COMMENTS TO NTIA & RUS

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Comments on Section 6001 of the American Recovery and Reinvestment Act of 2009:
Docket No. 090309298-9299-01 – NTIA and RUS Joint Request for Information

From
Telecommunications as Commons Initiative at the Institute for Local Self-Reliance

ILSR's Telecommunications As Commons Initiative, part of our New Rules Project, advocates for broadband networks that are accountable to the community. The overall goal of ILSR is to build sustainable, self-determining, strong and equitable communities. Part of the strategy for reaching that goal is to enable communities to extract the maximum value from their existing resources (human, capital and natural) through direct assistance and policy advocacy.   Our focus on telecommunications is to create a system that maximizes the human potential of a community and acts as a vehicle for coherence and communication, a system in which the owner is more accessible to the subscriber and the community can democratically establish the rules for their information future. Of particular importance are rules regarding accessibility, affordability, transparency and equity.

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General Comments

- NTIA and RUS must develop a set of technical benchmarks to be used in evaluating the technical design and capacity of networks applying for grant money. Title VI of ARRA establishes the Broadband Technology Opportunities Program but is silent on specifics regarding what broadband means and which technologies qualify.

- NTIA and RUS should embrace the most promising broadband technologies rather than attempt to fund many different technologies. Fiber-optic networks should be a priority as the technology is the gold standard for longevity and user experience.

  In one section of BTOP, the Assistant Secretary is instructed to act in a technologically neutral manner.[1] However, that refers only to when the Assistant Secretary finds that "any other entity" [meaning not a nonprofit, state, or political subdivision of a state – as defined in 601(e)(1)] is in the public interest. The statute explicitly does not require NTIA to act in a technologically neutral manner when awarding grants. Thus, technical benchmarks may encourage some technologies over others – and should, to most efficiently use public dollars.

- NTIA and RUS have received some general direction regarding how to evaluate grants. Among other factors, NTIA must consider whether the grant
    - will, if approved, increase the affordability of, and subscribership to, service to the greatest population of users in the area;
    - will, if approved, provide the greatest broadband speed possible to the greatest population of users in the area;
    - will, if approved, enhance service for health care delivery, education, or children to the greatest population of users in the area;

  Congress' intent was to maximize the benefits to people within a given area. Therefore, applicants should be required to offer universal coverage within their area. Universal coverage results from pairing dense areas with areas of low density. Though "area" is not defined, NTIA must be wary of gerrymandered areas that isolate elements of the population. Applicants must not create islands of unserved populations within their service territory. Such populations will be even harder to reach once their neighbors are covered.

- Networks designed solely to serve large customers or anchor tenants should be prohibited. These large customers are essential to any network that will offer universal coverage in an area; networks that siphon off only large customers make community-wide networks impractical by reducing needed revenues for other networks.

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[1] Sec. 6001 (c) (1) (C) any other entity, including a broadband service or infrastructure provider, that the Assistant Secretary finds by rule to be in the public interest. In establishing such rule, the Assistant Secretary shall to the extent practicable promote the purposes of this section in a technologically neutral manner

- Though fiber to the home would bring the greatest possible speeds to a population, the same amount of money could cover a considerably greater population with wireless, but would offer significantly slower speeds and less reliability. Ideally a population would have access to both fiber and wireless, but those costs would be even greater, and beyond the scope of BTOP. Nonetheless, BTOP should encourage infrastructure moves us closer to the goal of wired and wireless availability to everyone. Fiber-optic networks that can be used for wireless backhaul, and wireless networks can expand the amount of fiber in the area, which can be used by broadband providers to provide wired connections. But this is why common carrier and open access requirements are so important. A single provider must not monopolize this infrastructure.

Grant Framework

NTIA and RUS would do well to look back at lessons learned from the building of a different network – the Interstate Highway system. The Interstate was built to a set of minimum specifications established by a national group. The American Association of State Highway and Transportation Officials were wise not to evaluate applications on a case-by-case basis to build the national network of interstates. Instead, they established standards covering access to the highway, minimum design speeds, the maximum grade, and a whole host of other requirements from bridge strength to curb slope. Recognizing the occasional unique situation, they allowed for a waiver on some requirements from the Federal Highway Administration.

NTIA and RUS should establish some minimum standards to aid in evaluating applications. These standards should be ambitious because:

1. Public money should be used for long-term investments. The use of public money comes with a responsibility to invest for the long term. The electric grid and telephone network were built to last decades, not just for the short term.
2. This money is being directed primarily to unserved and underserved communities. These communities need aid for broadband development because their demographics do not offer sufficient returns for the private sector to sufficiently invest. The network built with this grant money will be their main source of broadband for the foreseeable future.
3. BTOP should be quite selective, as the available resources are greatly outstripped by those seeking grants.
4. Given the three rounds of funding opportunities, NTIA can reduce the standards based on the applications received in the first round. If the standards prove too difficult to meet, there will be ample opportunity to revisit for future rounds.

