Before the
Federal Communications Commission

In the Matter of	)	
	)	**GN Docket No. 09-47, 09-51, 09-137**
A National Broadband Plan for Our Future	)	

Reply Comments -- National Broadband Plan, Public Notice #30

of the

Center for Media Justice
Consumer Federation of America
Consumers Union
Open Technology Initiative
Public Knowledge

on

BROADBAND ADOPTION

Mark Cooper
Director of Research
Consumer Federation of America
1620 I Street, N.W.
Washington, D.C.

Harold Feld
Legal Director
Public Knowledge
1818 N Street, NW
Suite 410
Washington, DC 20036
Phone: 202-861-0020

Sascha Meinrath
Director, Open Technology Initiative
New America Foundation
1899 L Street, NW
Suite #400
Washington, DC 20036

Joel Kelsey
Policy Analyst
Consumers Union
1101 17th St, NW
Washington, D.C. 20036

Malkia A. Cyril
Executive Director
Center for Media Justice
1611 Telegraph Ave., Suite 510
Oakland, CA 94612

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The Consumer Federation of America, Public Knowledge, the New America Foundation, and the Center for Media Justice respectfully submit these comments in reply to the FCC's Notice of Inquiry in regard to the National Broadband Plan.[1] The comments and the attached study primarily address issues raised in the 16th request for further information, which dealt with broadband adoption.[2] While this was the 16th notice, there are many respects in which broadband adoption is what the National Broadband Plan is all about, since the ultimate measure of success of communications policy in America has always been the adoption and use of communications technologies.

These comments are divided into four sections.

Section I briefly reviews the legislative background and policy context of broadband adoption.

Section II briefly reviews the results of a comprehensive examination of the social science literature that assesses the importance of broadband adoption and the factors that affect the rate of adoption and use of broadband communications technology. The full study of the social science literature is attached as Appendix A.

Section III, states an overarching goal for the National Broadband Plan.

Section IV provides specific answers to the questions posed by the FCC in NOI #16, based on our understanding of the policy context and the empirical evidence.

[1] Final Reply Comments Sought in Support of National Broadband Plan, NBP Public Notice # 30, GN Docket Nos. 09-47, 09-53, 09-137, January 12, 2010.

[2] Broadband Adoption, NBP Public Notice # 16, DA 09-2403Nobember 10, 2009.

I. POLICY CONTEXT

In charging the Federal Communications Commission with proposing a National Broadband Plan the goal embraced by the Congress is essentially universal service –

> to ensure that all people of the United States have access to broadband capability and establish benchmarks for meeting that goal. The plan shall also include--
>
> (A) an analysis of the most effective and efficient mechanisms for ensuring broadband access by all people of the United States;
>
> (B) a detailed strategy for achieving affordability of such service and maximum utilization of broadband infrastructure and service by the public:
>
> (C) an evaluation of the status of deployment of broadband service, including progress of projects supported by the grants made pursuant to this section; and
>
> (D) 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.[3]

This framing of the purpose of a National Broadband Plan is consent with the general purpose of the Communications Act of 1934, as amended by the Telecommunications Act of 1996, which states in its first sentence that the purpose of the Act is "to make available, so far as possible, to all people of the United States, *without discrimination on the basis of race, color, religion, national origin, or sex,* a rapid, efficient, nation-wide and world-wide wired and radio communications service with adequate facilities at reasonable charges."[4]

The commitment to universal service made in the first sentence of the Communications Act of 1934 came at a moment when approximately two-thirds of the households in America **did**

[3] American Recovery and Reinvestment Act of 2009, Pub. > No. 111-5, 123 Stat. 115(2002), Title VI.
[4] 47 C.F.R. §1., 1996 amendments in italics

not have telephone service. Thus, the goal of universal service was clearly a bold aspiration. In seeking to ensure a similar goal for broadband, the Congress adopted a similarly bold aspiration.

The Telecommunications Act of 1996 not only refined and expanded the first sentence of the Communications Act to give much greater precision to the ultimate goal of universal service, but its universal service sections also makes it clear that advanced telecommunications and information services were to be included as part of the definition of universal service.

