

Pulse Broadband, www.pulsebroadband.net, is a Missouri company headquartered in St. Louis, with offices in Texas and New Mexico. We construct and operate next generation fiber-to-the-home (FTTH) technology. Our FTTH technology is a full last mile fiber solution. It is significantly less expensive to build and maintain without sacrificing bandwidth scalability or reliability compared to other full fiber solutions. This means that advanced services can be deployed profitably in rural settings. In addition to the FTTH technology solution, our turn-key management company partners with rural companies, cooperatives and municipalities serving rural customers to help them deploy and manage advanced telecommunications services and give members access to best-in-class broadband Internet, telephone and television services.

NTIA Comment: We at Pulse Broadband strongly urge the agencies to follow a simple 5-step plan that has worked for large national infrastructure projects our country has tackled in the past:

1. Set an aggressive but achievable national broadband infrastructure goal
2. Establish and adhere to best-in-class design/build standards
3. Establish simple, common inter-agency definitions of “rural” and “unserved/underserved” for determining ARRA eligibility
4. Fund projects which meet steps 1-3
5. Let the free enterprise system work

Set an aggressive goal

Recommendation: Set a minimum national speed goal which reasonably anticipates the future bandwidth needs. Our recommendation for this initial goal is 25Mbps for terrestrial broadband service. The logic for this is that this reflects the current “best speeds commercially available” by providers in urban and suburban markets (even though telecommunications companies are now starting to deploy 50Mbps residential service in key markets.) We are suggesting a pragmatic middle ground. Providing ARRA stimulus money to projects that deliver these speeds to rural America will significantly close the digital broadband divide that exists between rural and urban/suburban Americans. Providing stimulus money to projects that cannot meet these speed requirements will only widen the gap.

In February, South Korea announced an aggressive national broadband infrastructure plan to boost residential Internet connections to 1Gbps broadband using fiber-to-the-home (FTTH) technology and 10Mbps fixed wireless (WiMAX) – by 2012¹. Critics opposed to setting a national broadband goal for the U.S may argue that South Korea, whose size is roughly the same as the state of Indiana, doesn’t compare. However, they are missing the point. The point is that they set a goal and are investing in proven technology solutions which will meet the goal.

¹ Karl Bode, “South Korea Aims for 1Gbps.” Available at [<http://www.dslreports.com/shownews/South-Korea-Aims-For-1Gbps-100607>]

In fact, some may argue that these minimum speeds may not be enough. In his February 4, 2009 blog, *The Gigabit Household: Only a Matter of Time*, Graham Finnie, *Heavy Reading* Chief Analyst wrote²:

“For years now, the Internet’s not-quite-believers have been saying that demand for Internet bandwidth was finite and would eventually start slowing down. As the market saturated and consumers ran out of things to do with all that capacity, demand would tail off. Yet there’s no sign whatsoever that this is about to happen. There is absolutely no reason to suppose that this steady year-on-year rise in bandwidth consumed will not continue for as far out as we can see. In the future, a whole raft of new consumer service ideas such as 3D TV and gaming, consumer telepresence, ultra-high-definition video, consumer and business cloud computing, and holographic video are all in commercial development or in the lab. However, the exact nature of the apps, end users, or devices that will ratchet up demand doesn’t really matter that much to those planning network requirements. The consistent history of 20 years, along with the miraculously flexible character of the Internet, means it will continue to generate new ideas at a steady rate. Even though we don’t know what those ideas will be, telcos can safely assume that bandwidth consumption will continue to grow in line with historic precedent. Even though we don’t know what those ideas will be, telcos can safely assume that bandwidth consumption will continue to grow in line with historic precedent. In practice, that means – for example – that it’s fair to assume that the average household will be running a fixed Internet connection at about 1 Gbit/s 10 years from now. This therefore must be the objective that everyone aims for.”

