

**MOVING THE NEEDLE ON BROADBAND:
STIMULUS STRATEGIES TO SPUR ADOPTION
AND EXTEND ACCESS ACROSS AMERICA**

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National Cable &
Telecommunications Association
25 Massachusetts Avenue, NW
Suite 100
Washington, DC 20001-1431

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EXECUTIVE SUMMARY

It is widely understood that broadband is a crucial driver of economic recovery and global competitiveness. The broadband funding programs established by Congress in the American Recovery and Reinvestment Act (ARRA) can help foster these goals. In particular, these programs can help bring broadband to the small percentage of the nation's homes with no physical access to broadband and overcome other barriers to adoption – such as affordability, the lack of a computer or other equipment needed to connect to the Internet, and low levels of basic “digital literacy.”

In order to best address these issues and to ensure that broadband fulfills its full promise as an engine of job creation, a facilitator of educational and healthcare opportunities, and a means of shrinking the distances between isolated communities, the ARRA's broadband grant and loan programs should be implemented with the following basic principles:

- Funds should be used to increase broadband adoption and use;
- Awards should be competitively and technologically neutral so as not to create disincentives to private investment that necessarily will continue to take the lead in broadband deployment
- Value-producing projects that can be implemented quickly should receive the highest priority; and,
- Implementation should be transparent and coordinated with other agencies providing similar aid.

In deploying the stimulus funds, care must also be taken so that the program will do no harm to the fabric of the broadband industry, which on its own has already invested hundreds of billions of dollars on broadband networks and services – far in excess of the substantial broadband subsidy programs in the stimulus package.

With these principles in mind, the foremost priorities in awarding competitive grants, in descending order, should be:

1. Extending broadband facilities to *unserved areas*.
2. Supporting programs that enable *underserved populations* to acquire and to make effective use of broadband service where it is already available.
3. If funds remain, extending broadband facilities to *underserved areas* defined in terms of below-standard speed and other qualitative measures relative to today's current-generation broadband services.

Unserved Areas: Approximately 9-10 million households, typically in rural communities, lack access to broadband services. Devoting grants to extending broadband coverage to these unserved areas should be a high priority.

Underserved Populations: At the same time, an additional 35 million households have access to broadband, but do not currently use this service. Many of these households are relatively low income, and only 30 percent have more than a high school education. Demand-side stimulus investment programs that promote the use of broadband among these underserved populations therefore also serve an important purpose.

Underserved Areas: Finally, there are households in underserved areas – areas in which broadband service is available, but not at speeds generally available throughout the rest of the country. In these areas, the government should proceed with caution. The need for subsidy in these underserved areas is not as great as in unserved areas or for underserved *populations*, and subsidizing infrastructure in these areas runs the risk of subverting the commercial deployment already taking place. Subsidies to these underserved areas should therefore be carefully structured so as not to favor one technology over another, one provider over another, the public sector over the private sector, or otherwise upset marketplace dynamics.

Under these conditions, the broadband grant programs promise great short and long-term benefits to the American economy. The \$7 billion program has the potential to do a tremendous amount of good, and the cable industry supports the federal government's efforts to use these funds to expand broadband access and spur adoption.

INTRODUCTION

Broadband technology, as Congress, the FCC and others have recognized, is a key driver of economic growth. Grants to promote the use of broadband thus effectively stimulate both short-term and longer-term economic growth.

The cable industry is at the forefront of a vibrant marketplace that has been responsible for the explosive growth in both broadband deployment and broadband use in the country. In sharp contrast to the situation only a decade ago, today more than 92 percent of American households have access to wired broadband services,¹ and the cable industry alone has spent tens of billions of dollars upgrading and expanding its networks to provide this broadband access.² Even in challenging times for the nation's economy, the cable industry continues to make very significant capital investments in order to increase broadband deployment and improve current generation broadband service -- improving upstream and downstream speeds, as well as improving reliability and ease of use.

As the largest provider of retail broadband service in the U.S., the cable industry has a significant interest in the success of grant programs designed to promote broadband use. All broadband customers and providers benefit indirectly from an effective grant program, since the more households and businesses that connect to broadband, the more valuable it is to all broadband consumers.

