

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
A National Broadband Plan)	GN Docket No. 09-51
For Our Future)	

**Comments of
Communications Workers of America**

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EXECUTIVE SUMMARY

It is long past time for our country to develop a national broadband plan. High-speed Internet is the essential infrastructure for the 21st century. Economic growth, job creation, and global competitiveness all depend on high-speed broadband networks. High-speed online connections enable innovations in education, health care, public safety, homeland security, public service delivery, and civic engagement, and provide solutions to our environmental and energy challenges. The Internet allows people to become creators and distributors as well as consumers of unlimited information. Universal, affordable broadband offers opportunities to strengthen our nation's historic commitment to equal economic opportunity, democratic participation, and cultural diversity. The benefits of high-speed Internet are endless, but only if every American home, business, and public institution is connected to world-class networks, and every American has the tools and resources to afford and make use of the opportunities the technology provides.

Although high-speed broadband has become a necessity in today's environment and we have made much progress in some areas of our nation, we also face serious broadband gaps.

The United States – the country that invented the Internet – has fallen from first to 15th among industrialized nations in broadband subscription. All too many Americans encounter a significant digital divide based on geography and income. Countries like Canada, France, and South Korea have better, faster Internet connections. People in Japan can download an entire movie in just two minutes, but it can take two hours or more in the United States. Yet, people in Japan pay about the same as we do for their Internet connection.

For too long, the United States has been one of the few industrialized countries without a national policy to promote high-speed broadband. Because broadband infrastructure is so crucial to our national welfare, government has a vital role to play in partnership with the private sector to ensure that every American and every community has affordable access to this critical technology. As the Commission noted, the United States needs to be a model for the world in creating a partnership between government and industry – we would add other stakeholders including workers and engaged citizens –s to ensure that everyone has access to broadband. Yet, to date, the United States has failed to adopt a national broadband plan to turn the vision of universal, affordable access into reality.

Fortunately, that situation is about to change. The United States Congress, in the recently enacted American Recovery and Reinvestment Act (Recovery Act), charged the Commission with the development of a national broadband plan to be delivered by February 2010. The Commission has moved expeditiously to issue a Notice of Inquiry (NOI) seeking public comments to inform the development of that plan.

The Communications Workers of America (CWA) commends the Commission for taking prompt action to begin the process of the development of the national broadband plan. CWA represents 700,000 workers in communications, media, airlines, manufacturing, and public service. More than two years ago, CWA launched our “Speed Matters: High-Speed Internet for America” campaign to promote programs and policies that build universal, affordable high-speed networks and good jobs for workers in the industry. Since the inception of our Speed Matters campaign, we have urged our nation to adopt a national broadband plan that would include the following components: 1) an accurate assessment of the current state of broadband deployment

and adoption; 2) identification of broadband gaps and barriers to broadband adoption; 3) ambitious yet achievable goals and timetables for broadband deployment and adoption; 4) recommended programs and policies that the private and public sectors should take to achieve those goals; 5) measurement of progress toward our national objectives; and 6) adjustment of strategies and programs, as needed.

This is our opportunity to lay out a broad, yet realistic vision of where we want to be, what we can achieve, and what we must do to regain our nation's leadership in communications technology. We are encouraged by the early action of the Commission, and the commitment to seek guidance from a broad group of stakeholders, including workers and their unions. We urge the Commission to hold a series of public hearings in communities across the country in the fall of 2009 to seek input in developing the national broadband plan. We also urge the Commission to hold a series of roundtable discussions and workshops to seek guidance from policy experts on various topics. CWA leaders and members are eager to participate.

In this Notice of Inquiry (NOI), the Commission begins what will be a nine-month process of data collection and public input in developing a national broadband plan. In these comments, we lay out our initial recommendations for that plan in response to many of the questions raised by the Commission.

Basic Principles for the National Broadband Plan

As a starting point, the National Broadband Plan should be based on these four basic principles:

- **Universal.** Just as government policies helped bring affordable telephone service to everyone, our policies should promote public-private partnerships to ensure that every

individual, family, business, and community has access to and can use high-speed Internet at a price they can afford – regardless of their income or geographic location.

- **High Speed.** Speed matters on the Internet. U.S. policies should promote higher Internet speeds and higher capacity networks. The U.S. should adopt policies to get us to 10 megabits per second (mbps) downstream and 1 mbps upstream, with new benchmarks for succeeding years.
- **Open Internet.** We must protect free speech on the Internet so that people are able to go to the websites they want and download or upload what they want when they want on the Internet. There should be no degradation of service or censoring any lawful content on the Internet. Most important, building high-capacity networks will help ensure that all Americans have fast, open access to all content on the Internet.
- **Consumer Protections and Good Jobs.** Public policies should include consumer and worker protections, should support the growth of good, career jobs, and require the public reporting of deployment, actual speed, price, and service.

Effective and Efficient Mechanisms for Ensuring Access

There are a number of bold but specific steps that the United States should take to recover our lost leadership and competitive position to ensure that all residents, businesses, and institutions benefit from affordable, high-speed Internet. Strategies must engage both the public and private sectors and all stakeholders – including workers in the industry – to address our three broadband gaps: lack of access in primarily rural, lower-density areas of the country; slow speeds and insufficient network capacity to realize the potential of advanced two-way networks; and broadband affordability and digital illiteracy. The national broadband plan should include, at a minimum, the elements we outline below.

1. **Establish comprehensive and on-going data collection.** Good policy requires good data. We need detailed information about broadband deployment, adoption, speed, prices, consumer attitudes, and contextual analysis of developments in other countries. State mapping efforts led by Connected Nation and others provide models for other states and our national effort mandated by the Recovery Act.

2. **Set Goals and Benchmarks.** The national broadband plan should establish ambitious yet achievable benchmarks for broadband deployment, adoption, and speeds. Our initial goal should be a minimum of 10 mbps downstream, one mbps upstream to all, with increasing benchmarks over time. Special provision must be made for areas of extremely low-density. To achieve this goal, the national broadband plan should establish concrete benchmarks for different speed/capability tiers over time and for regions with different population density.
3. **Support public-private partnerships, state broadband task forces, and local planning teams.** With this NOI, the Commission is moving forward to develop a National Broadband Plan. But we also need planning at the state and local levels. Ideally, every state should have a state plan to expand broadband deployment and adoption, developed with the input of a state broadband task force which would be composed of all major stakeholders, including workers and their unions. Federal assistance, supplemented by state resources, should flow to states to support the state broadband task force and development of the state plan. Funding should also support locally-based technology planning teams.
4. **Reform Universal Service.** Because high-speed broadband is a public good, there is an important role for government to ensure that all households, small businesses, and public institutions have access to affordable, quality broadband. We must upgrade our system of subsidies to low-income households and high-cost rural areas to support affordable broadband access. The current Lifeline/Link-up program of subsidies should be made available to low-income households to support broadband access and computer purchase. The highly successful E-Rate program of subsidies to schools, libraries, and rural health centers should continue, enabling these public institutions to upgrade network capacity. The Universal Service Fund should be transformed into a system of support for broadband investment and operational support in truly high-cost rural areas.
5. **Establish Tax Incentives to Encourage Investment in Faster Speeds.** Building and upgrading universal, advanced networks will require tens of billions of dollars. Private capital will largely pay for this, with public support where the market fails to deliver in a timely manner. The most cost-effective policy to encourage and accelerate the deployment of next-generation advanced networks is a program of targeted, temporary tax incentives that lower the cost of capital for these investments. Other countries, such as Japan and South Korea, became leaders in the deployment of high-speed advanced networks by allowing companies to accelerate the write-off of new fiber investment.

The U.S. should provide temporary, targeted tax credits to companies investing in broadband networks for two purposes:

- Unserved areas: 20 percent tax credit to companies that build current generation high-speed networks in unserved areas (areas without non-satellite broadband).
- Next-generation advanced broadband networks: 40 percent tax credit for investment in next-generation advanced broadband.

- In addition, we must close tax loopholes that create disincentives for broadband investment, such as the Reverse Morris Trust.

6. Initiate Programs to Spur Broadband Adoption and Ensure No Child Left Offline.

Many Americans report they do not subscribe to broadband Internet even where it is available because they do not know how to access the Internet, do not see its value, or cannot afford a computer or broadband access. To address the affordability issue, the federal Universal Service Fund Lifeline/Linkup subsidies should be expanded to include support for broadband access and equipment, including computers. We should establish a program that provides free or low-cost computers to every low-income middle-school child who meet academic and attendance criteria. In addition, we should support expand upon the Recovery Act grant programs to support community-based digital literacy training, and fund public-interest broadband applications.

