Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Washington, DC

In the Matter of	)	
	)	
Request for Comments on the Deployment	)	
of Broadband Networks and	)	Docket No. 011109273-1273-01
Advanced Telecommunications	)	
	)	

COMMENTS OF THE ASSOCIATION OF PUBLIC TELEVISION STATIONS

The Association of Public Television Stations ("APTS")[1] submits these comments in response to NTIA's Request for Comments in the above-captioned proceeding.[2] NTIA solicited comments as part of its ongoing effort to obtain more information about broadband issues in order to develop a domestic telecommunications policy and to continue NTIA's support for removing obstacles to broadband deployment.[3] Among other things, NTIA has requested comment on how "broadband services" should be defined, including (1) what criteria should be used to determine whether a facility or services has sufficient transmission capacity to be classified as "broadband"; (2) how the definition should evolve over time; and (3) the policy implications of how the term is defined.[4]

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[1] APTS is a nonprofit organization whose members comprise nearly all of the nation's 354 noncommercial educational television stations. APTS represents public television stations in legislative and policy matters before the Commission, Congress, and the Executive Branch, as well as engaging in planning and research activities on behalf of its members.

[2] 66 Fed. Reg. 57941 (November 19, 2001).

[3] Id.

[4] Id.

APTS files these comments to highlight public television stations' contribution and commitment to the deployment of high-speed educational services to schools and other end users in rural and other underserved areas in America. Public television stations can provide, particularly to rural Americans, high-speed educational services through digital broadcast technology that can serve the same function as full, two-way interactive broadband services. Digital technology can also be used to expand and upgrade critical public safety services throughout the country. APTS urges NTIA to recognize the public benefits of these "broadband-like" services as it establishes the definition and criteria for broadband services going forward.

A. Public Television Can Provide High-Speed Broadband-Like Educational and Public Safety Services for Schools, and Other Users in Rural Areas

As part of its statutory mission, public television is committed to serving unserved and underserved audiences. With the advent of digital technology, public television's goal is not only to increase the number and variety of its educational offerings, but also to maximize its ability to offer high-speed "broadband-like" services to these underserved consumers. These services can be provided through an "asymmetric" network that utilizes the high-speed data delivery capability of DTV for downstream services and leverages an existing network infrastructure, such as telephone dial-up access, for the "return path." As the Administration develops its policies related to broadband telecommunications services, APTS requests that it recognize the importance of

educational high-speed services, and the value of each public television transmitter and translator, in ensuring that all Americans have access to such services.

Public television stations are currently at the forefront in providing unique and valuable educational services to homes, schools, libraries, and other essential public service organizations in America. Public stations provide multimedia educational offerings through their television signals, interactive web sites, print materials, and community outreach programs. With the transition to digital operations, public television will play a pivotal and cost effective role in providing "broadband-like" access and educational services for rural and other underserved areas and audiences. For instance:

- Through the Utah Education Network, a partnership with the Utah Department of Education, public television station KUED, Salt Lake City, helps to distribute curriculum materials to teachers in the state more effectively. Its web site, www.uen.org, is a comprehensive educational resource for grade school through adult learners featuring an online library service, access to lesson plans and teaching materials, the ability for teachers to create their own Web page portal, a catalog of distance learning opportunities and other resources.

- Public television station KNME, Albuquerque, New Mexico, is partnering with regional colleges and universities to create high-end interactive teaching packets to help high school teachers in the Four Corners region (Utah, Colorado, New Mexico and Arizona) meet curriculum standards. The project supports more than 48,000 students, 86 percent of whom are Navajo, in 100 schools in 11 school districts.

With digital broadcast technology, these types of educational services can be delivered to schools and homes on a near universal basis. Public stations have dedicated a portion of their digital bandwidth to providing access for all Americans to educational services. In exchange for federal support of its digital build-out, public television stations will commit 4.5 megabits per second of their DTV bitstream (one-quarter of their digital channel capacity on average) to the delivery of formal educational services. This is the equivalent of three T-1 lines downstream to every school in America, a service that is

worth $2.4 billion annually. This level of digital capacity will deliver data at rates 80 times faster than 56K dial-up modems and 15 times faster than digital subscriber line (DSL) connections.

A digitized public television system will make a significant contribution to the deployment of high-speed services to Americans in rural areas and other underserved populations. If fully converted, public television stations' transmitters and translators could provide digital video, audio, and data services over-the-air to 99 percent of our nation's citizens. In fact, a digitized public television system would have the ability to reach a far greater number of Americans than other current "last mile" services, such as cable modems and DSL connections. By illustration, attached are maps that show the potential coverage by public television versus the potential DSL reach in terms of the "last mile" delivery of services in Georgia, New Hampshire, Iowa and South Carolina (Appendix A). Using a fully converted digital system, public television will be able to provide powerful and cost-effective nearly universal last mile "broadband-like" services to meet the public's needs.[5]

For example, a teacher in a remote community may use dial-up Internet access through a rural telephone company to access rich media web content delivered over-the-air by the teacher's local public television transmitter or translator. This material would be received by an antenna, stored on a server located at the school equipped with a DTV tuner, and downloaded on-demand to personal computers throughout the school.