Cable's interest -- and sound public policy -- are implicated by the nature of the grant programs in a more profound way as well. The \$7 billion program has the potential to do a

¹ SNL Kagan data (2008).

² NCTA figures based upon SNL Kagan estimates, *available at* <http://www.ncta.com/Stats/InfrastructureExpense.aspx>. Between 1996 and 2008 cable operators have invested more than \$145 billion in capital to enhance their hybrid fiber-coaxial networks and other infrastructure, including approximately \$14.6 billion in 2008. A similar level of capital expenditures is estimated for 2009.

tremendous amount of good, and we support the federal government's efforts to use these funds to expand broadband access and spur adoption. It is also true, however, that these funds must be viewed in the context of a vastly larger capital requirement if we are to achieve full broadband construction and maintenance for the country. The cable industry alone spent twice that \$7 billion amount in just the past year to upgrade its facilities. Most of the investment necessary to provide and then to maintain broadband service has and will come from the private sector. As a result, a critical consideration in devising a sound program is that the program not harm the investment fabric of the broadband industry. A successful program must supplement, and not distort, the growing private, competitive market for broadband services. Stated simply, the grant program must not only weigh the needs for stimulus over the next 24 months, it must also seriously consider the effect that grants will have on the future of broadband services in this nation.

We therefore propose that the Commerce and Agriculture Department programs be designed to implement the following four principles, each of which is equally important:

First, the grants should be used to increase broadband adoption and use;

Second, the grants should be competitively and technologically neutral so as not to affect the private marketplace that must continue to take the lead in broadband deployment;

Third, the grants should further the statutory goal of economic stimulus, that is, they should fund value-producing projects that can be implemented quickly and create new jobs; and

Fourth, it is essential, as well as statutorily mandated, that the grant-making programs be transparent, accountable, and coordinated with other agencies providing similar aid.

With these principles in mind, the priorities in awarding competitive grants, in descending order, should be:

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Given the limited amounts of funds available relative to need, these priorities should be strictly observed.

PRINCIPAL PRIORITIES IN AWARDING COMPETITIVE GRANTS

A. Extending broadband facilities to unserved areas.

Extending the physical availability of broadband where it currently does not exist should be the government's highest priority in terms of distributing broadband grants for infrastructure construction.³ While the number of consumers with access to broadband has grown steadily over the past five years,⁴ some geographic areas still lack the necessary infrastructure to offer broadband services. In particular, without government assistance, "[t]he economic costs and technological limitations blocking the expansion of broadband leave many rural communities underserved" and often unserved.⁵ Thus, to meet the stimulus plan's goal of extending broadband to unserved areas, agencies should distribute grants so that new infrastructure is constructed in areas where none exists.

Although it is difficult to develop a precise and accurate count, approximately 9-10 million households lack access to broadband services.⁶ Of these 9-10 million households, the

³ In defining geographic areas that represent "unserved areas," agencies should rely on the FCC's definition of broadband which would denote areas where there is not at least one provider providing Internet access service of at least 200 kbps in one direction.

⁴ John B. Horrigan, Home Broadband Adoption 2008 at 1 (Pew) (July 2008) ("Horrigan").

⁵ Jon M. Peha, Bringing Broadband to Unserved Communities at 11, The Hamilton Project (The Brookings Institution) (July 2008) ("Peha").

⁶ *Id.*

bulk is in rural communities.⁷ All told, “perhaps a third of rural households” lack broadband access.⁸ A study recently published under the auspices of the Columbia University Institute for Tele-Information, using data derived from the FCC and the Census Bureau, reflects these realities.

