sup>95</sup> *See infra* App., para. 13. Mobile wireless broadband providers are required to report their total number of subscribers in each state and provide a list of Census Tracts where their broadband service is available.

additional measures, such as broadband availability data and mapping, would help the Commission to accurately assess the status of broadband deployment.<sup>96</sup> For example, does measurement by Census Tract adequately capture deployment on tribal lands, or in rural areas?<sup>97</sup> Also with regard to availability, to what extent have local exchange carriers comprehensively inventoried their loop plant to the service address level to know whether their lines are capable of providing acceptable DSL service? Likewise, we seek comment on other types of data, including pricing data that could further assist the Commission in reporting to the public on the availability of broadband services.<sup>98</sup> Further, we seek comment on whether the Commission should collect data on broadband use supported through universal service programs. If so, how should these data be collected and used? How would the availability of additional data improve efforts to accomplish our broadband goals?

## 2. Stimulus Grant and Loan Programs

62. Recent legislation has created several opportunities for organizations seeking to build out broadband infrastructure and services to unserved and underserved areas to receive grants and loans to help defray the cost of deployment, among other things.<sup>99</sup> The Recovery Act provides funding for broadband programs at RUS and NTIA. We seek comment on how the programs in the Recovery Act should be considered as the Commission develops a national broadband plan. We also seek comment on how we would obtain data regarding the success of these programs. We note that the Recovery Act includes requirements that all grantees report quarterly to NTIA information on the use of grant funding and progress toward fulfilling the objectives of the award.<sup>100</sup> We also note that agencies must make broadband applicant information available on their websites.<sup>101</sup> Further, the Department of Agriculture must submit information to Congress regarding the RUS grants and loans provided under the Recovery Act. We seek comment on how the Commission can best access that information for purposes of implementing a national broadband plan. In particular, we seek comment on whether the information regarding the grants the Commission must monitor are limited to the NTIA grants, given that the RUS grants are located in a different section of the Recovery Act. Finally, we seek comment on how the Commission might work with NTIA to ensure that the Broadband Technology Opportunities Program (BTOP), including requirements like the nondiscrimination and network interconnection provisions, operates in an effective and efficient manner under a national broadband plan.

### F. Specific Policy Goals of the National Broadband Plan

63. The Recovery Act requires the Commission to develop a national broadband plan that includes “a plan for the use of broadband infrastructure and services in advancing” a series of public

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<sup>96</sup> See BDIA § 103; see *infra* App., paras. 6, 13, 16.

<sup>97</sup> Government Accountability Office, *Telecommunications: Broadband Deployment Is Extensive throughout the United States, but It Is Difficult to Assess the Extent of Deployment Gaps in Rural Areas*, GAO-06-426 (May 2006).

<sup>98</sup> See *infra* App., para. 13 & n.56.

<sup>99</sup> See Food, Conservation, and Energy Act of 2008, Pub. L. No. 110-246, 122 Stat. 923 § 6110 (2008 Farm Bill); Recovery Act RUS Appropriations; Recovery Act NTIA Appropriations; see also *infra* App., para. 5.

<sup>100</sup> Recovery Act § 6001(i).

<sup>101</sup> Specifically, the Recovery Act requires that NTIA “create and maintain a fully searchable database, accessible on the Internet at no cost to the public, that contains at least a list of each entity that has applied for a grant under this section, a description of each application, the status of each such application, the name of each entity receiving funds made available pursuant to this section, the purpose for which such entity is receiving such funds, each quarterly report submitted by the entity pursuant to this section, and such other information sufficient to allow the public to understand and monitor grants awarded under the program.” Recovery Act § 6001(i)(5). See Office of Management and Budget, “Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009,” Memorandum, M-09-10 (Feb. 18, 2009).

policy goals.<sup>102</sup> We seek comment on how to interpret this requirement and how the Commission should implement this in its development of a national broadband plan. Below, we seek comment more specifically on each of the policy goals in the order in which they are enumerated in the Recovery Act.

### 1. Advancing Consumer Welfare

64. In the development of a national broadband plan, the Recovery Act requires that the Commission include “a plan for the use of broadband infrastructure and services in advancing consumer welfare.”<sup>103</sup> We seek comment on how to interpret and implement this directive, including an analysis of existing Commission policies, programs, and proposals for advancing consumer welfare through the use of broadband infrastructure and services.

65. Consumer welfare has been an important consideration in recent Commission broadband decisions. Among other actions taken to protect consumers, the Commission has issued an *Internet Policy Statement* defining rights consumers should have when they access the Internet regardless of what service provider they choose,<sup>104</sup> and enforcing these policies when they have been ignored by service providers.<sup>105</sup> The Commission also currently is considering additional consumer protection rules proposed in the *Consumer Protection in the Broadband Era NPRM*, which sought comment on the need for any non-economic regulatory requirements necessary to ensure that consumer protection needs are met by all providers of broadband Internet access service, regardless of the underlying technology.<sup>106</sup> We seek comment on how to incorporate both the consumer rights addressed in these proceedings, and the providers’ network and facilities management practices for prioritizing service and bandwidth into a broader, nationwide plan for broadband development.<sup>107</sup>

66. We request comment specifically on the role that privacy protections can play in enhancing consumer welfare. If consumers feel secure that they can calibrate the privacy level of their broadband communications, are they more likely to experience the benefits associated with broadband use? What is the role of applications providers in guarding privacy so as to encourage greater use of broadband-enabled services such as photo sharing, online tax filing and bill payment, remote data storage, social networking, and others? Do data retention policies and fears that digital records are “permanent” inhibit use of broadband technologies?

67. We ask for comment generally on how advances in technology are helping to advance consumer welfare. We seek comment on what applications are emerging or may emerge in the future that will advance consumer welfare and what their network requirements will be. As Internet and computing security issues consume a great deal of resources by consumers of all types, how should the Commission take security issues into account as it develops a national broadband plan? Additionally, we seek comment on how consumers understand the dependability of broadband services and if there are ways to improve consumer understanding of the benefits and limitations of their services. Would consumer welfare be enhanced by more disclosures to customers of any limitations that providers place on broadband services, including limitations that may be placed on service on a temporary or intermittent basis, to deal with network congestion or for other reasons?

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<sup>102</sup> Recovery Act § 6001(k)(2)(D); see *supra* note 15 (listing the policy goals enumerated in the Recovery Act).

<sup>103</sup> Recovery Act § 6001(k)(2)(D).

<sup>104</sup> *Internet Policy Statement*, 20 FCC Rcd at 14987-88, para. 4. For a discussion of open network policies, see *supra* Section III.C.5.

<sup>105</sup> See *Comcast Order*, 23 FCC Rcd 13028.

<sup>106</sup> *Consumer Protection in the Broadband Era NPRM*, 20 FCC Rcd 14853.

<sup>107</sup> Recovery Act § 6001(k)(2)(d).