> **S. 254 (b)** Universal Service Principles – The Joint Board and the Commission shall base policies for the preservation and advancement of universal service on the following principles:
>
> (1) Quality and Rates –Quality services should be available at just reasonable, and affordable rates.
>
> (2) Access to Advanced Services – Access to advanced telecommunications and information services should be provided in all regions of the nation.
>
> (3) Access in Rural and High Cost Areas – Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have interexchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas (U.S. Telecommunications Act, 1996).
>
> **S. 254 (c) (1)** Universal service is an evolving level of telecommunications service that the Commission shall establish periodically under this section, taking into account advances in telecommunications and information technologies and services. The Joint Board in recommending, and the Commission in establishing definitions of the services that are supported by Federal Universal service support mechanisms shall consider the extent to which such telecommunications services
>
> (a) are essential to education, public health or public safety;
>
> (b) have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers;
>
> (c) are being deployed to public telecommunications networks by telecommunications carriers; and

(d) are consistent with the public interest, convenience and necessity.[5]

In other words, the simple concept of telephone service was expanded to embrace the much more complex array of advanced communications and information services that constitute the communications space in a digital age. There is little doubt that broadband service meets the definition of a universal service today. The Joint Board has already made the necessary determination to declare broadband a universal service.[6] The FCC need only adopt this recommendation to start the ball rolling toward adopting policies that promote broadband as a universal service under the Communications Act.

Reflecting this broad framing by the Congress and the legislative history of its organic statute, in NOI #16 the FCC uses the term **digital exclusion** to describe the individual and social costs of not adopting broadband.[7] The term digital exclusion is a powerful framing of the issue. These comments and the attached study, which reviews the extensive social science literature on the impact of broadband adoption (or lack thereof) and reanalyzes recent data cited by the FCC, demonstrate that the Congress was correct in recognizing the profound impact of broadband on daily life in 21st century America and the FCC was correct to suggest that those who lack broadband are digitally excluded.

II. The Empirical Evidence on the Importance of Broadband Adoption and the Urgent Need to End Digital Exclusion

The attached report documents a severe problem of digital exclusion in the United States, which harms households and the nation. It makes a compelling case for aggressive policies to

[5] 47 C.F.R. §254(k).

[6] Joint Board, 2007, Recommendation, In the Matter of High-Cost Universal Service Support Federal-State Joint Board on Universal Service, Federal Communications Commission, WC Docket No. 05-337, CC Docket No. 96-45, November 20, 2007.

promote broadband adoption and spread the benefits of broadband communications to the large segments of the U.S. population that remain disconnected.

CONSEQUENCES OF DIGITAL EXCLUSION

- Digital exclusion afflicts a substantial part of the population – about one-third of U.S. households that do not have broadband at home.
- Many of these households are three generations of technology behind the majority of U.S. residents, lacking computers, experience with Internet access and broadband service in the home.
- Digital exclusion results in a significant deprivation of participation in activities that are vital to daily life in 21centry society – including economic opportunity, civic engagement, cultural expression, communications, and information gathering.
- Households without the Internet participate in economic, social and civic activities in physical space at roughly the same levels as households with the Internet, but being disconnected dramatically reduces their ability to participate in cyberspace activities in these important areas of daily life. As a result, digital exclusion is creating a new source of inequality in society

WHO IS EXCLUDED AND WHY

- The population affected by digital exclusion is lower income, less educated, elderly and to a lesser extent rural and black.
- There is a small subset of statistically significant, quantitatively important and policy relevant factors that affect adoption – availability, affordability, skill and motivation (interest) are important causes of digital exclusion.
- The deficits in material, skill and attitudinal resources suffered by the digitally excluded reflect the socioeconomic status of the households in the excluded population groups. As a consequence, digital exclusion can be seen as exacerbating the underlying problems of social exclusion and inequality.

POLICIES ARE NEEDED TO PROMOTE DIGITAL ADOPTION

- The evidence on the pattern of digital exclusion indicates that there is a distinct possibility that a substantial digital divide will persist and that market forces alone will not solve the problem of digital exclusion. Therefore, public policies to promote broadband adoption are necessary.
- Policies to promote broadband adoption can raise the level of participation

[7] NBP Public Notice # 16, p. 2.

and reduce the problem of digital exclusion.

- In seeking to promote broadband adoption, background characteristics (income, age, education, race, etc.) should be used to target programs that address the foreground (proximate) causes of digital exclusion – availability, affordability, skill and interest.
- The maximum effect will be achieved if the policies that seek to address the problem of digital exclusion by addressing the proximate factors are reasonably balanced. Targeting one of these factors, while neglecting the others, will result in a disappointing outcome.
- Beyond the funds made available with the stimulus bill, each federal agency with jurisdiction over policies that can affect the four major barriers to broadband adoption should identify existing programs and resources that can be turned to the task of promoting broadband adoption on a sustained, long-term basis and immediately implement policies to do so.

