

DESIGN/BUILD BROADBAND DEPLOYMENT ESTABLISHED 1996

COMMENTS TO:

Broadband Technology Opportunities Program
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, N.W.
Washington, D.C. 20230

Rural Utilities Services
United States Department Of Agriculture
1400 Independence Avenue
Washington, D.C. 20250

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On behalf of all the employees of Broadband Specialists, Inc. (BSI), I congratulate the NTIA and RUS for this creative, accessible and open process you are providing for soliciting comments regarding the deployment of broadband infrastructure in rural America under the 2009 ARRA, and the criteria being set. I attended three of the public meetings, and sat in on the web-cast for the others, have submitted public comments both in-person, and via web. I have worked non-stop assisting organizations with planning their application submissions since passage of the Act. I understand just how intelligent you are by now with the issues that concern the public. With over 30-years experience deploying fixed-wired infrastructure of many types that perform many functions all over the United States, I respectfully offer these comments for your consideration on behalf of the company, and will keep it brief, limit to just a few issues, and hopefully add a taste of creativity to lighten your reading and the thought process.

Network Architecture:

BSI recommends hybrid network architectures incorporating wire-line, wireless and satellite be deployed as the solution for the middle-mile and last-mile application in un-served or underserved rural areas.

BSI recommends multiple duct installations for all middle-mile and last-mile underground-wired deployments, to assure benefits including multiple provider capabilities and network expandability.

BSI recommends all networks be fiber-based to promote future-proof expandability, scalability and robustness.

Combine Broadband & Smart Grid:

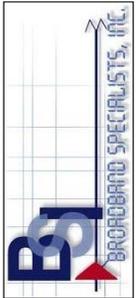
Smart grid is the convergence of information and operational technology applied to the electrical grid that will allow long-term sustainable options to end users along with increased reliability, efficiency, and security for utilities. Smart grid also provides long-term benefit for ecosystems. End users see economic benefits through smart grid (AMI) automated meter infrastructure technology and “prices to devices”. Network operators see recurring revenue streams, which will add another element of sustainability to the difficult rural business broadband network model. The electric utility or rural electric co-op will realize cost savings from (DA) distribution automation.

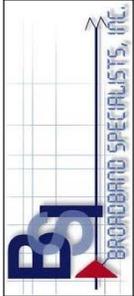
BSI recommends that when deploying FTTH, FTTP, or FTTC architecture, additional “dark” fiber is built into the networks to accommodate immediate or future smart grid utilization by electric utilities and rural electric co-ops for distribution mission-critical (AD) automation devices and (AMI) automated meter infrastructure connectivity.

BSI recommends that priority be given to any applicants who incorporate into their rural broadband network architecture a smart grid capability. For the funds within the Act, huge economic savings can be realized by combining the smart grid network with the broadband network. Instead of DOE funding a fiber network for smart grid and a separate network being funded through BTOP for rural broadband, this is an opportunity to save money within the Act.

BSI encourages the NTIA, RUS, and DOE to work together now to formulate solutions to the unique funding issues this type of network integration will present, so as not to delay the application approval process and the execution of the projects.

Furthermore, BSI recommends the “dark” fiber capacity mentioned above be built into the network whether the operating agreement has been completed at time of broadband deployment or not, since the majority of the cost of fiber is in the sheath, and the cost a additional fiber is minimal, while the benefit is dynamic.





Network Requirements:

Realizing that the NTIA/RUS officials know the meanings of the words within the definition below, and understanding that time is valuable in this process, BSI has prepared the following definition of what we believe rural broadband should be within the 2009 ARRA.