States Identified for “Unserved and Underserved” Targeting⁹

State	Percent of Residential unserved <93%	Number of Lines	Households	Household Penetration	Population	Population Penetration
Alabama	92%	808,291	2,137,018	38 %	4,627,851	17 %
Arkansas	75%	532,171	1,287,429	41 %	2,834,797	19 %
Georgia	92%	2,296,983	3,961,474	58 %	9,544,750	24 %
Indiana	92%	1,206,274	2,778,394	43 %	6,345,289	19 %
Iowa	90%	581,263	1,329,596	44 %	2,988,046	19 %
Kansas	91%	680,270	1,219,439	56 %	2,775,997	25 %
Kentucky	91%	843,641	1,906,096	44 %	4,241,474	20 %
Maine	93%	288,491	696,611	41 %	1,317,207	22 %
Mississippi	91%	384,772	1,254,908	31 %	2,918,785	13 %
Montana	88%	185,251	435,533	43 %	957,861	19 %
Nebraska	93%	406,674	780,804	52 %	1,774,571	23 %
New Mexico	82%	343,568	862,067	40 %	1,969,915	17 %
North Dakota	88%	137,207	310,548	44 %	639,715	21 %
Oklahoma	91%	815,765	1,623,010	50 %	3,617,316	23 %
Pennsylvania	93%	2,852,177	5,477,864	52 %	12,432,792	23 %
South Carolina	92%	844,013	2,021,947	42 %	4,407,709	19 %
South Dakota	80%	160,821	357,240	45 %	796,214	20 %
West Virginia	84%	297,852	882,685	34 %	1,812,035	16 %
TOTAL		13,665,484	29,322,663	47 %	66,002,324	21 %

Source: FCC table 14 of HSPD1207; US Census Bureau

As this chart reflects in its first two columns, there are 18 states in which the percentage of homes with access to broadband service from at least one provider is below 94 percent.¹⁰

More pertinent still, as reflected in the fifth column titled “Household Penetration,” on average

⁷ *Id.* at 11-12.

⁸ *Id.* at 5, 9 fig.3.

⁹ Raul Katz and Stephan Suter, Estimating the Economic Impact of the Broadband Stimulus Plan (Feb. 2009), at 18.

¹⁰ In addition to the states noted, additional states such as Vermont, Alaska and Nevada also contain many households either without access to even one broadband provider or without robust penetration rates, states which are not represented in the table because of limitations in the underlying FCC data.

well under 50 percent of the households in these states actually subscribe to a broadband service, less than the national average of 61 percent.¹¹

The reason for this disparity between availability and adoption in these states is not that rural communities are less interested in the Internet. To the contrary, the fraction of rural households subscribing to *any* Internet service is just below the national average. The difference is that rural users rely far more on dial-up -- often all that is readily available (although satellite broadband is also fairly widely marketed) -- and far less on broadband to access the Internet.¹²

The stimulus plan calls for grants to encourage investments that would not otherwise be made in a particular geographic area, and for grants where they will be “efficient and expeditious.”¹³ Among unserved geographic areas, subsidies therefore should be targeted first to areas in which service would not otherwise be provided and that could support the ongoing costs of providing broadband service if government funded the costs of the underlying infrastructure. Underwriting the capital cost of facilities in areas without sufficient demand creates a significant risk that government funds may be diverted to the construction of facilities that ultimately must be abandoned because providers are unable to recoup the operating costs of providing service.

Unfortunately, it is challenging to identify with precision which areas are “unserved.” The stimulus bill’s requirement for extensive mapping of broadband availability will ultimately provide a better estimate of access, but unfortunately most of that mapping will be incomplete while grants are still being processed.¹⁴ In the meantime, however, grant allocations should take into account the actual number of households that a given broadband plan will affect, factoring in

¹¹ NCTA estimate based on SNL Kagan Data (2008).

¹² Peha, at 9-10.

¹³ The American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 6001(e)(3), 123 Stat. 115, 512-13 (2009).

¹⁴ The cable industry strongly supports the cooperative mapping exercise set out in the law. These mapping projects should be given a priority: the more quickly accurate mapping information is available, the more productively the remainder of the grant funds can be distributed.

the limitations of the data.¹⁵ The obligation should fall to all applicants for grants to demonstrate the number of households that currently lack any access to broadband services, and the specific number of households that would have access to broadband for the first time as the result of awarding the grant.