III. A BOLD GOAL REQUIRES BOLD ACTION

Given the clear intent of Congress to achieve universal access to, affordability and maximum utilization of broadband and the strong empirical evidence that digital exclusion imposes severe harm on the disconnected individuals as well as our nation as a whole, the FCC should adopt an overarching goal to that guides policy.

- **The FCC should declare the goal of raising the level of broadband adoption to the current level of telephone penetration (over 90%) within the next decade.**

To accomplish that goal public policy will have to systematically address the four major barriers to broadband adoption that have kept about one-third of U.S. households from being included in our digital economy and society – availability, affordability, technology skill and interest.

The FCC has primary responsibility for two of these barriers (availability and affordability). In the existing universal service and high cost funds that it administers the FCC has a continuous stream of resources to begin promoting universal access to and maximum

utilization of broadband. It should initiate the necessary proceedings immediately. As with the lifeline and link up programs from the telephone age, the FCC will have to learn the levels and types of subsidies necessary to achieve the goal by evolving the programs based on real world experience.

Since the FCC has been tasked by Congress to formulate the National Broadband Plan, it should also identify specific actions that other agencies can take to address the full range of barriers to broadband adoption. Policies to address the other two primary barriers to broadband adoption (technology skill and interest) should be implemented through community-based institutions, including schools, libraries and technology centers.

- **The multiple literacies necessary to adopt complex technologies must be in the language that is meaningful and accessible to individual users. These languages are best conveyed by members of the local community.**
- **Similarly, the development of applications and content that are relevant to non-adopters are best developed by members of their communities who have adopted and use the technology.**

The funds made available by the ARRA, as well as those available to the FCC through its universal funding mechanisms, should be used to deploy a variety of approaches so that the most effective approaches to the long-term solution can be identified. The FCC should acknowledge two facts about the problem of digital exclusion. First, it should declare that immediate steps are necessary to address each of the major barriers to universal broadband adoption and maximum utilization. Second, it should recognize that the immediate steps are just the beginning of what must be a long-term commitment to broadband adoption.

There is a wide-range of available technology, education and community-development programs available that can become the vehicle for the broadband adoption initiative. As with

the FCC programs to address the barriers most directly subject to its jurisdiction, the agencies addressing the other barriers should immediately add promotion of broadband adoption to the goals of the most appropriate existing programs and evaluate their performance to arrive at the most effective approaches.

The empirical evidence supports the Congressional decision to set a bold goal for universal access and maximum utilization of broadband. The call for a comprehensive National Broadband Plan reflects a recognition of the importance and difficulty of achieving the goal. Congress could not have expected the problem to be solved over night, nor could it have believed that the funds allocated in the ARRA alone would be enough to do the job. It did expect the FCC and the other federal agencies with the jurisdiction and expertise to begin working on the solution immediately, to use the funds allocated to good effect, and to identify the additional steps necessary to accomplish the ultimate goal

IV. ANSWERS TO THE FCC QUESTIONS

1. Measuring Broadband Adoption: The Recovery Act requires that the NBP include a detailed strategy for achieving maximum utilization of broadband infrastructure and service. Maximum utilization can only be achieved by increasing broadband adoption rates. As the Commission establishes goals to maximize utilization of broadband, how should we measure adoption? Adoption statistics often focus on individual or household subscription rates. Is that the best way to measure adoption? If not, what are the alternatives?

Digital inclusion is an extension of the goal of universal service in telecommunications policy. Since the Communications Act of 1934, we have generally defined universal service as the adoption by all households of telephone service. The Telecommunications Act of 1996 explicitly envisions the extension of this concept to advanced telecommunications and

information services, of which broadband is a perfect example.

Household subscription is the standard that historically has been used to measure universal service and it is the correct standard to use to assess broadband adoption.

a. Is someone who frequently accesses broadband at work or in the library, but not at home, an "adopter?" Is the use of a web-enabled smart phone sufficient to make someone an "adopter" of broadband?

Use of the broadband Internet has become so pervasive across all aspects of daily life – economic, social cultural, and civic – that one must conclude that individuals forced to conduct all these activities in public places will be severely constrained in their ability it to fully participate in 21st century society. These institutional settings can provide an occasional opportunity to address the most severe impact of digital exclusion, but they cannot be considered adequate for routine and ongoing access to activity in cyberspace.