BSI recommends the networks deployed have the capacity to provide most or all of the services and most or all of the features that are in our definition below. Each word tells a story.

ru·ral broad·band - \•rur-əl\ \•brod-•band\

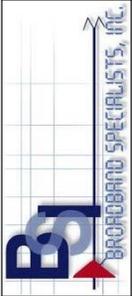
Function:

noun

Date:1960

1 : operating at, responsive to, or comprising a wide band of frequencies in a open area 2 : of, relating to, 2009

ARRA, TELEMEDICINE, INTEROPERABILITY, FAMILIES, DEPLOYMENT, JOB CREATION, COMMUNITY CENTERS, ECONOMY, BUSINESS-TO-BUSINESS COMMERCE, COMPUTER TRAINING, PUBLIC SAFETY, DATA CENTERS, DEDICATED FIBER, SMART GRIDS BENEFITING ECOSYSTEMS, EXPANDABILITY, FIBER BACKBONE, FIBER RING, FUTURE-PROOF NETWORK, HEALTHCARE DELIVERY, HIGH-SPEED, INFRASTRUCTURE, HFC NETWORK, HOMELAND SECURITY, INFORMATION SUPER HIGHWAY, HOSPITALS, AMI DOCSIS 3, LIBRARY, JOB RETENTION, EBON, LINEMEN, FTTH NETWORK, LOAD MANAGEMENT, 100 MEGABITS, MESH WIFI, NETWORK ARCHITECTURE, NETWORK OPERATION CENTER, WEB-BASED COMMERCE, SUSTAINABILITY, SECURE PLATFORM, NEXT GENERATION 9-1-1, WIRELESS BROADBAND PROJECT MANAGEMENT, Mbps, SCALEABILITY, PROVEN TECHNOLOGY, PUBLIC-PRIVATE PARTNERSHIP, NETWORK RELIABILITY, SCHOOLS, ROBUST, RURAL BROADBAND, RURAL MANUFACTURING, VoIP, FIBER-BASED, 3-D, NETWORK, (DA) DISTRIBUTION AUTOMATION, TELECOMMUTE, UPGRADE, PRICES TO DEVICES, (DSM) DEMAND SIDE MANAGEMENT, TELELEARNING, (HAN) HOME AREA NETWORK, TELECOMMUNICATIONS, OPTICAL BACKHAUL, REACHING VULNERABLE POPULATIONS, MISSION CRITICAL DATA, ETHERNET, or being a high-speed communications network and especially one in which a frequency range is divided into multiple independent functions for simultaneous transmission of signals (as voice, data, or video)



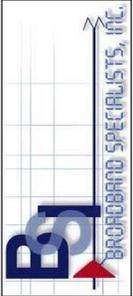
Coalitions & Public/Private Partnerships:

The 2009 ARRA outlines aggressive deployment objectives. To achieve success within these timelines, planning upon passage of the Act is a requirement. Since the passage of the 2009 ARRA, multiple counties, municipalities, non-profits, private companies, Indian communities, and others have contacted private network deployment firms and contractors. Those contractors have formed creative and sustainable working relationships and alliances, and in some cases are successfully forming coalitions. These contractors are preparing feasibility and cost studies to develop and deploy robust networks that meet all the goals as set forth in the Act. Most of the applicants they are assisting are small rural communities with no staff, expertise, or budget to pursue funding and initiate the expensive feasibility studies and network cost estimates and other grant application preparations within the aggressive timelines that are set within the Act.

These contractors have exercised pro-activity in implementing these rural deployment plans in the spirit of the Act and are undertaking significant investment in the process on behalf of these un-underserved communities and vulnerable populations. Dedication is paramount to success, and they are dedicated to the cause these undertakings represent.

BSI requests' that counties, municipalities, non-profits, private companies, Indian communities, and others, when awarded grants, have the ability to choose these organizations that undertake significant investment of this type, without competitive bid, if:

- the governing body of the county, municipality, Indian community or non-profit formally requests' the contractor be the network deployment firm
- the contractor is qualified, in good standing, and has a minimum of 5-years of experience building broadband networks without negatively affecting on-going projects
- the contractor is financially capable of completing the project
- the contractor has successfully completed projects of similar size and scope
- the contract price is within standard pricing range for the products and services being rendered
- the contractor in not in violation of conflict of interest
- the contractor can design, implement, and define functions
- the contractor provides training, testing, transfer of technology, and education
- the contractor is capable of enhancing and maintaining the network and network sustainability