Moreover, and as we describe in more detail below,¹⁶ for grants to be put to use expeditiously, they should not be subject to conditions that call for technology that is beyond current generation of broadband technology. In particular, practically deliverable broadband capacity has consistently increased over the years, and will continue to increase going forward. It would be inconsistent with the goal of rapid stimulus, however, to condition grants on a level of performance that is not generally available today, which, in the case of broadband speed, is approximately a maximum of 3-6 Mbps downstream and 500-1000 kbps upstream depending on the technology involved. As the House-Senate conferees on the ARRA recognized, establishing too high a bar for eligibility could have the perverse effect of deterring investment, depriving those areas of jobs in building out broadband and perpetuating the lack of broadband service rather than remedying it.¹⁷

B. Supporting programs that enable underserved populations to acquire and to make effective use of broadband service where it is available.

Merely providing broadband access does not necessarily mean that customers will subscribe to it. The larger problem is that many consumers fail to subscribe to broadband service even when it is available. For too many of the 92 percent of households in the United States¹⁸ that have access to broadband services, and for many of the remaining households that could receive access through effective grant programs, there is a demand-side problem. Specifically,

¹⁵ In less populous states, assessments of relative populations served may also be appropriate.

¹⁶ See *infra* pp. 12-13.

¹⁷ H. Conf. Rep. 111-16 (2009) at 775.

only about 61 percent of U.S. households subscribe to broadband service,¹⁹ and 70 percent of households headed by someone under 65 years of age receive broadband service.²⁰ An effective grant program therefore should address the reasons why particular populations choose not to subscribe even when broadband is available.

Two key obstacles -- lack of interest and lack of resources -- greatly affect whether Americans subscribe to broadband. It should be no surprise that Congress has therefore directed that a significant amount of resources be directed to promoting broadband awareness and adoption by these underserved populations. Indeed, this is the *principal* area in which Congress has expressly mandated that funds be spent, underscoring its priority. The plain legislative intent is that the mandated amount is the bare minimum that should be directed to demand-side stimulus, with no indication that Congress intended to impose any upper limit on such expenditures.

These obstacles are acutely present in low-income and low-education households.²¹ One consequence is that the rural poor suffer a double whammy -- not only are many rural areas unserved, but low-income households underutilize broadband even when it is available. As the following chart illustrates, a sensible grant program would target these populations and the barriers that prevent them from receiving the benefits of broadband:

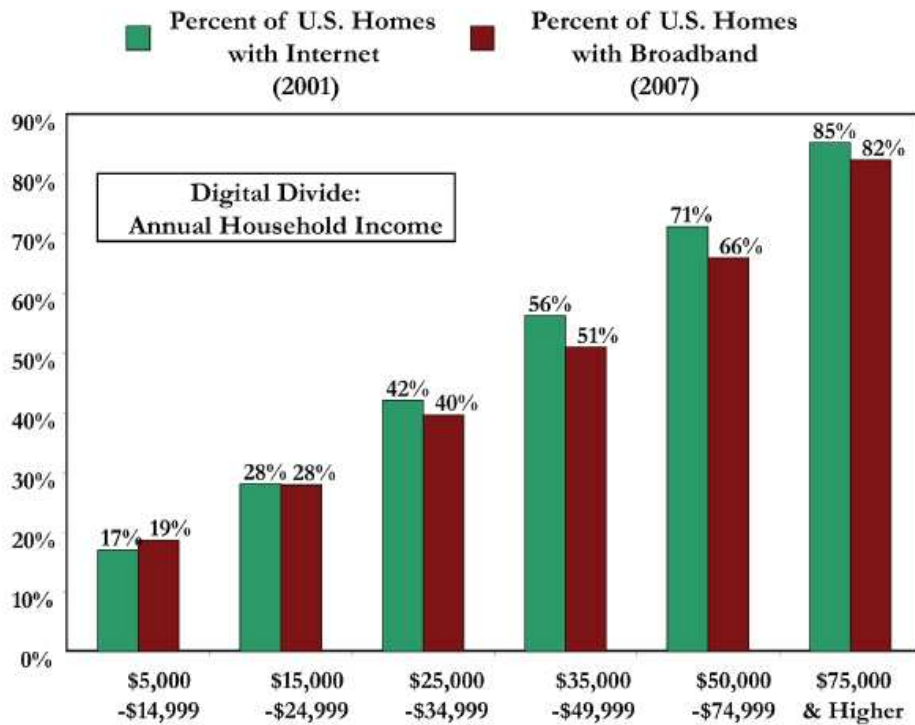
¹⁸ See *supra* n. 1.