Technical Considerations for Grant Award Selection Criteria

Standards should include
1. **Common Carriage Requirement**

The statute already requires applicants to meet the non-discrimination and network interconnection obligations to be published by NTIA and the FCC.[2] NTIA should require the more strict standard of common carriage on networks receiving grants. Common carriage is nothing new; it has applied to canals, roads, bridges, telephone networks, etc. The network owner must not be allowed to monopolize the network or it will diminish societal benefit and inhibit innovation. In the event that a competitor wishes to use the network to provide services to a customer, the network owner must offer a wholesale rate no higher than the cost the network owner charges internally for delivery of its own service.

BTOP focuses first on unserved and underserved populations -- communities where the private sector has not sufficiently invested in these broadband networks. Once a network is established with BTOP funds, it will be even more difficult to establish a competing network in these areas. In these areas therefore, citizens will only have a single network offering fast broadband access. BTOP can and should fund networks that offer more choice to citizens by creating a platform that supports multiple competitors.

To the greatest extent possible, BTOP should fund common carriage networks, which will facilitate competition by allowing multiple competing service providers to offer services over the same infrastructure. These projects offer more value for taxpayer money because competition ensures a higher level of service than would result from a monopolistic service provider, even one that does not engage in network discrimination.

Some networks (Burlington Vermont and Ashland Oregon) already abide by this commitment and other network builders support such a provision. As NTIA and RUS have far fewer funds than applicants, public money should go first to those who will maximize societal benefits by committing to common carriage principles.

2. **Actual Broadband**

The vast majority of money allocated for broadband infrastructure should be spent on next generation networks, not previous generation networks. Though many in these unserved and underserved areas would welcome modest improvements in broadband

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[2] Sec 6001 (j) Concurrent with the issuance of the Request for Proposal for grant applications pursuant to this section, the Assistant Secretary shall, in coordination with the Commission, publish the non-discrimination and network interconnection obligations that shall be contractual conditions of grants awarded under this section, including, at a minimum, adherence to the principles contained in the Commission's broadband policy statement (FCC 05-15, adopted August 5, 2005)

networks, using public money requires a higher standard and more forward-looking plan.

Returning the Interstate Highway example, the Interstate was built as a long-term investment. Though the designers of the Interstate system could not imagine the number of vehicles on the roads today, the Interstates have handled traffic well without needing a wholesale redesign.

NTIA and RUS should fund networks that will support tomorrow's needs rather than those built for yesterday. At a minimum, the network should support 10 Mbps symmetrical connections. Though absolutely symmetrical connections may not be necessary, the connection must be fast in both directions and should not be designed to exceed a 1:2 threshold.

Applicants should be able to demonstrate that they can scale up the network to 100Mbps per connection in the near future as experts agree that bandwidth needs are greatly increasing due to new applications and increased video services (including HD content from Internet sites). Any given connection is likely to support several devices, from TiVo's that download video podcasts, to laptops using videochat, to specialized devices for telemedicine.

Buffed up DSL networks offering a 10:1 asymmetrical connection are not long-term investments. They are quickly becoming the new dialup. Cable companies are increasingly capping bandwidth usage – not because of the cost incurred by moving bits, but out of a recognition that they can no longer deliver promised speeds to subscribers on their aging infrastructures.

The electrical grid is designed to work on the hottest day of the year. Yet many broadband systems become bogged down at peak times, offering the worst performance when the networks are most needed. For this reason, the speed threshold should be specified in terms of peak and non-peak speeds. A network that offers fast speeds only in the middle of the night does not benefit the community as much as one designed to ensure higher quality of service around the clock. Applicant networks should be required to meet a speed threshold even at peak times.

Additionally, NTIA and RUS should impose a threshold for jitter and latency. These are standards that can be measured and should be a part of demonstrating whether the network is meeting the performance levels required.

3. **Reliability**

These networks should have to meet reliability performance standards. Broadband connections are replacing traditional phone lines but do not offer the same high level of uptime. This is especially true of some wireless networks. Networks should meet some reliability metric as part of the performance standards that will be evaluated as part of the oversight designed to prevent fraud and wasteful use of taxpayer money.

In addition to uptime requirements, the applicant must be required to meet a threshold of customer service. Many states already have metrics and systems for reporting the time customers spend on hold or waiting for a support call to be answered. Such metrics should also be reported to NTIA and RUS as part of the evaluation process.

Applicant Qualifications

Congress clearly crafted BTOP to build networks that are accountable to the public. States and nonprofits are specifically listed in statute as being eligible whereas other entities must be deemed to be in the public interest. These are entities that put community needs before profits and should therefore be the preferred recipients of public money. If Congress intended to prioritize private companies, they would have been explicitly listed rather than adding the "in the public good" requirement.

Public entities and nonprofits are already subject to strict, transparent, accounting requirements that will facilitate the necessary oversight and audits in order to reveal any misuse of grant money.

Public entities and nonprofits have demonstrated stunning successes from the smallest towns like Reedsburg, Wisconsin to the large rural areas around Bristol, Virginia. From Tacoma, Washington to Burlington, Vermont, the public sector has built fast broadband networks to increase economic development. These networks offer some of the fastest speeds in the country at affordable prices.