Indian Nations, Bands of Indians and Indian Lands:

Considering that Indian Nations and Bands of Indians are sovereign and therefore are not political subdivisions of States, BSI recommends that American Indian Bands, Nations and Tribes be allowed to apply for BTOP grants and loans through all three avenues below:

- States
- National Telecommunications and Information Administration
- Rural Utility Service

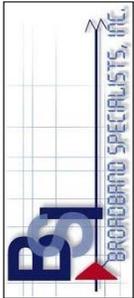
Middle-Mile/Last-Mile:

BSI recommends consideration be given to applicants who submit applications for:

- a. future-proof, fiber-based, last-mile solutions in un-served or underserved areas that are in close proximity to existing backhaul
- b. future-proof, fiber-based, middle-mile solutions to reach un-served or underserved industrial and/or commercial areas to maximize the job creation potential

In Kind/Matching:

BSI recommends that in-kind contributions towards the 20% matching be considered on a case-by-case basis, and clear guidelines be published. Counties, municipalities, and Indian communities especially will have the ability to bring substantial resources to the effort that would normally be revenue producing services, but under these scenarios would not. Once the process of deployment begins, there will be costs associated with expensive services such as permitting, locating, surveying, and inspections; also consulting and legal that are normal governmental functions necessary during the construction of a broadband network, and normally would be paid for by the network operator/owner. In some cases these costs' could be the difference between applying for a grant and not applying, therefore denying those citizens the opportunity for broadband. BSI recommends that all traditional and reasonable in-kind contributions be allowed.



In Summary:

The United States currently ranks #17 in the world in providing advanced broadband to citizens. If we are to remain the economic and industrial world leader, we must address this now with “future-proof” solutions such fiber-based “wired” networks. Until this entire nation is “wired”, these future-proof networks must be deployed in smart geographic locations that reach vulnerable populations and create economic development opportunities. They must be robust enough to meet the bandwidth required to provide everything in the definition above.

We must not “**patch the problem**” now by treating rural areas of the United States as “**second class**” and “**stranding them wireless**” by not providing them a future-proof “wired solution”. That would only require us to have to revisit the network in a few years and “**reinvest**” once again.

No doubt, there is a huge role for wireless broadband to play, in public safety, in libraries, schools, urban areas and places where people gather, and many other applications. No fiber-based network is complete without a wireless component, and no wireless network is complete without a fiber component.

Homes are dynamic environments. Imagine Mom and dad in the den telecommuting, mom sending huge data files for work upstream and downstream while talking on the phone utilizing VoIP. Dad is streaming a tutorial for his presentation tomorrow, sitting at a desk next to Mom. The young son is watching high definition 3-D with his best friend in the living room while his brother in the family room across the hall is network gaming. Then there is the younger teenager upstairs surfing the web and twittering her friend’s, while her sister is telelearning in the bedroom down the hall. Finally, there is grandfather being examined by his doctor in his room via telemedicine, saving a 60-mile round-trip commute to the doctor.

Everybody mentioned in the paragraph above is in the same house, utilizing the same fiber simultaneously, on the same network.

- this is the home of tomorrow
- this is FTTH

Broadband Leadership

The factory across the street is doing web-based commerce. They are taking twenty orders at any given time simultaneously, pumping out widgets faster than shipping can ship them out the back.

The factory is hiring.

The factory floor is being monitored remotely from 100 miles away by video and audio streaming for quality control. The orders that are not being placed by web access on their site are coming in by phone, via VoIP.

- this is dedicated fiber, in the same sheath as the FTTH next door
- this is future-proof
- this is job creation
- this is economic stimulus
- this is economic sustainability

This is one community, two buildings of 200 buildings on one node, of a network with 30 nodes, in rural America, 2011.

It is my sincere hope that these comments bring value to your decision-making process, and pride in what you are about to achieve.

Sincerely,

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