¹⁹ See *supra* n. 11.

²⁰ NCTA estimate based on: U.S. Census data, American Housing Survey for the United States (2007); National Information and Telecommunications Administration, Households using the Internet In and Outside the Home, By Selected Characteristics: Total, Urban, Rural, Principal City (2007) (http://www.ntia.doc.gov/reports/2008/Table_HouseholdInternet2007.pdf).

²¹ Peha, at 5 (low broadband penetration in households with total income under \$30,000).

The Economic Broadband Divide (2001 & 2007)²²



Source: U.S. Census Bureau, 2007.

To address demand, it is of course first necessary to understand the reasons for the lack of demand. Researchers studying broadband access have concluded that “lack of interest” in broadband is the main reason that people do not purchase the service.²³ Indeed, about one-quarter of adult Americans do not use the Internet at all; these individuals are disproportionately lower-income and older than average Internet users.²⁴

This lack of use appears to stem from lack of familiarity. Most non-broadband households view broadband as being either irrelevant or difficult to use.²⁵ Nearly half of the population that does not subscribe to broadband says it does not need such a connection.²⁶ A significant portion of those not adopting broadband holds generally less positive attitudes toward

²² Free Press, *Down Payment On Our Digital Future*, Stimulus Policies for the 21st Century Economy at 24 (Dec. 2008).

²³ John B. Horrigan, *Obama’s Online Opportunities II: If You Build It, Will They Log On?* at 2 (Pew) (2009)

²⁴ Horrigan, at iii, 12.

²⁵ *Id.*

technology than do their connected counterparts. Almost half of the dial-up users stated that modern electronic devices interfere with personal productivity, whereas almost 70 percent of broadband users say that these devices aid productivity.²⁷

Lack of resources is also an issue, though it is not the only issue. Many dial-up users say they cannot afford broadband services; 35 percent say the price of broadband would have to fall for them to subscribe.²⁸ But *perceived* price seems to play almost as important a role as actual price differential; the reality is that broadband is 4 percent cheaper today and the price of dial-up is roughly 9 percent higher than those services were in 2005.²⁹ These facts, in connection with survey evidence, have led researchers to conclude that the decision to not obtain broadband service likely is due to perceived or relative value, not the inability to pay. And to be clear, it is not due to the unavailability of broadband access, because more than 92 percent of Americans currently have access to broadband services.

To address these issues, grant funds should be targeted to programs that educate targeted consumers on the benefits of broadband service. In addition, grants should be used to provide targeted subsidies to make broadband services more affordable, and to take other steps on a pilot project basis similar to those adopted in “Lifeline,” “Link-Up” and related programs that have historically helped to subsidize voice services, in order to support the demand for broadband service. By way of example, programs that support an increase in computer ownership and training are very promising and should be supported extensively. The law calls for such grants,³⁰ and they have a double benefit: they ensure the prompt expenditure of grant dollars in ways that

²⁶ Consumer Insights to America’s Broadband Challenge at 2, Connected Nation (Oct. 13, 2008).

²⁷ Horrigan, at 13-14.

²⁸ *Id.* at ii, 11.

²⁹ *Id.* at 7, 8.

³⁰ See The American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 6001(b)(3), 123 Stat. 115, 512-13 (2009).

promote jobs. For both of these reasons, such grants will be one of the most effective and appropriate ways to stimulate broadband adoption and use.

C. Extending broadband facilities to underserved areas defined in terms of below-standard speed and other qualitative measures relative to current generation service.