7. Preserve an Open Internet. We must protect free speech on the Internet so that people are able to go to the websites they want when they want on the Internet. The Commission's *Internet Policy Statement* is working to ensure that consumers are entitled to the lawful Internet content of their choice, to run applications and use services of their choice, subject to the needs of law enforcement, and to connect their choice of legal devices that do not harm the network, all subject to "reasonable network management." Any consideration of a "fifth principle" to prohibit unreasonable discrimination must not deter private sector investment in a robust network and must be consistent with the public interest in reasonable network management. Further, facilities-based broadband competition is thriving where such investment is economic; unbundling requirements would create disincentives to network investment and should be avoided.

8. Leverage Other Public Programs. Because high-speed Internet helps address many of our nation's challenges, government programs that support education, workforce development, health care, energy and the environment, affordable housing, public safety and homeland security, among others, should be structured and should provide funding to allow participants in these programs to participate through high-speed broadband connections, where such connections improve the quality and cost-effectiveness of service delivery.

9. Safeguard Consumers and Workers. The national broadband plan must include consumer and worker protections. To protect consumers, the national broadband plan should require public reporting of deployment, actual speed, price, and quality of service provision. To ensure that the national broadband plan creates good jobs for American workers in the industry, the national broadband plan should insist that all employers in the industry adhere to our nation's labor laws and standards, including a respect for collective bargaining and workers' rights to form a union.

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I. INTRODUCTION

As the Commission noted in the NOI, high-speed Internet “is technology that intersects with just about every great challenge facing our nation.”¹ Advanced broadband networks provide the infrastructure upon which we will grow our economy and create jobs, and craft cost-effective solutions to improve education, health care, public safety and homeland security, public service delivery and civic engagement, our environment, and enable all Americans to participate more equitably in our economic, social, and political life.

Because high-speed broadband offers the potential to advance so many of our country’s social and economic goals, there is an important role for government – working with the private sector – to ensure ongoing investment to improve our high-speed networks and to make sure that every American has affordable access and the skills to use this critical infrastructure. There is a long history in this nation of public-private partnerships supporting essential communications networks. In the 19th century, the federal government built a national postal system and national and state governments supported privately-owned canals, toll roads, and (through reduced postal rates and other means) thriving newspapers. In the 20th century, public dollars built the interstate highway system, supported the development of air transportation, and subsidized telephone service in high-cost rural areas and for low-income families. The challenge today is to find the appropriate role for government to fill the gaps in a largely-privately financed communications system.

Private companies have invested and will continue to invest tens of billions of dollars in broadband networks. To date, however, private investment has resulted in uneven broadband

¹ Broadband Plan NOI, 1.

deployment, with high-cost and lower-income areas trailing more urban, high-income communities. This deployment pattern may make sense for private companies that seek to maximize return, but it does not make sense for our national welfare. Given that broadband has become essential to our nation's economic competitiveness and well-being, government must step in to spur deployment and adoption where market forces either fail or are slow to deliver. In fact, as Rob Atkinson has demonstrated, broadband investment is subject to classic economic externalities which slow private investment in some markets. Atkinson identifies four types of externalities that justify public support for broadband investment: network externalities (the value of the network increases as more people are connected); prosumer externalities (broadband technology leads to development of new products and services); competitiveness externalities (broadband leadership spurs competitive advantage in IT development and employment); and regional externalities (broadband investment is necessary to attract economic development).²

The following framework should guide the development of the Commission's development of a National Broadband Policy.

- The national broadband plan must ensure that every American home, business and institution has access to affordable, world-class broadband networks.
- The national broadband plan must be based on an accurate, detailed assessment of the current state of and barriers to broadband deployment and adoption in different communities and among different demographic groups across our nation.
- The national broadband plan must drive the creation of good jobs for American workers throughout the economy, and within the communications industry. The national broadband plan must recognize the value that skilled workers play in building, maintaining, and servicing our broadband networks. The national broadband plan must support policies that encourage the growth of a well-compensated, highly-trained, career workforce in the United

² Robert D. Atkinson, "Framing a National Broadband Policy," 2007. Available at <http://www.itif.org>.

States, characterized by respect for labor standards, workers' rights and collective bargaining in every segment of the communications industry.

- The national broadband plan must acknowledge that broadband will help address virtually every challenge facing our nation, including economic growth, job creation, global competitiveness, innovations in education, health care, public safety, homeland security, public service delivery, civic engagement, and solutions to our environmental and energy challenges. As such, there is a vital role for government, working with the private sector, to ensure continuing investment in and adoption of high-speed broadband.
- The national broadband plan should draw on lessons from developments in other countries, yet must be based on our unique American communications system, one that is primarily financed and owned by the private sector, but includes an essential role for government where the market fails or is slow to deliver the benefits of universal, affordable high-speed Internet.
- The national broadband plan must acknowledge the market structure of capital-intensive broadband networks; recognize that in some communities there is vibrant facilities-based broadband competition between cable providers, wireline telecommunications companies, and wireless networks; and that in other communities public support will be needed to sustain even one broadband provider.
- The national broadband plan must address three fundamental broadband gaps in our nation: 1) lack of access by an estimated 20 million Americans, primarily in rural communities; 2) slow speeds and insufficient bandwidth capacity to deliver the multiple benefits of truly high-speed Internet networks; and 3) barriers to broadband adoption, including the cost of computers, broadband access, lack of digital skills, and recognition of the value of broadband by some segments of the population.

II. ESTABLISHING GOALS AND BENCHMARKS

1. Defining Broadband Capability

The Commission seeks comment on the appropriate definition of broadband capability: asking whether “the definition (should) be based on a numerical definition, or, instead, on the consumers’ ability to access sufficiently robust data for certain identifiable broadband services?”³ The answer to this question depends on the purpose of the definition. For purposes of

³ Federal Communications Commission, In the Matter of A National Broadband Plan for Our Future, Notice of Inquiry, GN Docket No. 09-51, April 8, 2009, 17 (NOI).

differentiating voice networks from broadband networks for regulatory treatment, the Commission should maintain its original “first-generation broadband” definition of 200 kbps in one direction. For purposes of funding Recovery Act grants, CWA recommended to the NTIA and RUS that broadband grants set a minimum standard of 3 mbps downstream, one mbps upstream for infrastructure applications, with added weight given to cost-effective proposals delivering higher speeds. Setting the standard at what we define as “current generation broadband” of 3 mbps down/1 up for grant purposes recognized that the United States is a country of vast regional and geographic variation, and that in some regions higher standards may result in cost-prohibitive requirements.⁴

The Commission should adopt a different approach in setting benchmarks and goals for broadband deployment. Here, The Commission should build on the methodology it adopted in the *2008 Data Gathering Order*, but go further by incorporating elements of the definitional approach taken by the California Broadband Task Force. The Commission in the *2008 Data Gathering Order* identified speed tiers for which broadband carriers must report the number of residential and business subscribers. The speed tiers include a range of upstream and downstream speeds. This approach makes sense for data collection, and will facilitate measurement of progress over time.⁵

⁴ Communications Workers of America, Comments to NTIA and RUS, In the Matter of American Recovery and Reinvestment Act Broadband Initiatives, Docket No. 090309298-9299-01, April 13, 2009.

⁵ *Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscriber Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscriber Data*, WC Docket No. 07-38, Report and Order and Further Notice of Proposed Rulemaking, 23 FCC Rcd 9691, 9702, para. 20 (2008)(2008 Data Gathering Order).

However, in developing broadband goals and benchmarks, the Commission should take an approach that combines a numerical definition with one that recognizes the evolving nature of broadband technology and capability. Speed matters on the Internet. The Commission should identify the numerical speeds, based on today's technology, that deliver different tiers of broadband capabilities. The Commission can then set benchmarks for broadband deployment using numerical goals tied to the various tiers of broadband capability.