At the same time, these institutions can play a vital role in promoting broadband adoption. Broadband adoption requires not only physical access to connections points and the material resources to obtain access, but also motivational interest and functional capabilities to use the technology. Libraries, technology centers and similar locations are ideal environments to expose the digitally excluded to the new technology because the staff has experience with the technology and the portfolio to assist users. Therefore, they are contexts in which key skills can be learned and the value of the technology can be made evident.

b. Should adoption be measured more by the manner, type or frequency of use of certain types of applications? If so, will those applications be standard across all groups of people?

Use is the ultimate measure of adoption. Universal service in telecommunications was never measured as the mere availability of telephone service to the household; it was always

measured by subscription to the service. Given the nature of telephone service and the approach to pricing (i.e. flat rate local service) once a household subscribed, it could be reasonably assumed that usage would follow. For full participation in digital communications, the question of usage requires closer scrutiny. The nature of digital communications is more complex and the uses of digital communications are more varied than plain old telephone service.

Rather than focus on specific applications, however, the FCC should look to broad categories of types of activities that have been deeply affected by digital communications. Ranked in order of their "policy" relevance as compelling reasons to support universal service, the categories of activities include entertainment, information gathering, personal communications, economic opportunity, civic participation, and creative production.

Further, as the agency that has been charged with drawing up the national broadband plan, the FCC should be cognizant of both the broad scope of impact of broadband and the narrow jurisdiction of federal agencies. The FCC should not restrict its vision to the policies that reside within its jurisdiction. If the FCC identifies specific barriers to broadband adoption that are beyond its reach as the regulator of communications services, it should flag the problem and identify potential solutions in the jurisdiction of other federal agencies or recommend legislation to Congress to create the authority needed to address the problem if no such authority exists at present.

However, recognizing the limits of the FCC authority to address the broad range of issues that affect broadband adoption should not be a justification for inaction. There are key elements of a policy to promote digital inclusion that fall squarely within the scope of FCC authority. Indeed, some of the most important, necessary conditions for broadband adoption – the

availability and affordability of service – are at the core of the FCC's mission. The fact that improving these two conditions alone might not solve the entire problem should not be seen as an excuse to do nothing. Improving the availability and affordability of broadband service will improve broadband adoption, without any other actions. The impact of other policies that address the motivation and ability to use broadband service, which are also important determinants of broadband adoption, will be magnified, if the availability and affordability of service have been improved by FCC policy. Thus, FCC policy to promote availability and affordability will contribute directly to broadband adoption.

c. If we measure adoption using some metric or combination of metrics other than home penetration, how can we benchmark improvements over time?

For the reasons stated above, the FCC should use home adoption as the metric to measure broadband adoption.

2. Cost of digital exclusion. **The Commission would like to understand the costs faced by individual consumers who do not adopt broadband as well as the societal costs of having a large portion of society that remains un-connected to broadband.**

a. How can the Commission best quantify the costs faced by non-adopters?

The Commission can certainly conclude, as demonstrated in the attached study, that the dramatic differences in the level of activity in cyberspace between those who have adopted broadband at home and those who have not impose a severe cost on the digitally excluded. It can also demonstrate that the differences in cyberspace between the connected and the disconnected are larger than the difference in physical space. In other words, digital exclusion results in digital deprivation and increases social inequality.

Such a demonstration is an adequate basis to justify policies that close the digital divide and promote digital inclusion. Efforts to monetize the value of digital inclusion will be difficult

for several reasons, nor are they called for under the statute.

First, the Communications Act of 1934, as amended by the Telecommunications Act of 1996, makes no mention of a cost benefit test that should be applied to policies to promote universal service. The FCC is charged with ensuring advanced communications and information services that are deemed worthy of universal service support are affordable and available across geographic and demographic groups in a manner such that they reasonably comparable services are priced in a reasonably comparable manner.

Second, many of the activities from which the disconnected are excluded are civic, cultural and political, rather than economic. It is inherently difficult to place a monetary value on sending a letter to the editor, signing a petition, visiting a web site to gather information, or posting a comment on blogs, but these are deemed essential parts of citizen participation on civic life.

Third, while it is possible to identify large direct economic benefits of broadband adoption, a significant part of the economic impact of general purpose technologies, like the set of information and communications technologies that constitute digital communications, is intangible, embodied in network and spillover effects and changes in the organizational structure that result shift the entire production function, rather than create movement along an existing function.