Finally, it is no doubt the case that some broadband customers are *underserved* – that is, they live in areas where there is at least one provider offering broadband, but not at robust speeds. In these areas, providers may offer broadband service at transmission speeds that exceed the FCC’s definition, but fall short of the speeds typically experienced by consumers with current generation broadband service (generally, a maximum of 3-6 Mbps downstream and 500-1000 kbps upstream). Promoting more robust broadband services in these underserved *areas* is the third element of a sound broadband grant program. The problems associated with underserved areas, however, are by their nature not as substantial as those faced by potential customers who lack broadband access altogether, or by populations who cannot afford or do not understand the benefits of broadband. Promoting additional services where broadband is already available may increase broadband penetration marginally, but the impact on penetration is likely to be significantly less than efforts to extend broadband access where none is available,³¹ or to promote broadband use among populations with low broadband adoption rates.

At the same time, grants to address any problems associated with underserved areas -- where, by definition, providers have invested risk capital to deploy broadband -- present the greatest danger of undermining the existing broadband investment environment. The cable, telephone, wireless, and satellite industries have and continue to pursue innovation that has brought access to the present point. Any subsidies to areas in which broadband service is

³¹ Of course, projects to construct middle mile facilities may fall in this category where such deployment can be demonstrated to enable the expansion of local broadband networks into unserved areas.

presently available should be designed to avoid disincentives that would threaten diminution of the entire broadband ecosystem.

Particularly, subsidies should not have the unintended consequence of favoring one technology over another, one provider over another, public sector over private sector, or otherwise upsetting marketplace dynamics. To avoid this possibility, the grant system should apply the principles of competitive neutrality to the broadband sphere. A competitively neutral approach would ensure that entities vying for grants develop the most efficient means of supplying broadband to the widest swath of the population, and at the same time avoid favoring a particular technology. Such an approach would recognize that favoring a given technology runs the risk of distorting the competitive marketplace and limiting innovation.

The risks of marketplace distortion are not hypothetical. Currently, the marketplace offers consumers broadband through a mix of technologies -- DSL- and fiber-based technologies offered by phone companies, hybrid fiber-coax services offered by cable providers, and wireless services offered by both terrestrial wireless carriers and satellite providers. Each technology has its strengths and weaknesses, and companies continue to upgrade their services to compete with each other for customers.

These varying wired and wireless broadband technologies are evolving rapidly, and it is too early to tell which technology, or sets of technologies, will be best suited for which kinds of customers in which geographic or demographic areas. In that context, it is especially important that the grant program adhere to strict competitive and technology neutrality; in neither its purpose nor in its effect, should it favor one set of technologies or one set of providers over another.

Additionally, grants that target certain connection speeds raise a core definitional question: how fast does service have to be to qualify as broadband or to qualify for a subsidy? In fact, a broad range of speeds properly qualify as high-speed or broadband. Prior to 2008, the FCC used the term “high-speed” to describe services that provided data to subscribers in excess of 200 kbps in at least one direction. Other entities defined high-speed Internet using similar data transfer rates in similar terms, with the Organization for Economic Co-operation and Development defining broadband as having download data transfer rates equal to or faster than 256 kbps per second. Today, of course, broadband facilities are capable of much faster speeds.

Certain broadband options, though very fast, will be unaffordable to the vast majority of the populations who currently lack broadband access. Likewise, the investment necessary to create a very fast broadband network may not be economic in certain areas -- the infrastructure costs may be far too high to justify the minor gains in efficiency.³²

Given the ARRA’s deadlines for issuing grants and completing projects, any definition of inadequate speed as a hallmark of an “underserved” area cannot, as a practical matter, ignore the current speed levels. It thus would make no sense to attach speed prerequisites beyond, for example, a maximum information transfer rate of at least 3 Mbps downstream and 768 kbps upstream. Describing higher speeds as essential runs the risk of misallocating funds that should be devoted to higher priority geographic areas and populations.

³² Economics of Broadband Access for Underserved Consumers and Businesses, Public Technology Institute (May 2007).

CONCLUSION

In light of these issues and to achieve the intent of the stimulus plan, it is critical that agencies focus first on extending broadband facilities to unserved areas and to support programs designed to enable underserved populations to take advantage of broadband services. To the extent funds remain, extending broadband to underserved areas would be appropriate, so long as agencies do not upset the competitive balance.