The California Broadband Task Force adopted this working definition of broadband:

- Broadband is defined by the ability to perform online applications at a reasonable performance level for the end user.
- Broadband is a range of speeds and will evolve over time as applications and needs change. It is a summation of the downstream data rate (transmission to the user) and upstream data rate (transmission from the user).
- The ratio of the downstream and upstream must be a minimum of 10:1 (the ratio of the downstream and upstream data rates can increase from 10:1 to a fully symmetrical 1:1)
- Broadband must have the capability to be always on, and have a sustainable steady state data rate.
- Burst-able speeds provide benefit to users, but should not be considered in the same manner as steady data rates.
- An increasing scale that continues to differentiate within speed tiers allows stakeholders to measure specific broadband availability over time.⁶

The California Broadband Task Force then identified the range of upstream and downstream speeds necessary for various online applications. The speed tiers and the applications are reproduced on the next page, and summarize as follows: 500 kbps – 1 mbps for basic applications; 1 mbps – 5 mbps for applications that include basic IPTV and video; 5-10 mbps for applications that include basic medical file sharing, building control & management,

⁶ The California Broadband Task Force noted that the minimum speed required to use the most basic of broadband-enabled applications is 512 kbps, and this minimum data rate is expected to increase over time. The FCC has already adopted a 768 kbps standard for basic broadband. We do not recommend the FCC move backwards to adopt a slower definition. Final Report of the California Broadband Task Force, *The State of Connectivity: Building Innovation Through Broadband*, Jan. 2008, p. 12 (available at

remote basic medical diagnosis, video streaming of 2-3 channels; 10 – 100 mbps that includes robust telemedicine, distance learning, high-definition video, smart/intelligent building control; 100 mbps – 1 Gbps for HD telemedicine, full IPTV and video support; and 1 – 10 Gbps for research applications, telemedicine remote control of scientific/medical instruments, and remote supercomputing. (See next page).

2. Measuring Progress

The national broadband plan should establish ambitious yet achievable benchmarks for broadband deployment, adoption, and speeds. Our initial goal should be a minimum of 10 mbps downstream, one mbps upstream to all. Special programs should address areas with extremely low population density. To achieve this goal, the national broadband plan should establish concrete benchmarks for different speed/capability tiers over time and for regions with different population densities.

In addition to home broadband deployment benchmarks, the Commission should establish deployment benchmarks for public institutions, for rural Americans, and for low-income populations. The Commission should also establish broadband adoption goals and timetables, for the nation and for different underserved demographic and income groups. Publication of the Commission's new Form 477 data on broadband subscribers will facilitate development of adoption goals. In subsequent comments in this proceeding, we will provide recommendations in these areas.

What is Broadband?

To evaluate the status of and set metrics for broadband deployment in California, the CBTF developed a working definition of broadband.

- Broadband is defined by the ability to perform online applications at a reasonable performance level for the end user.
- Broadband is a range of speeds and will evolve over time as applications and needs change. It is a summation of the downstream data rate (transmission to the user) and upstream data rate (transmission from the user).
- The ratio of the downstream and upstream must be a minimum of 10:1 (the ratio of the downstream and upstream data rates can increase from 10:1 to a fully symmetrical 1:1).
- Broadband must have the capability to be always on, and have a sustainable steady state data rate.
- Burst-able speeds provide benefit to users, but should not be considered in the same manner as steady data rates.
- The minimum speed required to use the most basic of broadband-enabled applications is 512 kbps, and this minimum data rate is expected to increase over time.
- An increasing scale that continues to differentiate within speed tiers allows stakeholders to measure specific broadband availability over time.

Upstream and Downstream Speed Range	Applications
500 kbps - 1 Mbps	Voice over IP SMS Basic Email Web Browsing (simple sites) Streaming Music (caching) Low Quality Video (highly compressed)
1 Mbps - 5 Mbps	Web Browsing (complex sites) Email (larger size attachments) Remote Surveillance IPTV-SD (1-3 channels) File Sharing (small/medium) Telecommuting (ordinary) Digital broadcast video (1 channel) Streaming Music
5 Mbps - 10 Mbps	Telecommuting (converged services) File Sharing (large) IPTV-SD (multiple channels) Switched Digital Video Video on Demand SD Broadcast SD Video Video Streaming (2-3 channels) HD Video Downloading Low Definition Telepresence Gaming Medical File Sharing (basic) Remote Diagnosis (basic) Remote Education Building Control & Management
10 Mbps - 100 Mbps	Telemedicine Educational Services Broadcast Video SD and some HD IPTV-HD Gaming (complex) Telecommuting (high quality video) High Quality Telepresence HD Surveillance Smart/Intelligent Building Control
100 Mbps - 1 Gbps	HD Telemedicine Multiple Educational Services Broadcast Video full HD Full IPTV Channel Support Video on Demand HD Gaming (immersion) Remote Server Services for Telecommuting
1 Gbps - 10 Gbps	Research Applications Telepresence using uncompressed high definition video streams Live event digital cinema streaming Telemedicine remote control of scientific/medical instruments Interactive remote visualization and virtual reality Movement of terabyte datasets Remote supercomputing

STATUS OF DEPLOYMENT

1. Data and Mapping

The Commission's new Form 477 requirements will provide valuable information about the state of broadband subscription, but unfortunately, we still do not have a national, detailed source of information on broadband infrastructure. About a dozen states have mapped their broadband infrastructure, and more are initiating the process. The state maps detail gaps in broadband deployment, largely in rural areas. The Recovery Act provides funding to states to begin or upgrade their data collection on broadband deployment. The Broadband Data Improvement Act requires the NTIA to publish a national inventory of broadband infrastructure by 2011. In the meantime, the Commission must put together the national broadband plan by cobbling together various data sources which give a useful – yet incomplete – picture of the status of broadband deployment in this country.

The Commission should move forward expeditiously to improve broadband data collection. In the *2008 Broadband Data Order*, the Commission stated that it would “design and implement a voluntary system that households may use to report availability and speed of broadband Internet access service at their premises.” CWA's Speed Matters project has collected and reported the results of voluntary speed tests for the past two years. We gladly pass this responsibility to the Commission, although we do encourage the Commission to include educational institutions, non-profit organizations, and others such as CWA in the outreach effort to gather as much voluntary information as possible.

The NTIA and the Commission are currently considering the best means to collect data on broadband infrastructure deployment. Such data will help guide sound policy, measure

progress toward our goal of ubiquitous deployment of high-speed networks, and assist public-private partnerships, state and local governments, and others in demand-stimulation and other initiatives. CWA has worked with a number of Connected Nation state programs. The success of these programs is not simply the broadband mapping, but even more, the ways in which the public-private partnerships use the broadband maps to develop local technology plans to address gaps in broadband deployment and craft solutions to meet local conditions. These initiatives require address-specific, accurate, and up-to-date broadband availability information in order to be effective.⁷

2. Broadband Deployment and Adoption Gaps

In some areas of the country – primarily low-density and higher-income communities – wireline, cable, and wireless companies are competing to deliver world-class high-speed broadband networks. An estimated 25 percent of American households have access to next-generation advanced networks.⁸ According to the Commission’s most recent Broadband Deployment report based on December 2007 data, 96 percent of cable subscribers have access to

⁷ CWA Comments, In the Matter of Form 477 Further Notice of Proposed Rulemaking, SC Docket No. 07-38, July 17, 2008; CWA Reply Comments In the Matter of Form 477 Further Notice of Proposed Rulemaking, SC Docket No. 07-38, Aug. 1, 2008; CW A, Comments to NTIA and RUS, In the Matter of American Recovery and Reinvestment Act Broadband Initiatives, Docket No. 090309298-9299-01, April 13, 2009.