Fourth, the value of the benefits of economic activity in cyberspace is widely recognized, but difficult to quantify and the value of activities to people at different levels of income varies. A dollar of value delivered to a lower income household has a bigger impact, on a relative basis, than a dollar of value delivered to an upper income household.

Thus, efforts to quantify benefits must not only reflect the full range of benefits, their importance to the affected households, as well as the nation, they must also recognize that there are many non-quantifiable benefits that do not enter into the calculation.

b. Do these costs vary by demographic or other factors?

Not only do the costs vary by demographic and other factors, but the benefit also vary by these factors.

c. Which of these costs absolutely depend on broadband technology rather than access to the Internet more generally?

Broadband is now the standard for access. Dial-up access is disappearing rapidly because the network and its services are now designed with broadband in mind. Thus, it is no longer possible to participate fully in cyberspace with less than broadband service.

d. Which of these costs absolutely depend on access at home (fixed or mobile)?

For the reasons stated in response to question 1, the availability of broadband in public places cannot be seen as a measure of adoption. The distinction between fixed and mobile is irrelevant, as long as the mobile access technology can support the use of the network that is adequate to support the activities that are deemed to be essential elements of service. Moreover, just as mobile communications have become a key component of the 21st century communications environment, mobile computer is likely to become a key component of the digital ecology. Mobile broadband is an extremely attractive technology because it can meet the needs for broadband and mobility, as long as the technology delivers "adequate" functionality to conduct activities in cyberspace.

e. Are there certain minimum hardware requirements necessary for an individual to overcome the costs of exclusion?

The statue requires reasonably comparable services are reasonably comparable rates.

Therefore, the typical level of service that is subscribed to is the standard to which universal service aspires. As the network evolves to higher levels of functionality, so too should the universal service standard. That is the approach that was implicit in the Communications Act when it defined the outcome as "adequate" facilities at reasonable charges for sixty years. This approach was made explicit in the Telecommunications Act of 1996.

f. What societal benefits are foregone, when a large group of the population has not adopted broadband? We seek input on how to frame this issue (what are the categories of societal costs and benefits) and how to measure it.

The Congress has identified the range of activities that are at the center of the concern about broadband adoption and use. The list of activities offered by Congress is supported by the social science literature – 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. Broadband delivers significant societal benefits in all of these areas.

Individuals are harmed and society is diminished when the people of the United States are unable to access and use broadband to undertake the activities targeted by congress. The study in the Appendix identifies a large number of the recent empirical studies that demonstrate the Congress was correct in its concerns about these activities. For legal and empirical reasons, the FCC should accept this list and the conclusion that universal broadband adoption and maximum broadband utilization will promote the welfare of the public because it will improve societal performance in all of these areas.

3. Barriers to adoption. The Commission wishes to further understand the reasons why some consumers, who have access to broadband, do not adopt. The 2009 Pew

Broadband Adoption Study found, generally, that relevance, price, availability, and usability were the main reasons cited for not using broadband at home. Based on this and other research and comments filed in the record, the Commission believes that the primary barriers non-adopters face include: affordability of service, affordability of hardware, insufficient digital and technical literacy levels, unawareness of the personal relevance and utility of broadband technology and online content and an inability to use existing technology and applications due to physical or mental disabilities.[5]

a. Is this an accurate and comprehensive list of barriers faced by non-adopters?

The barriers to adoption are well-known and a consensus has emerged around a basic set of resources that are necessary to enable a household to adopt. Four broad categories of barriers are clear in the literature – availability, affordability, skills and interest. Since the digitally excluded tend to be lower income households and less well-educated the barriers tend to overlap.

Half of the respondents to a recent survey who do not have Internet or broadband at home identify one of these four factors as the main reason they do not have broadband. One-fifth did not have interest in the service; one-seventh cited cost as the problem; one-seventh said they did not have the service available; one-twentieth said they did not have the necessary skills. The only one of these numbers that can be tested with other, objective data is the percentage who said the service was not available. They constituted 4 percent of the total sample, which is reasonable.

b. Do concerns about consumer protection such as privacy/anonymity, ID theft, child protection, viruses and data preservation, etc. pose a significant barrier to adoption?

Generally no. The one-quarter of respondents who did not cite any of the four major causes of non-adoption did not cite these factors as the reason they had not adopted service. Less than one half of one percent cited these factors. More refined understanding of the causes of non-adoption would be useful, but the FCC has more than enough data to move forward to address the general causes of non-adoption.

c. Are non-adopters influenced by a lack of clear, accurate, and sufficient information available to them about broadband service offerings and price?