Locally owned, publicly accountable networks also hire local people, resulting in a greater economic impact for each dollar spent. Large telecom companies may tout their economies of scale, but such "efficiencies" mean hiring fewer local people and sending telephone support jobs offshore. In contrast, locally owned networks put the community first, making investments that maximize social benefits – pricing access to maximize economic development rather than profits.

These networks will be built in unserved and underserved areas; these are the very areas that private companies have found unprofitable. Though some private companies may find it worthwhile to use public money to invest in these areas, they will continue to prioritize their service territories with the highest revenues for future upgrades. This is an economically rational decision. We should not subsidize profits, but recognize different models are appropriate.

The situation is not new. The private sector was unable to extend the electrical grid to the entire country. When cities started creating municipally owned electric companies and joining cooperatives, the private sector used the same arguments we see today to claim the public sector should not "interfere" with the market. But, there is no market in these underserved areas. The high cost of building a network coupled with low density means no market is possible absent public intervention.

Just as the public builds the roads, it must now build the digital roads of the future. For these reasons, NTIA and RUS should prioritize public sector and nonprofit applicants. These applicants will succeed because they are rooted in the community and will continue to prioritize local investments long into the future.

Broadband Mapping

NTIA should learn from the experience of states who have already completed broadband mapping exercises in order to greatly improve the quality of the maps. Maps should meet the following requirements:

- Granular data – data should be available down to the census block level
- Speeds must be actual, not advertised. Further, speeds should be tracked at both peak and non-peak times.
- Broadband technologies must be presented as separate layers on the map, allowing a user to view any single or multiple layers simultaneously.
- Prices must be included among the available speed tiers. This is important because fast service may be technically available but priced artificially high to discourage subscription.
- Mapping data must be publicly available to allow users to create innovative mashups by combining map data with other data.

A number of states have already produced maps, mostly by contracting with the Connected Nation organization. Unfortunately, Connected Nation has a cozy relationship with many of the carriers that it is mapping. The CN Board is largely composed of representatives from large telecommunications companies. This creates a conflict of interest – as much of the mapping information is provided under a Non-Disclosure Agreement, there is no feasible way of evaluating the maps for accuracy. To the extent that data is provided under NDA, the mapping must be completed by a neutral organization that has no ties to those who would seek to influence how the maps portray their services.

Definitions Section
NTIA is to consult with FCC on the definitions of "unserved area," underserved area," and "broadband service."

Broadband Service
Congress clearly intended for NTIA and FCC to use an ambitious broadband definition. The House version of the broadband provisions in ARRA called for some networks that offered speeds at least 45Mbps downstream and 15Mbps upstream. Further, the focus on unserved and underserved communities recognizes that all Americans need high-speed broadband access. Tens of millions of Americans already have access to speeds in excess

of 45Mbps – whether from Verizon's FiOS, Comcast's recent cable upgrades, or the many smaller fiber-to-the-home networks across the country.

Therefore, "broadband service" should be an ambitious definition, in recognition of the fact that public money should not go to inferior networks, which will soon need upgrades. FCC's Form 477 now defines different Rate Codes for network speeds. Broadband service should be defined, at a minimum, at Rate Code 7 for both upstream and downstream speeds (minimum of 10Mbps). However, networks offering substantially faster speeds should be encouraged, in recognition of the clause in BTOP calling for the "greatest possible speeds."

There is one additional consideration in the definition of "broadband service." There must be a reasonable price attached to the speeds. One might argue that anyone can get "broadband service" if they are willing to part with thousands of dollars per month. Though networks may offer speed tiers below the "broadband service" bar, the minimum speeds defined by "broadband service" must be on a tier that is comparable to competing services nationally. Comcast and Verizon both charge less than $150/month for their 50Mbps/xMbps down packages. Publicly owned UTOPIA in Utah has service providers offering symmetrical 50Mbps for $60/month and symmetrical 15Mbps for $40/month.[3]

Underserved
As the goal for broadband availability in the United States must be no less than that of telephone or electricity connectivity, underserved populations must include any population where broadband access is not universal. If any household or business is unable to access broadband at a reasonable price, that population is underserved.

In evaluating these populations, NTIA should not consider satellite or cellular coverage as "served." These technologies do not offer adequate speeds to allow users access to the modern Internet.

Unserved
"Unserved" is a more extreme example of underserved. Unserved is a population wherein more than 20% of the households and/or businesses lack broadband access at a reasonable price, or are underserved. In many rural areas, population centers may have access while those outside political boundaries do not. Setting an "unserved" bar too high would result in unnecessarily increasing the cost of building a network that would only go after those without service. A bar at 20% makes networks more feasible, by allowing the network owner to incorporate adjacent communities with greater densities, which are likely to already have service.

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[3] http://www.dslreports.com/shownews/Qwest-Brings-a-Knife-To-a-Utah-Gun-Fight-97502