⁸ This estimate is from Stephen Ezell, Rob Atkinson, Daniel Castro, and George Ou, *The Need for Speed: The Importance of Next-Generation Broadband Networks*, Washington, D.C.: Information Technology and Innovation Foundation, March 2009, 3-4 (available at <http://www.itif.org/files/2009-needforspeed.pdf>). As of March 2009, AT&T’s U-Verse fiber-to-the-node with a capacity of 25 mbps downstream passed 18 million homes; Verizon’s FiOS fiber-to-the-home with a capacity of 100 mbps in both directions passed 13.2 million homes, and cable companies such as Comcast had begun to roll out DOCSIS 3.0 with a capacity of up to 50 mbps downstream. Source for AT&T figure is AT&T SEC Form 10-Q for quarter ending March 31, 2009; source for Verizon figure is Verizon SEC Form 10-Q for quarter ending March 31, 2009; source for Comcast is ITIF, *The Need for Speed*, 3-4.

broadband cable modems, and 82 percent of telephone subscribers have access to broadband through DSL technology. Wireless broadband connections are expanding.⁹

Yet, the capacity of our broadband networks trails our global competitors. According to the 2007 FCC data (which admittedly is outdated), one-third (34 percent) of reported broadband connections delivered speeds that exceeded 200 kbps in only one direction; 28 percent delivered speeds at less than 2.5 mbps in one direction; one-third (33 percent) delivered speeds greater than 2.5 mbps but less than 10 mbps, and only four percent delivered speeds greater than 10 mbps.¹⁰

According to CWA's Speed Matters 2008 survey, the median Internet download speed in the U.S. was 2.3 megabits per second (mbps) and the median upload speed was 435 kilobits per second (kbps), much slower than download speeds in Japan (63 mbps), South Korea (49 mbps), France (17 mbps) and Canada 7.6 mbps), among others.¹¹ This compares to a 2007 average download speed of 1.9 mbps and 371 kbps upload speed.¹² At this rate of progress, it will take years to catch up with our global competitors. We must do more to accelerate deployment of world-class broadband networks. (See next page for 2008 Internet speeds)

⁹ FCC, High Speed Services for Internet Access, Table 14. Percentage of Residential End-User Premises with Access to High-Speed Services as of December 31, 2007, Jan 2009 (rel).

¹⁰ FCC, High Speed Services for Internet Access, Table 5. High-Speed Lines by Information Transfer Rates as of December 31, 2007, Jan 2009 (rel).

¹¹ Communications Workers of America, *Speed Matters A Report on Internet Speeds in All 50 States*, Aug. 2008. Attached, and available at <http://www.speedmatters.org/content/resources/>. International data from Robert Atkinson, Daniel Correa, and Julie Hedlund, *Explaining International Broadband Leadership*, Washington, D.C.: Information Technology and Innovation Foundation, May 2008. Attached and available at <http://www.itif.org/files/ExplainingBBLeadership.pdf>.

¹² Communications Workers of America, *A Report on Internet Speeds in All 50 States*, 2007.

Although high-speed broadband has become a necessity in today's environment and we have made much progress in some areas of our nation, we also face serious broadband gaps. The United States – the country that invented the Internet – has fallen from first to 15th among industrialized nations in broadband subscription.¹³ All too many Americans encounter a significant digital divide based on geography and income. According to a 2008 Pew Internet and American Life survey, only 55 percent of adult Americans subscribe to broadband Internet at home, with much lower rates among low-income (25%), rural (38 percent), older (19 percent) Americans.¹⁴ A 2007 Census Bureau survey found significantly lower broadband subscription rates among Black (37 percent), and Hispanic (35 percent) households compared to white households (52 percent).¹⁵

Pew Internet and American Life and Connected Nation surveys also provide valuable information about barriers to broadband adoption. According to the Pew surveys, 14 percent of respondents who do not subscribe to broadband reported that broadband is not available; 18 noted affordability issues (no computer, broadband access price too high); 17 percent said that the technology was difficult to use; and the remaining 51 percent claimed they saw relevance for them in a broadband subscription.¹⁶

¹³ Organization for Economic Cooperation and Development, Broadband Statistics as of Dec 2008, available at http://www.oecd.org/document/54/0,3343,en_2649_34225_38690102_1_1_1_37441,00.html

¹⁴ Pew Internet & American Life Project, "Home Broadband Adoption 2008, July 2008." Available at http://www.pewinternet.org/~media/Files/Reports/2008/PIP_Broadband_2008.pdf.

¹⁵ U.S. Census Bureau, Reporting Internet Usage for Households, by Selected Characteristics: 2007. CPS 2007.

¹⁶ Pew Internet and American Life, "Obama's Online Opportunities: If you build it, will they log on?" based on May 2008 and December 2007 surveys. Available at <http://www.pewinternet.org/Reports/2009/Stimulating-Broadband-If-Obama-builds-it-will-they-log-on/Obamas-Online-Opportunities-If-you-build-it-will-they-log-on/2-Barriers-to-adoption.aspx?r=1>

In summary, while some areas of the United States have access to world-class advanced networks, three significant gaps remain, particularly among rural, low-income, and elderly households.

III. EFFECTIVE AND EFFICIENT MECHANISMS FOR ENSURING ACCESS

There are a number of bold but specific steps that the United States should take to recover our lost leadership and competitive position to ensure that all residents, businesses, and institutions benefit from affordable, high-speed Internet. Strategies must engage both the public and private sectors and all stakeholders – including workers in the industry – to address our three broadband gaps: 1) lack of access in primarily rural, lower-density areas of the country; 2) slow speeds and insufficient network capacity to realize the potential of advanced two-way networks; and 3) broadband adoption gaps due to lack of access, cost of computers and broadband access, insufficient digital competency, or perceived lack of value of broadband. The national broadband plan should, at a minimum, include the elements below.¹⁷

¹⁷ CWA gives more detail on this comprehensive broadband agenda in two publications. See Communications Workers of America, *Speed Matters: Affordable High Speed Internet for All*, Oct. 2006 and Communications Workers of America, *Speed Matters A Report on Internet Speeds in All 50 States*, Aug. 2008. These reports are attached and available at <http://www.speedmatters.org/content/resources/>

Source: Communications Workers of America,
A Report on Internet Speeds in All 50 States, 2008.

2008					
State	Median Download Speed (kbps)	Download Speed Ranking	State	Median Download Speed (kbps)	Download Speed Ranking
United States	2,346		Montana	1,320	49
Alabama	2,213	33	Nebraska	2,032	35
Alaska	814	51	Nevada	2,815	15
Arizona	2,172	34	New Hampshire	2,877	13
Arkansas	1,342	46	New Jersey	5,825	3
California	2,470	25	New Mexico	2,003	36
Colorado	2,341	29	New York	4,142	6
Connecticut	2,888	12	North Carolina	2,925	11
DC	2,782	16	North Dakota	1,164	50
Delaware	6,685	2	Ohio	2,523	23
Florida	3,988	7	Oklahoma	1,856	40
Georgia	3,041	9	Oregon	2,624	19
Hawaii	1,675	42	Pennsylvania	2,396	27
Idaho	1,326	47	Puerto Rico	499	52
Illinois	2,522	24	Rhode Island	6,769	1
Indiana	2,301	31	South Carolina	2,849	14
Iowa	1,455	45	South Dakota	2,222	32
Kansas	2,466	26	Tennessee	2,755	17
Kentucky	1,795	41	Texas	2,526	22
Louisiana	2,706	18	Utah	2,324	30
Maine	2,558	21	Vermont	1,890	38
Maryland	3,981	8	Virginia	5,033	4
Massachusetts	4,564	5	Washington	3,016	10
Michigan	2,573	20	West Virginia	1,987	37
Minnesota	1,566	44	Wisconsin	2,372	28
Mississippi	1,567	43	Wyoming	1,325	48
Missouri	1,881	39			

1. Establish comprehensive and on-going data collection.

Good policy requires good data. We need detailed information about broadband deployment, adoption, speed, prices, consumer attitudes, and contextual analysis of developments in other countries. The Commission has taken an important first step in the revision of Form 477 to collect detailed information on broadband subscribers. Some states have completed or are currently mapping their state's broadband infrastructure, and the Recovery Act provides funds for states to begin or upgrade data collection both on broadband deployment and adoption. In addition, the Broadband Data Improvement Act of 2008 (BDIA) mandates improvements in the federal government's data collection regarding computer ownership, Internet subscription, international comparisons, and consumer behavior,¹⁸ while the Recovery Act requires the NTIA to produce a national broadband infrastructure map by 2011.¹⁹

2. Set Goals and Benchmarks.

The national broadband plan should establish ambitious yet achievable benchmarks for broadband deployment, adoption, and speeds. Our goal should be 10 mbps downstream, one mbps upstream to all, with special provision for areas of extremely low-density. The national broadband plan should include more refined benchmarks and timetables for deployment of current and next-generation broadband networks to homes, businesses, and public institutions; and adoption benchmarks for the nation as well as underserved low-income, rural, elderly, and other demographic groups. The goals and benchmarks should be based on an analysis of the

¹⁸ Broadband Data Improvement Act of 2008, Pub. L. No. 10-385, 1122 Stat. 4096 Sec. 103© (2008) (BDIA)

¹⁹ The broadband provisions of the American Recovery and Reinvestment Act allocates up to \$350 million to fund the provisions of the Broadband Data Improvement Act. (American Recovery and Reinvestment Act of 2009, Pub. L.No.111-5, 123 Stat. 115 (2009)(Recovery Act).

current state of the current state of broadband deployment, including identification of areas with no broadband and areas with slow broadband correlated with demographic information and population density; analysis of data on broadband subscription and barriers to adoption obtained from consumer surveys, again correlated with demographic information and population density; and an assessment of the costs to address our deployment and adoption gaps, using various technologies and strategies.