We have read public comments from others urging the U.S. against adopting a “Gold Standard” level of service.³ The old aphorism “Great is the enemy of good” is their logic behind this position. They contend that the goal of universal broadband for all Americans will be jeopardized if rural Americans have to wait for “gold” or “platinum” levels of service.⁴ They argue that with millions of Americans lacking broadband the goal should be to ensure access to the best reasonable level of service, given all circumstances. They go on to argue that in areas where the delivery of any form of terrestrial broadband service is not feasible (or at least not in the near term), the agencies should acknowledge and support satellite delivered broadband, irrespective of speeds.⁵

Given the FCC’s current definition of “broadband”⁶ for speeds as low as 200Kbps, satellite-provided Internet service, at speeds of 256Kbps downstream, 128Kbps upstream technically qualifies as broadband. This service is currently available to everyone with an unobstructed view of the southern sky. If the only goal is universal broadband access for all Americans, and “broadband” is defined for speeds as low as 200Kbps, then let’s save the \$7.2 billion and declare victory. We sincerely hope this is not the intention of the agencies!

² Graham Finnie, “The Giga-bit Household: Only a Matter of Time,” 4 February 2009. Available at [http://www.lightreading.com/document.asp?doc_id=171574

³ Comments of the National Rural Telecommunications Cooperative (NRTC), March 26, 2009, page 9. Available at [http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520203466]

⁴ Ibid

⁵ Ibid

⁶ FCC Consumer Facts, “What is Broadband?” Available at [<http://www.fcc.gov/cgb/consumerfacts/highspeedinternet.html>]

We acknowledge that there will always be certain remote areas of the country where satellite-provided Internet access is the only economically feasible solution. However, these remote locations already have access to this solution and sound business sense dictates that the agencies should not invest ARRA money in projects that operate at the margin.

We contend that economically feasible business models, like our fiber-to-the-home (FTTH) technology, exist that will extend the states' and national fiber grid much deeper into rural America. These technology-proven, shovel-ready projects also have the additional significant advantage of immediate and substantive job creation, as FTTH construction projects involve far more outside plant work than other technologies.⁷ Also, research has shown that FTTH projects create significant and sustainable jobs⁸ and economic development⁹ for the communities and citizenry where they are deployed. For these and other reasons these projects should receive priority ARRA consideration.

Solutions which rely on wireless, DSL, BPL (broadband over power line) and satellite technologies that cannot deliver the speeds required to deploy and support advanced services, foster significant rural economic development, or support telemedicine and advanced learning opportunities for rural Americans should not receive priority ARRA consideration. In short, these technologies do nothing to close the rural digital broadband divide. In fact, supporting and investing in these technologies only serves to exacerbate the problem and widen the gap. Our discussions with potential customers for our fiber-to-the-home (FTTH) solution has revealed at least one instance of an organization who previously invested in deploying fixed wireless Internet access for its members, only to suffer almost a 100% customer churn when a competing terrestrial wired solution entered the market. Establishing a simple "speed gate" will enable agencies to distribute ARRA funds for projects that will not suffer the same fate.

According to testimony of Mark G. Siefert, Senior Advisor to the NTIA Assistant Secretary, "the Obama Administration is "committed to harnessing the power of broadband technology to stimulate economic growth, create jobs, and lay the foundation for long-term prosperity for all Americans."¹⁰ Given these goals, committing ARRA stimulus funds to technologies that cannot offer basic speeds sufficient to ensure Administration goals and which do not close the digital broadband divide between rural and urban/suburban are counter-productive and a waste of money. The agencies should also consider

⁷ Comments of the Fiber-to-the-Home Council in Response to Request for Information before the Department of Agriculture Rural Utilities Service, March 26, 2009, page six. Available at [<http://www.ftthcouncil.org/UserFiles/File/FTTH%20Comments.pdf>]

⁸ Robert Crandall, William Lehr, Robert Litan, "The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data," *Issues in Economic Policy, The Brookings Institution* 6 (July 2007): 2

⁹ Michael Curri, "The Transformative Effects of FTTP," March 31, 2008. Available at [<http://www.sngroup.com/documents/documents/SNG%20-%20The%20Transformative%20Effects%20of%20FTTP%20-%20issued%20July%2011%202008.pdf>]

¹⁰ Mark Siefert testimony before the House Subcommittee on Communications, Technology, and the Internet Committee, April 2, 2009. Available at [http://www.ntia.doc.gov/congress/2009/NTIA_Seifert_Testimony_20090402.html]

technological obsolescence when considering project requests and not fund or support any technology solution that is not scalable to support future bandwidth needs.