As described above, respondents to national survey's who do not have the Internet at home generally give precise responses about why they do not have the Internet that generally fall into one of the four major categories identified above. To the extent that a lack of interest reflects a lack of appreciation of the technology, the problem may one of education, not just information.

d. Which groups are least likely to understand the relevance of broadband? For groups that already understand the relevance but face other barriers, how did they become aware of the relevance and benefit of broadband to their lives?

The problem is not just the lack of sufficient information about what is out there; it may be a lack of content and applications that are directly relevant to their daily lives.

e. How do these and other barriers affect specific populations or demographic groups and to what extent do specific populations or demographic groups face multiple barriers?

The econometric evidence indicates that, statistically speaking, it is a combination of barriers that suppresses the adoption rate and the lack of utilization of the Internet. Moreover, it is important to see the lack of adoption and use as the failure to adopt the entire technology set necessary to use the Internet. Above all, the lack of use of computers is a key factor in the lack of broadband at home and the resulting lack of use of the Internet. Moreover, there are a small set of background characteristics that are associated with a lack of adoption of the technology. Age, income and education are the master background variables that affect computer use, broadband adoption and Internet utilization. Race/ethnicity also play a role, but controlling for income and education shows that a large part of the effect of race and ethnicity is through their impact on income and education. Because people of color tend to have lower incomes and less educations, in America, the racial and ethnic dimension of digital exclusion overlap are

accounted for by the income and education factors. The influence of gender on access and use has declined over time, although it continues be important in some aspects of use. Rural location is a lesser factor that consistently affects the three key technology adoption measures. Rural location is probably acting, in part, as a proxy for a lack of availability.

The sociological model for policy intervention is clear. Policies to increase the technology resources available for older, low income, lesser-educated, rural and black households will target the groups most likely not to have adopted or utilize broadband. The concept of resources needs to be broadly defined to include the material resources necessary to acquire both the hardware and communications services needed to adopt broadband, the skills necessary to use the service, and an understanding of the value of the service to the household.

f. In proposing recommendations to address these barriers, should the Commission prioritize among barriers? For example, should the Commission prioritize based on the amount of resources needed to address the barrier? Is there a better way to prioritize recommendations?

The four major barriers to adoption should be addressed at the same time because they interact and overlap. If the policy targets one barrier and neglects the others, the results will be disappointing. The FCC needs to approach this important and complex problem broadly and in the long-term. Some of the barriers to adoption and utilization are related to communications infrastructure that lies squarely within its jurisdiction. However, some of the barriers affect social capital and resources that lie beyond its jurisdiction. The Congress charged the FCC with coming up with a National Broadband Plan that covers all barriers and agencies. The FCC would fail to do the job Congress assigned it in the ARRA, if it shies away from identifying the full range of actions necessary to achieve the goal of universal broadband access and maximum utilization. The FCC would fail to do the job Congress assigned it in the Communications Act, if

it does not move swiftly to use the authority it has to implement policies that would promote broadband adoption.

Having identified the barriers to adoption and use, the FCC should identify the agencies that have the jurisdiction or expertise to best implement policies to overcome the barriers and, because it was chosen to conduct the initial study of broadband adoption, it should present its understanding of what those policies should be. These recommendations should be given great weight by the other agencies.

At the same time, the FCC should immediately institute policies to begin overcoming the barriers that fall within its jurisdiction. Its organic statute gives it the authority and its existing universal service programs (lifeline, link up, high cost fund, etc.) give it the resources to begin addressing the availability and affordability barriers immediately.

4. Overcoming barriers to adoption. As the Commission develops recommendations to maximize broadband adoption and utilization how can it remedy each barrier faced by non-adopters?

As the agency with oversight over the nation's communications network, the Commission must play an active role in overcoming the barriers to broadband adoption and use. It has existing authority and non-budgetary resources to implement programs to address the barriers that fall within its jurisdiction.

Availability:

Use high cost funds to promote the deployment of least cost technologies that provide "adequate" service at affordable rates.

Manage the spectrum to promote ubiquitous, availability of wireless broadband at affordable rates, including policies to ensure rapid development of spectrum licenses purchased

at auction by private parties and the dedication of a portion of the spectrum to unlicensed use on a national scale with both a set-aside of spectrum nationwide and rules that promote the utilization of white spaces for broadband deployment.