3. Create mechanisms to support the creation of public-private partnerships and state and local broadband plans.

With this NOI, the Commission is moving forward to develop a National Broadband Plan. But we also need planning at the state and local levels. Ideally, every state should have a state plan to expand broadband deployment and adoption. The plan should be developed under the leadership of an executive agency or non-profit entity with input from a state broadband task force composed of all major stakeholders, including workers in the industry and their unions. State broadband task forces provide multiple functions, serving to disseminate successful local models, identify policy solutions, mobilize support, and build public-private partnerships. To date, about 12 states have established broadband task forces; these states are leading the way in state-based initiatives and are well-positioned to identify projects for Recovery Act funding.²⁰ Some of these states have implemented highly-successful initiatives – including, among others, the Connect Kentucky, Connect Tennessee, Connect Ohio, and e-North Carolina programs – that devote resources to provide technical assistance to locally-based community planning teams in

²⁰ For information about state broadband task forces, see Communications Workers of America and Alliance for Public Technology, *State Broadband Initiatives: Laboratories of Innovation*. The report and an online searchable database are available at <http://www.speedmatters.org/content/statepolicy/>

the development of public-private partnerships, demand aggregation programs, technology training, dissemination of model programs, applications for funding, computer distribution programs, community surveys, and other initiatives to spur broadband development.²¹ Non-profit organizations such as the Alliance for Digital Equality have convened local Digital Empowerment Councils in urban areas to bring community leaders together to develop broadband plans.²² The Recovery Act provides up to \$350 million in grants to states not only for mapping and data collection, but equally important, to establish local community technology teams to develop and implement strategies to accelerate broadband deployment and adoption.

4. Reform Universal Service.

There are a number of possible approaches to ensure that low-income households, residents and small businesses in high-cost rural areas, and our schools, libraries, and rural health centers have access to affordable, quality broadband connections. The current Lifeline/Link-up program of subsidies should be made available to support broadband access and computer purchase for low-income households. The highly successful E-Rate program of subsidies to schools, libraries, and rural health centers should continue, enabling these public institutions to upgrade network capacity. There are some who propose converting the current Universal Service Fund (USF) program of capital and operating support to carriers in rural high-cost areas into a program of one-time subsidies for capital investment in broadband. While this proposal has merit, it must be accompanied by a system of support to ensure affordability of broadband

²¹ For information on ConnectKentucky, Connect Tennessee, and Connect Ohio, *see* <http://www.connectednation.org>.

²² The Alliance for Digital Equality has implemented Digital Empowerment Councils in Charleston, SC, Houston, TX, Detroit, MI, Miami, FL, Atlanta, GA, Boston, MA and Chicago, IL, and has plans to introduce them in 19 more communities. *See* http://www.alliancefordigitalequality.org/about_dec.php

access. CWA also supports proposals that call for substantial revisions to the current USF, including making broadband a supported service, requiring all USF recipients to provide broadband at designated speeds and prices, and changes in the distribution mechanism to target support more narrowly to carriers serving rural wire centers or census tracts. USF support should be limited to one provider in an area. Because access charges also serve to support affordable telephony in high-cost areas, any change in the access charge regime must include corresponding USF changes. Finally, it is time to stabilize the funding base for federal universal service and to make it more equitable. Every provider should be assessed a USF fee based on phone numbers, connections, and capacity. This approach would eliminate arbitrary regulatory exemptions from contribution obligations, protect the fiscal stability of the fund, and ensure fully equitable and competitively neutral contribution obligations.

5. Establish Tax Incentives to Encourage Investment in Faster Speeds.

Building and upgrading universal, advanced networks will require tens of billions of dollars. Private capital will largely pay for this, with public support at the margins. The most cost-effective policy to encourage and accelerate the deployment of those networks is a program of targeted, temporary tax incentives that lower the cost of capital for these investments. Other countries, such as Japan and South Korea, became leaders in the deployment of high-speed advanced networks by allowing companies to accelerate the write-off of new fiber investment.²³ The U.S. should provide temporary, targeted tax credits to companies investing in broadband networks for two purposes: 1) a 20 percent tax credit to companies that build current generation

²³ The most comprehensive description of international broadband policies can be found in Robert Atkinson, Daniel Correa, and Julie Hedlund, *Explaining International Broadband Leadership*, Washington, D.C.: Information Technology and Innovation Foundation, May 2008. Attached and available at <http://www.itif.org/index.php?id=142>

networks in unserved areas (areas without non-satellite broadband); and 2) a 40 percent tax credit for investment in next-generation advanced broadband.

In addition, we must close tax loopholes that create disincentives for broadband investment, such as the Reverse Morris Trust. The Reverse Morris Trust allows companies to structure corporate transactions to avoid taxation either at the point of acquisition or distribution. It creates perverse incentives that allow well-capitalized telecommunications companies to shed rural properties lines tax-free, depriving consumers and the public treasury of hundreds of millions of dollars that otherwise could have supported broadband deployment.

6. Initiate Programs to Spur Broadband Adoption and Ensure No Child Offline

Many Americans report they do not subscribe to broadband Internet even where it is available because they do not know how to access the Internet, do not see its value, or cannot afford a computer or broadband access. To address the affordability issue, the federal Universal Service Fund Lifeline/Linkup subsidies should be expanded to include support for broadband access and equipment, including computers. The Recovery Act provides a minimum of \$250 million to support broadband adoption programs and another \$200 million to support public computing centers. While these grants will help identify scalable projects, much more funding is needed to ensure that every school child and household can afford and has the skills necessary to access broadband in the home. Programs like Elevate Miami that give low-cost computers to low-income school children who meet attendance and academic qualifications and attend a digital training workshop with their parents and guardians should be funded and expanded.²⁴ Connected Nation's No Child Offline program provides free computers to low-income

²⁴ For more about Elevate Miami, see <http://portal.elevatemiami.com/Pages/Home.aspx>

households. In addition, we should support the development of community-based public-interest broadband applications.

7. Preserve an Open Internet.

We must protect free speech on the Internet so that people are able to go to the websites they want when they want on the Internet. The Commission's *Internet Policy Statement* established four principles to ensure that consumers are entitled to the lawful Internet content of their choice, to run applications and use services of their choice, subject to the needs of law enforcement, to connect their choice of legal devices that do not harm the network, all subject to "reasonable network management."²⁵ Recently, the Commission clarified its authority to enforce those principles. The Commission's *Internet Policy Statement* is working to ensure an open Internet. Any consideration of a "fifth principle" to prohibit unreasonable discrimination must not deter private sector investment in a robust network and must be consistent with the public interest in reasonable network management. Further, facilities-based broadband competition is thriving where such investment is economic; unbundling requirements would create disincentives to network investment and should be avoided.

8. Leverage Other Public Programs

Because high-speed Internet helps address many of our nation's challenges, government programs that support education, workforce development, health care, energy and the environment, affordable housing, public safety and homeland security, among others, should be

²⁵ *Internet Policy Statement*, 20 FCC Rcd 14986, 14987-88, para 4 (2005). See *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*).

structured and should provide funding to allow participants in these programs to participate through high-speed broadband connections, where such connections improve the quality and cost-effectiveness of service delivery.

9. Safeguard Consumers and Workers

The national broadband plan should include consumer and worker protections. To protect consumers, the national broadband plan should require public reporting of deployment, actual speed, price, and quality of service provision. To ensure that the national broadband plan creates good jobs for American workers in the industry, the national broadband plan should insist that all employers in the industry adhere to our nation's labor laws and standards, including a respect for collective bargaining and workers' rights to form a union.