In conclusion, when evaluating potential projects for ARRA stimulus grants or loans, the first gate should speed. Can the proposed project's technology solution match the best available commercial speeds available to urban/suburban customers today and meet or exceed these minimum speed definitions within three years? If yes, go to step 2; if no, reject.

Establish Best-in-Class Design/Build Standards

This one is fairly straightforward. Our recommendation for this step is that proposed projects must be designed and built to the current best-in-class standards, defined by three governing engineering bodies:

ITU-T: International Telecommunications Union

IEEE: The Institute of Electrical and Electronics Engineers

SCTE: The Society of Cable Telecommunications Engineers

Terrestrial projects must be designed and built to the following standards:

IEEE 802.3 for EPON or GEPON

ITU-T G.984 for GPON

SCTE – DOCSIS 3.0 and IPS 910 for RFoG aka Cable PON or DPON (DOCSIS PON)

WiMAX solutions must adhere to IEEE standard 802.16

Projects that purport to meet the speed requirement in step one, must meet these design/build standards. This insures that these projects are viable, technologically-proven projects that use common equipment, fiber, hardware, middleware and software solutions.

Establish Simple Definitions of Rural and Unserved/Underserved

We strongly recommend that all agencies quickly establish a simple common definition of rural and unserved/underserved for purposes of determining grant/loan eligibility.

According to the Pew Internet and American Life Project 2008 study the percentage of rural citizens with broadband access at home, while growing, still significantly lags the broadband home access in suburban and urban markets (38% rural, 60% suburban, 57% urban).¹¹ Given the fact that rural America has less than a 40% broadband penetration, we agree with others who maintain that for purposes of broadband funding, there should be a presumption that all U.S. counties who meet the Census Bureau definition of “rural” are automatically designated as unserved/underserved, and thus eligible for ARRA funding.¹²

We also submit that the entire geographic footprint of Rural Electric Cooperatives and

¹¹ John Horrigan, Pew Internet & American Life Project, “Home Broadband Adoption 2008” page 3, July 2008. Available at [http://www.pewinternet.org/~media/Files/Reports/2008/PIP_Broadband_2008.pdf]

¹² Comments of the National Rural Telecommunications Cooperative (NRTC), March 26, 2009, page 8. Available at [http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6520203466]

Rural Telephone Cooperatives be automatically designated as unserved/underserved, without any finer requirement for market or geographic data parsing.

In determining whether rural markets meet the unserved/underserved requirement we propose that the agencies default to steps one and two. Namely, any market that qualifies as rural according to the definition above, which is currently served by one or more providers who meet the minimum speed requirements of step one and the design/build standards of step two is not eligible for ARRA funds. Otherwise it is eligible.

Fund Projects which Meet Steps One, Two and Three

After the applicant pool has been established using the criteria in steps one-three, the next step is to fund those projects who meet the criteria. If the total amount of funds requested by the approved applicant pool exceeds the current agency NOFA, projects should be prioritized according to the stated agency and Administration goals of creating jobs and economic output and making investments in infrastructure that provides long-term benefits. The NTIA and RUS should give priority to projects that: create the most jobs; can be initiated promptly by an experienced entity; and deploy infrastructure that spurs rural economic development.¹³

Let the Free Enterprise System Work

The beauty of using minimum speeds and common standards as the primary determinants of applicant eligibility is that the agencies can continue to be technologically neutral. That is, agencies can and will embrace any technology solution that meets the speed and design criteria. Obviously, there will be winners and losers, but the country will be assured of building a national broadband access grid that best positions the country to close the digital broadband divide between rural and urban/suburban, maximize economic development and job creation, and ensure that the U.S. will be able to compete in the 21st century global economy.

¹³ Comments of the Fiber-to-the-Home Council in Response to Request for Information before the Department of Agriculture Rural Utilities Service, March 26, 2009, page one. Available at [<http://www.ftthcouncil.org/UserFiles/File/FTTH%20Comments.pdf>]