Recommend that e-rate anchor institutions become hot spots providing low cost access in areas where broadband adoption is below the national average.

Promote a division of labor between the Rural Utility Service and the FCC in allocating resources to ensure universal availability of affordable broadband service.

Affordability:

Use lifeline and link up funds to lower the cost of broadband for low-income households, including the construction of fiber highways to lower the cost of service.

Promote middle mile capacity and competition to lower costs and increase availability (including reform of special access).

Household Technology Resources

The skill and interest barriers require broad programs of education and application development. The Commission should recognize the importance of anchor institutions – school, libraries, technology centers and other community-based organizations – as the focal point for improving the technology skills and interest of non-adopters. The Commission should call on other agencies (Agriculture, Housing and Urban Development, Health and Human Services, Education, Commerce) quickly task existing programs with commencing broadband adoption initiatives.

a. Many parties have suggested that the Commission utilize the Lifeline and Link Up programs to support broadband connection charges, devices and service costs for low-income consumers. What other specific federal policies or programs to address affordability of service and hardware should the Commission consider recommending?

i. Should the Federal government support the cost of broadband service and associated hardware for low-income consumers through vouchers, tax incentives, or low interest loans? Should support or tax incentives be aimed at consumers, service providers, hardware providers or other parties?

ii. Many broadband providers bundle service offerings. How should bundled services be taken into account in developing recommendations focused on the affordability of broadband service?

iii. Should the Federal government offer a broadband hardware purchase program, similar to computer purchase programs offered by other countries through which the government would purchase hardware aggregately at a discount and then re-sell the hardware to low-income consumers? Should the government encourage state governments, private industry or other parties to offer such programs?

iv. Should the federal government find ways to incentivize private hardware donations? What are the benefits and limitations of refurbished hardware programs?

v. Should programs aimed at reducing the cost of hardware be limited to certain types of hardware?

vi. How else can broadband hardware and service be made more affordable to low-income consumers?

Until the Commission begins using the lifeline and link up programs to support broadband adoption it will have no way of knowing what additional resources are necessary (i.e. the magnitude of the discount necessary to address affordability issues). The first step should be to launch the lifeline and link up support with aggressive efforts to increase adoption and careful analysis of the impact of those efforts to scope out the magnitude of support needed. The magnitude of the discount in the lifeline and link up programs that support telephone universal service have evolved over time.

To maximize the impact of the subsidization of access, the Commission should make the support directly available to consumers for service. The further removed from the consumer, or the more complex the subsidy is, the smaller the effect is likely to be. A voucher program

ensures the consumer gets the benefit and it preserves competitive forces in the marketplace, to the extent that they exist. Transferring funds to network operators that are not tied directly to the adoption of broadband will simply increase the rate of profit of the service providers. Previous attempts to give generalized incentives to network operators in an effort to promote universal broadband service have failed miserably. Loan subsidies assume consumers have the necessary resources to expend and tax benefits assume they have tax liabilities to offset.

b. Many non-adopters report that they do not have the skills to use broadband. What programs and policies should the federal government adopt to educate consumers and increase technology and digital literacy skills to ensure that individuals have sufficient ability to use hardware and navigate and process digital information and broadband-enabled applications?

i. Should the government establish nationwide standards for digital literacy? How would such standards be measured?

ii. Many states have started to implement digital literacy standards and curricula. Should the federal government do more to standardize these initiatives? How can the federal government ensure that individuals no longer in school acquire and maintain these skills?

iii. Should the federal government create a national digital literacy corps comprised of individuals who conduct outreach and training programs in communities with very low adoption rates?

iv. Should some sort of national help desk be created to assist individuals with basic technical questions?

Federal policy should focus on raising the level of skills in the non-adopting population. The effort to set national standards adds little. Many current adopters would likely not pass such a standard. The workforce best suited to reach and teach the target groups is local, rather than national.

c. The Pew study found that 50% of non-adopters cite reasons that can be classified as lack of relevance as their primary reason for not using broadband. Should the federal government do more to help non-adopters understand how broadband is relevant to them?

i. Would a federal outreach campaign utilizing multiple types of media to disperse information about broadband, including its relevance and utility, be effective in increasing adoption and usage rates? What are the best mechanisms to reach specific groups of non-adopters? Are certain types of media more effective than others? Are there community institutions or other organizations who could serve as effective partners to help reach particular groups with below average adoption rates (including but not limited to: Seniors, low-income, African-Americans, non-English speaking, Tribal, persons with disabilities)?

ii. What types of messaging should a federal outreach campaign include? Would the inclusion of information about how to protect individual privacy and against other online risks in such a campaign be effective in increasing adoption and usage rates?

iii. What, if any, information about broadband would be better dispersed at the state, local or Tribal level?

iv. How can the Federal government, private industry, and other governmental and non-governmental entities help spur the creation of relevant content and applications for population and demographic groups that include high rates of non-adoption?