Historically, union representation and collective bargaining in the telecommunications sector has provided a path to the middle class and career opportunity for non-college educated workers. The benefits of collective bargaining have been especially important for women and minorities in telecommunications, who have been able to overcome gender- and race-based pay inequities in the labor market to achieve a middle-class standard of living and career advancement opportunities in the telecommunications industry.²⁶

Unfortunately, that situation is threatened, as most new entrants to the telecommunications/Internet sectors strive to compete based on low wages and benefits, temporary or part-time employment, outsourcing and offshoring of jobs, and opposition to their

²⁶ Institute for Women's Policy Research, *Making the Right Call: Jobs and Diversity in the Communications and Media Sector*, July 2006; Roberta Spalter-Roth and Young-Hee Yoon, *Women and Minorities in Telecommunications: An Exception to the Rule*. Washington DC: Institute for Women's Policy Research, 1995.

employees' rights to collective representation through a union of their own choosing.²⁷ Such policies exert downward pressure on labor standards and contribute to the decline of the middle class in this country.

The union difference in the communications sector is significant for workers and their families. According to the Bureau of Labor Statistics, union-represented telecommunications technicians earned, on average, \$18,500 or 31 percent more annually than non-union technicians. That gap widens when the value of health, pension, and other benefits are included. Union-represented customer service employees – a majority female occupation – earned, on average, \$24,700 or 40 percent more in total compensation than their non-union counterparts.²⁸ Union representation allows workers to build careers and improve their skills in the fast-changing high-tech industry, without the constant turnover that is rampant in the non-union sector.

The Obama Administration has recognized this fact in Office of Management and Budget (OMB) guidance provided to federal agencies regarding implementation of the Recovery Act. The OMB instructed all federal agencies that Recovery Act projects must encourage sound labor

²⁷ See for example, American Rights at Work, *No Bargain: Comcast and the Future of workers' Rights in Telecommunications*, June 2004 (available at <http://www.americanrightsatwork.org>). For a report on employer opposition to workers' right to organize, see Kate Bronfenbrenner, *No Holds Barred: The Intensification of Employers' Opposition to Organizing*, Washington DC: American Rights at Work Education Fund and Economic Policy Institute, 2009 (available at <http://www.americanrightsatwork.org/publications/general/no-holds-barred-the-intensification-of-employer-opposition-to-organizing-20090520-758-116-116.html>)

²⁸ In 2008, telecommunications line installers and repairers weekly earnings were \$1,194 (union) and \$839 (non-union.) See Barry T. Hirsch and David A. Macpherson, *Union Membership and Earnings Data Book: Compilations from the Current Population Survey* (2009 Edition), Table 8a, p.64. In 2003, total compensation (including wages, benefits, and overtime) for telecommunications customer service representatives was \$56,800 (union) and \$32,100 (non-union). See Communications Workers of America, *Speed Matters: Affordable High Speed Internet for All*, 2006, pp. 14-15. For additional resources on telecommunications employment, see Jeffrey Keefe, *Racing to the Bottom: How Antiquated Public policy is Destroying the Best Jobs in Telecommunications*, 2005 and Institute for Women's Policy Research, *Making the Right Call: Jobs and Diversity in the Communications and Media Sector*, July 2006.

practices, including a “sound track record” on upholding our labor laws, respect for collective bargaining, and the creation of good jobs. The Guidance states:

The federal government invests substantial resources in enforcing wage and hour, occupational safety and health, and collective bargaining laws, to ensure that American workers are safe and treated fairly. All other things being equal, agencies awarding Recovery Act funds should seek to support entities that have a sound track record on these issues and are creating good jobs. This will strengthen the recovery effort and the economic prospects of American workers.²⁹

V. SPECIFIC POLICY GOALS OF THE NATIONAL BROADBAND PLAN: UNIVERSAL, AFFORDABLE HIGH-SPEED BROADBAND PROVIDES INNUMERABLE ECONOMIC AND SOCIAL BENEFITS

The social and economic benefits of truly high-speed, two-way advanced Internet connections are endless. As part of our Speed Matters campaign, CWA has partnered with multiple stakeholders to produce a series of reports that highlight the many social goods that accrue from high-speed broadband. We recognize our partners and summarize the findings below. (The reports are submitted as an attachment.)³⁰

1. High Speed Internet Creates Economic Growth and Jobs. (Speed Matters partner: Information Technology and Information Foundation)³¹

Expanded access to high-speed Internet generates economic growth and rapid job creation. High speed connections accelerate business development by providing new

²⁹ Peter R. Orszag, Director, Office of Management and Budget, Memorandum for the Heads of Departments and Agencies, Updated Implementing Guidance for the American Recovery and Reinvestment Act of 2009, April 3, 2009, Section 1.6, page 6. Available at http://www.whitehouse.gov/omb/assets/memoranda_fy2009/m09-15.pdf

³⁰ These reports are available at <http://www.speedmatters.org/content/resources/>. For another valuable resource on the benefits of high-speed broadband, see Alliance for Public Technology, *Broadband Initiatives: Enhancing Lives and Transforming Communities*, Nov. 2007, (available at http://www.appt.org/publications/reports-studies/broadband_initiatives.pdf).

³¹ Information Technology and Innovation Foundation and CWA Speed Matters, “High Speed Internet: Economic Growth and Jobs” Fact Sheet. Attached, and available at <http://www.speedmatters.org/page/-/SPEEDMATTERS/EconomicGrowthAndJobs.pdf?nocdn=1>

opportunities for innovation, expansion, and e-commerce. Connected communities create wealth and opportunity by attracting businesses that want to locate in areas with a strong broadband presence.

Studies show that each additional \$5 billion investment in broadband creates 250,000 jobs – 100,000 direct and indirect jobs from telecom and IT equipment spending plus another 150,000 in “network effects” spurring new online applications and services.³² According to a U.S. Department of Commerce study, communities with broadband added one percent to the employment growth, 0.5 percent to the growth of business establishments, and 0.5 percent to the share of IT establishments.³³ Employment in communities with broadband grew one percentage point more than in communities without it.³⁴

2. High-Speed Internet Improves K-12 Education. (Speed Matters partners: National Education Association and American Federation of Teacher)

High speed Internet enhances every level of education from kindergarten through high school to college and graduate school. Advances in information and communications technology mean that education is no longer confined to the classroom. New broadband-enabled educational tools allow for remote collaboration among fellow students on projects, videoconferences with teachers, and real-time video exploration of faraway areas. Yet, those students with limited or no

³² Information Technology and Innovation Foundation, “The Digital Road to Recovery,” Jan., 2009 available at <http://www.itif.org/files/roadtorecovery.pdf>.

³³ William Lehr, Carlos A. Osorio, Sharon E. Gillett, and Marvin Sirbu, “Measuring Broadband’s Economic Impact,” U.S. Department of Commerce, Economic Development Administration (Feb. 2006) (http://www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs2006/mitcmubbimpactreport_2epdf/v1/mitcmubbimpactreport.pdf)

³⁴ Robert Crandall, William Lehr, and Robert Litan, “The Effects of broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data,” Washington, D.C.: The Brookings Institution, July 2007. Available at http://www.brookings.edu/~media/Files/rc/papers/2007/06labor_crandall/06labor_crandall.pdf

access in their formative elementary and secondary school years are falling behind. Students with little exposure to digital technologies translate to adults with limited career opportunities.³⁵

Two-way, interactive videoconferencing allows busy parents to confer with their students' teachers more frequently and conveniently. Fast connection speeds allow students to form online study groups and work on school projects in face to face and virtual communities. Broadband connections enhance curricula at every grade level with dynamic and interactive Internet applications. For example, virtual field trips take students on tours of places such as our nation's capitol and the streets of foreign cities, or even to the depths of oceans and to the far reaches of outer space. Students in remote locations can have access to education specialists. Elementary and high school students with high speed connections at home can access the limitless resources available over the Internet. To realize these benefits, in addition to continued support for the highly-successful E-Rate program of subsidies to schools, libraries, and rural health centers, we must ensure that every American has access to affordable broadband, computers, and Internet connectivity at the home, with instruction in how to take best advantage of the technology.

3. High Speed Internet and Distance Learning. (Speed Matters partners: Educause and Rutgers University Center for Women and Work)

Distance learning allows adults to gain vital skills training to secure employment and move beyond entry-level jobs with flexibility, whether through getting a college degree online or completing an online worker training program. Busy people pressed for time and money learn online at their own pace and for less money than they would typically spend on an in-person

³⁵ American Federation of Teachers, National Education Association, and CWA's Speed Matters, "High Speed Internet and K-12 Education." Attached and available at <http://www.speedmatters.org/content/resources/>

course. Distance learning allows industry specialists in remote areas to impart their knowledge to wider audiences through two-way video conferencing.³⁶

Advanced two-way communications enable students and workers not only to watch lectures and training programs from home but to ask instructors questions and engage their classmates and colleagues via video conferencing. Broadband-enabled social networks enhance online learning by creating a community of learners that can share educational and training resources or work together on group projects. Many different types of communities have shown great success already with online learning: Low-income workers seeking advanced job skills, rural students unable to reach higher education institutions, and incarcerated individuals training for future employment all benefit from distance learning.