Our review of the data finds interest to be substantially less than half, but still a significant part of the problem. Unfortunately, the framing of the questions seems to presume that the respondents do not understand the technology. In fact, it may well be that the technology (or those developing and deploying it) does not understand the respondents. That is, the technology does not deliver applications and content that are attentive to the needs of the respondents. Moreover, the questions imply that what is needed is some sort of push advertising campaign from the government to better inform non-adopters. On both counts a more productive framing may be to approach the problem as the need for a community-based pull campaign. The educational effort needs to come from the community and emphasize needs and approaches that are relevant to the community. Here the anchor institutions can play a vital role to develop outreach, and educational materials, as well as community-relevant applications.

d. For each program or policy recommendation above or newly proposed, please consider and comment on the following issues:

i. Are there existing federal programs that can be modified to implement the

recommendation?

ii. What would the program cost to implement, and what expenses would be covered by the program?

iii. How should these programs be funded? Are there other federal expenditures that broadband adoption and use could reduce or eliminate to defray some or all of the costs of new programs?

iv. Should eligibility to participate be limited to certain populations, and if so, how?

v. If new federal programs and policies need to be established, what are they, and which federal agencies or departments are best positioned to administer these programs or policies?

e. What role should state, local or Tribal governments have in developing and administering adoption programs and how should the federal government encourage such involvement?

f. What role should private industry have in developing and administering adoption programs and how should the federal government encourage such involvement?

g. What role should non-profits have in developing and administering adoption programs and how should the federal government encourage such involvement?

h. How should the success of each program or policy be measured, what data is necessary to evaluate success and how should such data be collected?

5. Learning from existing programs. As we consider which recommendations to maximize adoption and utilization should be included in the National Broadband Plan, the Commission would like to rely on data and lessons learned from existing demand stimulation efforts. The Commission asks all parties to submit any quantitative data, studies, or analyses regarding both successful and unsuccessful programmatic efforts to address broadband adoption and usage. Although anecdotal information may be helpful, such data beyond anecdotal information will better enable the Commission to make specific policy recommendations.

For each program, please address, where possible:

a. What are the program goals? Does the program focus on a specific barrier, such as digital literacy, or does it address multiple barriers, for example, by providing free or discounted equipment and service in conjunction with skills training and education about relevance?

b. What state, local or Tribal governmental entities were involved? What entities from the private and non-profit sectors were involved?

c. How successful has the program been, and how was success measured?

d. For programs that include digital literacy training, what is the curriculum? Which of the following categories of digital literacy subject matter are addressed by the program?

i. hardware usage

ii. software and applications usage

iii. web navigation

iv. managing and assessing the quality of online content

v. purchase of hardware (specs) and broadband service that fit the program participant's technology needs and budget

e. If the program is focused on digital literacy or includes specific content or applications is it customized for particular groups?

f. How many consumers and what size community are served by the program? Is the program focused on particular demographics or special groups, such as the elderly, persons with disabilities, Indian tribe members, or non-English-speaking populations, or is it offered to the general public?

g. To how many participants and to what size community or geographic area could this program be effectively scaled, if at all?

h. What are the program costs, in total and per participant? What is provided for these costs? For example, do these costs cover any equipment that participants may take home with them, either during the program's duration or permanently?

i. What challenges did the program experience?

j. What, if any, consensus is there among existing adoption programs, locally or nationally, on best

Because of a long period of inaction, the U.S. lacks experience with specific policies to promote broadband adoption and address the problem of digital exclusion. The U.S. does have existing programs within the FCC and other federal agencies that address similar and even related problems. To answer these questions the U.S. needs to gain real world experience by funding a variety of approaches to promoting broadband adoption. It should include in the initial

programs a strong evaluation component so that it can rapidly adjust the program to achieve maximum effectiveness. The evaluation should recognize the qualitative nature of several of the barriers to broadband adoption and the fact that the modification of attitudes and skills requires time.