CWA operates two online worker education and training programs. The first, known as the National Coalition for Telecommunications Education and Learning (NACTEL) Online Telecommunications Degree Program, is a unique industry-wide collaborative between leading telecommunications unions and employers including AT&T, Verizon, Qwest, and Frontier/Citizens. The program allows workers to take online courses leading to a four-year Bachelors of Science and a two-year Associate degree in Telecommunications. The second program, known as the CWA/NETT Academy, provides online networking certification training, including the only national online Cisco certification training program.³⁷

³⁶ Educause, Rutgers University, and CWA's Speed Matters, "High Speed Internet and Distance Learning." Attached and available at

³⁷ Alliance for Public Technology, *Broadband Initiatives: Enhancing Lives and Transforming Communities*, Nov. 2007, pages 55-56 (available at http://www.appt.org/publications/reports-studies/broadband_initiatives.pdf). See also CWA Jobs and Training programs at <http://www.cwa-union.org/jobs/>

The Sloan Center on Innovative Training and Workforce Development (ITWD) at Rutgers University has been working to develop online learning skills training and credential programs for low-skill working adults since 2002. This initiative has provided leadership and conducted research on the development and implementation of online learning programs in our nation's workforce delivery system, resulting in programs in over 21 states. The use of online learning as a workforce development tool began with a pilot program in New Jersey. Participants were provided with a laptop computer, printer, over 300 courses, and Internet access. The program proved most successful where participants had high speed Internet access. According to an evaluation by Rutgers University Center for Women and Work: "Internet speed is essential to enable online content that moves away from reading-intensive, text-based instruction and takes full advantage of the audio, visual, and interactive capabilities of the Internet. Internet speed has been shown to be related to successful completion of online learning programs. Providing students with broadband access will make them more likely to utilize the available technology and develop improved technical skills."³⁸

A national broadband plan should encourage funding to support higher education and worker training online learning opportunities, including support for the purchase of computers and broadband access to assist those who cannot afford these tools. Pending legislation in Congress (the Online Job training Act of 2009, H.R. 145) would provide grants to states to expand online workforce development programs and fund an academic research and resource clearinghouse.

³⁸ Heather McKay and Dr. Mary Gatta, "Online Learning for Low Skills Adults," May 2009. A joint publication of Rutgers Center for Women and Work and CWA's Speed Matters campaign. Attached, and available at

4. High Speed Internet Advances Public Safety

The application of high speed Internet technology to public safety initiatives enable police, fire and emergency medical personnel to react to crises more quickly while facilitating cooperation between multiple safety agencies. Advanced two-way, public networks allow safety officers to quickly access online resources, connect to network-enabled devices, and rapidly transfer critical video and data files during crisis situations. High speed Internet also promises to improve victim-to-responder communications by enabling digital transmissions to and from the broadband-enabled public, like detailed public safety announcements sent over broadband networks.³⁹

Although the public continues to use more broadband tools, they cannot interact with emergency services using these tools today because many first responders do not have the necessary capabilities. For example, for an individual capturing a digital photo or video of a crime, no standard process exists for transmitting that information to authorities in a timely way, such as calling 911.

The nation's public safety infrastructure is fragmented into thousands of independent local jurisdictions of police, fire and emergency services. The aftermaths of Hurricane Katrina and Sept. 11, 2001 demonstrated the challenges of communicating on multiple bandwidth frequencies across numerous safety agencies. A universally available high speed Internet network could begin to address the challenge of integrating our nation's numerous public safety networks.

http://files.speedmatters.org/online_learning_for_low_skill_adults.pdf

³⁹ CWA Speed Matters, "High Speed Internet and Public Safety." Attached and available at <http://www.speedmatters.org/page/-/SPEEDMATTERS/Publications/Public%20Safety%201-pager%20BORDERLESS.pdf?nocdn=1>

For fire & emergency services, faster connections let first responders receive area maps, view video on situations such as how to pry open a broken train door or how to safely shut off electrical power, and allow multiple responders from numerous agencies to view the same images and data simultaneously. Better and faster data can be sent to emergency rooms to prepare them for incoming accident victims. Fire commanders can direct their units using voice, video and data-enhanced communications at an emergency scene or from a remote location.

For police, high speed Internet allows the rapid upload of video and data from on-the-ground law enforcement personnel to police command centers, and allows monitoring of officers or suspects in high-risk situations. Images and fingerprints of suspects, video clips of criminal activity, and layouts of areas can be downloaded to police vehicle computers. An individual who snaps a cell phone photo of someone they believe may be the abductor of a missing child can share this with the appropriate authorities in an instant.

For national security, broadband facilitates biometrics screening - the measurement of personally identifiable physical characteristics like fingerprints or retinas - at entry points into a country or a sensitive facility, and enhances remote surveillance of borders, airports, ports, train stations, and government buildings. In the event of damage or destruction to vital government office space, high speed Internet can restore government services by enabling public officials and their staff to work remotely.

5. High Speed Internet is Essential for Rural Communities. (Speed Matters partner: Connected Nation)

High speed Internet breaks down the barriers of distance and time, allowing residents of rural areas to participate in economic and civic life far beyond their geographic region.

Communications made possible by broadband technology eliminate the logistical constraints of

regionally-based business models, allowing businesses in isolated areas to compete with their big-city counterparts. When given access to affordable broadband, rural businesses restricted to local markets, such as “mom and pop” shops or home-based businesses, can expand their market reach across the nation and even the world. Yet, rural areas trail urban and suburban communities in broadband access.

Broadband brings the opportunity for direct access to education and health care for rural residents who are otherwise forced to travel long distances for college courses and medical treatment. Rural libraries newly enhanced by high speed Internet often experience a resurgence of community interest and participation. High speed Internet provides rural residents access to global information and cultural resources. Affordable broadband enables historically urban businesses like graphic design, website design, and other creative industries to experience new life in rural settings while competing on the same level as city-based companies. Farmers gain real-time access to vital information such as crop prices or weather forecasts, and marketing opportunities through high-speed networks.⁴⁰

6. High-Speed Internet Improves Public Service Delivery, Civic Engagement, and Strengthens Democracy

High-speed Internet allows citizens to participate in civic life more fully and interact with government agencies with greater ease. E-government solutions can make navigating government services more efficient, improve the quality of services, and increase transparency. Although e-government does not replace the quality of services delivered in-person by skilled career government employees, especially to vulnerable populations, high speed Internet

⁴⁰ Connected Nation and CWA Speed Matters, “High Speed Internet and Rural Communities.” Attached, and available at <http://www.speedmatters.org/page/-/SPEEDMATTERS/Rural.pdf?nocdn=1>

enhances public employees' abilities to supplement these services in important ways. As federal, state, and local governments increasingly rely on the Internet to provide information, forms, and services for various government programs, the need for universal, affordable access grows.

Government forms completed online from websites open 24 hours a day are faster, cheaper, and consume fewer resources than hard copies delivered through regular mail. High speed Internet allows a wide range of government services to be completed electronically including business filings, review of Medicare prescription drug options, real-time web-displaced public transit updates, and online car registration. High speed Internet allows citizens to communicate with their elected officials or candidates through e-mail, online petitions, and even social networks. Two-way video streaming opens public government meetings to interactions with constituents in geographically dispersed areas. Online social networks allow citizens to connect with like-minded individuals to organize politically, participate in online campaigns, and make their voices heard.⁴¹

7. High Speed Internet Improves Health Care (Speed Matters partner: American Telemedicine Association)

The potential for using high speed Internet technology to help expand access and quality of health care in the United States is enormous. The use of advanced communications technology to transmit medical data and imaging in real-time, while linking patients to providers for direct consultation, removes geographical barriers and allows people to receive the medical care they need when and where it's needed.⁴²

⁴¹ CWA Speed Matters, "High Speed Internet: E-Government and Civic Engagement." Attached, and available at <http://www.speedmatters.org/page/-/SPEEDMATTERS/Publications/E-Government%201-pager%20BORDERLESS.pdf?nocdn=1>

⁴² American Telemedicine Association and CWA's Speed Matters, "High Speed Internet and Health Care." Attached and available at <http://speedmatters.org/page/-/SPEEDMATTERS/HealthCare.pdf?nocdn=1>

Real-time transmission of medical imagery enables the interpretation of MRI, ultrasound, X-rays, and other diagnostic procedures to be performed remotely. High speed Internet allows physicians to connect with distant specialists for real-time guidance in emergency situations, potentially saving lives by eliminating the delay of long ambulance rides or air transport to a specialty hospital, such as during a stroke or heart attack. A study by the University of Texas Medical Branch estimates that the U.S. health care system can save \$4.28 billion from the elimination of patient transfers alone. This benefit of high speed Internet does not include the potential savings from remote monitoring or interpretive services.

To make the practice of telemedicine possible nationally requires a commitment to pay for health services delivered to the point of need. While this may require an investment in both medical and communications infrastructure, studies show the savings of telemedicine will far outweigh costs. Legal issues including rules that prevent consultations across state lines must be addressed. The deployment and adoption of universally available two-way high speed Internet networks capable of reliable and secure transmission of medical imaging and data is essential to realize the many benefits of telemedicine.

8. High Speed Internet Provides Solutions to Energy and Environmental Challenges (Speed Matters partners: Sierra Club, Blue Green Alliance, Progressive States Network)

Congress recognized the benefits of broadband technology in addressing our environmental and energy challenges by funding \$4.5 billion for the development of smart grid technology. Smart grids and smart buildings built with high speed Internet capabilities can increase control over home and building energy consumption, reducing energy use and cost.

Smart communications networks, sensors, and information technology can create an intelligent and connected power grid that will deliver electricity more efficiently.

The Climate Group found that a national smart grid could reduce carbon dioxide emissions by 230-480 metric tons per year by 2020, and that broadband-enabled travel substitution through enhanced video conferencing could save \$20-40 billion annually in fuel costs by 2020. The Information Technology and Innovation Foundation calculated that a \$50 billion investment in smart grid technology would create 239,000 new U.S. jobs. To get there, we need to invest in the expansion of access to affordable high-speed broadband to the home, as well as support to utilities to upgrade their distribution networks to become smart grids.⁴³

9. High Speed Internet and People with Disabilities. (Speed Matters partner: American Association of People with Disabilities)

High speed Internet empowers people with disabilities to become more independent. An Internet connection with enough speed to allow two-way voice, data, and video transfer can remove barriers that keep people with disabilities from participating in everyday activities such as employment, education, civic responsibilities and social connection. According to the 2008 U.S. Census, 50 million Americans have some kind of disability. Expert studies find that Americans with disabilities currently use the Internet approximately half as much as those without disabilities and their rate of adoption lags behind that of the general population.⁴⁴

⁴³ Sierra Club, Blue Green Alliance, Progressive States Network, CWA Speed Matters, “High Speed Internet and the Environment.” Attached and available at http://www.speedmatters.org/page/-/SPEEDMATTERS/Publications/High_Speed_Internet_and_Environment.pdf?nocdn=1

⁴⁴ American Association of People with Disabilities and CWA Speed Matters, “High Speed Internet and People with Disabilities.” Attached and available at <http://www.speedmatters.org/page/-/SPEEDMATTERS/Publications/Disabilities%201-pager%20BORDERLESS.pdf?nocdn=1>

Live streaming video and instant text communication liberate people who are deaf, or hard of hearing, and those with speech disabilities, from dependency on the phone. High speed Internet makes new services available to people with physical disabilities, such as attending classes remotely, online medical consultations with far away specialists, or applying for and securing jobs, eliminating the need for unnecessary or difficult commutes or trips. Programs that read text and describe visual contents aloud in a synthetic voice or a Braille display enable people who are blind or visually impaired to search the Internet, understand videos, and communicate online. For persons with certain mental conditions or learning disabilities, slow download speeds discourage Internet use. Video relay services (VRS), which require high speed Internet to run, allow people who are deaf to have phone conversations in their native sign language by means of an online interpreter. Initiatives to expand high speed Internet should include, as a principle, provisions to ensure not only affordability, but also accessibility and usability, for people with disabilities.

10. High Speed Internet and Low-Income Communities. (Speed Matters partner: Alliance for Digital Equality)

High speed Internet access has become vital to the success of individuals and communities. Our nation's commitment to equal economic opportunity, educational advancement, and democratic participation can only thrive if everyone has equivalent access to these critical communications networks. Closing the digital divide is as important to achieving these objectives as access to what we think of as more traditional resources or services.

The Pew Internet & American Life Project has found that poorer Americans and minorities are less likely than the affluent to have a high speed Internet connection. Although African-Americans and English-speaking Hispanics have begun to close the access gap with

whites, Latinos with limited English are less likely to use high speed Internet than either white or black Americans. The cost of computers, broadband access, and lack of digital skills serve as barriers to broadband adoption, even where the service is available. Broadband investment should be reinforced by efforts to make high speed Internet access and computers more affordable, and with programs to teach digital literacy, computer training, and outreach.⁴⁵

11. High Speed Internet and Public Libraries (Speed Matters partner: American Library Association)

Public libraries serve as critical gateways to information outside one's own community. Libraries give people without home computers or people who are traveling away from home free access to the Internet, helping America close the digital divide. As central public meeting spaces within communities, libraries connected to high speed Internet can serve as disaster response centers. Senior citizens, residents in underserved communities such as rural or low-income areas, and students without home computers, find public libraries helpful for finding information on health issues or government programs, researching school assignments, and maintaining connections with family and friends who live far away. Many libraries provide information literacy training that allows less tech-savvy individuals to engage the Internet in ways that they otherwise could not.

Although the need for libraries to provide broadband access is increasing, many libraries are ill-equipped to meet this need. In 2006, 98 percent of libraries indicated that they provided public access to the Internet, but in the same survey, 45 percent reported that they did not have sufficient bandwidth to satisfy their community's needs. Libraries without enough bandwidth to

⁴⁵ Alliance for Digital Equality, "Reducing the Digital Divide in Underserved Communities." Attached and available at <http://www.speedmatters.org/page/-/SPEEDMATTERS/DigitalDivide.pdf?nocdn=1>

transfer quickly data, images, and video put their communities at a serious disadvantage. While the highly successful federal E-rate program of subsidies for libraries, schools, and rural health centers has made much progress and should continue, additional initiatives to expand high speed Internet should ensure that public libraries are connected with sufficient bandwidth capabilities and provide digital literacy training and support in local communities.⁴⁶

12. High Speed Internet and Digital Literacy (Speed Matters partner One Economy)

Computers connected to high speed Internet are of little use to those unfamiliar with digital technology. In both rural and urban areas, a significant portion of Americans can not afford a computer, or the sometimes high cost of broadband subscriptions. Furthermore, many choose not to subscribe to high speed Internet even when it is available in their area because they do not understand the benefits it provides. In this fast-evolving information economy, digitally illiterate students and workers without access to broadband are at a stark disadvantage compared with those who are able to tap the resources of the Internet with ease. Expanding telecommunications infrastructure into underserved areas is vital, but it must happen alongside efforts to raise awareness of the benefits of high speed Internet and create digitally literate citizens.⁴⁷

VI. CONCLUSION

We are at a critical crossroads. The United States has fallen behind our global competitors in the deployment and adoption of high-speed communications networks. The Commission can provide essential guidance to Congress, state and local policymakers, industry,

⁴⁶ American Library Association and CWA Speed Matters, "High Speed Internet and Libraries." Attached, and available at http://www.speedmatters.org/page/-/SPEEDMATTERS/Publications/CWA_1pager_Sheet7Libraries_ah3.pdf?nocdn=1

⁴⁷ One Economy and CWA Speed Matters, High Speed Internet and Digital Literacy. Attached and available at

and concerned citizens in this national broadband plan. The plan must focus spur investments in high-speed Internet technologies in order to address the most important issue facing our nation today – the creation of good jobs for Americans throughout our economy and within the industry.

Policy recommendations must ensure the continued investment of the billions of dollars of private capital that it will take to build world-class broadband networks to every American home, business, institution, and community. Policy recommendations must also address the issues of affordability and technical literacy so that every American child and family can access the limitless information available over the global Internet.

Respectfully Submitted,

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