[5] Last year, NTIA and RUS found that the deployment of advanced telecommunications services in urban and rural areas was not proceeding at a comparable rate, with residents in rural areas generally being the last to receive service. "Advanced Telecommunications In Rural America: The Challenge of Bringing Broadband Service to All Americans," U.S. Department of Commerce, National Telecommunications and Information Administration, and U.S. Department of Agriculture, Rural Utilities Service ("NTIA/RUS Report") (April, 2000) p. 17.

Educational content stored on the server could be refreshed daily at data rates that may never be available through DSL or cable modems for many rural citizens.

APTS demonstrated this model at its September 5, 2001 "Ed Tech & Ice Cream" event on Capitol Hill. APTS used WETA, Washington, D.C. and Nebraska ETV content distributed over the DTV bitstream from the model DTV station in Washington, DC. This content, which was "ordered" over a telephone Internet connection**,** was received on a PC connected to an antenna on the roof of the Rayburn Building. This "live" prototype of public television educational content distribution architecture demonstrated public television stations' ability to send multimedia educational material over-the-air to teachers and schools through a digital television signal. This technology will revolutionize public television stations' role in helping schools and teachers—especially those in rural areas—to access rich educational content quickly and efficiently.

Some public television stations are already deploying similar "asymmetric" networks. For example, New Jersey Network has a program called *New Jersey Workplace Literacy Program*. This program helps address New Jersey's adult literacy problem through a groundbreaking partnership with the New Jersey Department of Labor and other agencies. NJN is using a variety of technologies, including its digital television signal to deliver workforce training materials to welfare recipients, dislocated workers and other job seekers to sites in New Jersey. And public television station KCPT in Kansas City, Missouri has developed a multimedia children's literacy initiative, using digital television and the interactive features of Internet technologies to enhance the traditional "read aloud" experience targeted to ages four to seven years old. KCPT's "Read Aloud with Wally Amos" initiative allows children to direct their own learning

experience by selecting options from hearing, reading and watching an illustrated story told in English, Spanish or American Sign Language.

In addition, because of the universal coverage of public television transmitters and translators, reaching 99 percent of all American households, a fully digitized public television system could offer significant new public safety advantages. For example, on November 15, 2001, Kentucky Educational Television (KET), in partnership with the local branch of the National Oceanic and Atmospheric Administration (NOAA), debuted a new service to representatives from the state police, emergency management agency and weather service. KET commissioned the development of software that allows it to use its digital broadcast capacity to immediately send emergency storm alerts, weather information, criminal profiles and updates, and other time-sensitive materials instantaneously to computers around the state. Transmission of this data over the digital broadcast signal decreases alert time and information lags from minutes to seconds, and is not subject to hacking. Use of the digital broadcast infrastructure can also bypass the congestion of wireline and cellular networks that can plague communications in emergency situations, as was recently demonstrated on September 11th. Generous funding from the Kentucky state legislature enables KET to complete their digital conversion of 16 transmitters by May of 2003, thereby ensuring this service is available to virtually all residents of the state. Public television's digital facilities can be used to provide this vital public safety service nation-wide.

Through its digital broadcast facilities, public television stations are therefore committed to providing valuable educational services over an asymmetric broadband-like infrastructure. This commitment will bring educational opportunities to all Americans,

particularly those living in rural areas. In addition, these asymmetric broadband-like services also have the potential to bring a new generation of public safety services to America in this time of national crisis.

B. The Administration Should Define "Broadband" So As to Include High-Speed Asymmetric Data Services that Provide Educational and Public Safety Services to All Americans

The term "broadband" has been a loosely used term of art that has encompassed a variety of services delivered at a number of data-rates. For instance, Section 706 of the 1996 Telecommunications Act defines "advanced telecommunications capability" to mean a "high-speed, switched, broadband telecommunications capability" in any media that "enables users to originate and receive high-quality voice, data, graphics and video telecommunications using any technology."[6] Interpreting this language, the Federal Communications Commission ("FCC") concluded in 1999 that "broadband" was to be defined as "having the capability of supporting, in both the provider-to-consumer (downstream) and the consumer-to-provider (upstream) directions, a speed… in excess of 200 kilobits per second (kbps) in the last mile."[7] The FCC has noted that because DTV

[6] Telecommunications Act of 1996, Title VII, §706(c), P.L. 104-104, 110 Stat. 153 (Feb. 8, 1996) (codified at 47 U.S.C.S. § 157, note).

[7] Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, Report, 14 FCC Rcd 2398, 2406, FCC 99-5, ¶20 (rel. Feb. 2, 1999) ("First Broadband Report"). The Commission reasoned that 200 kbps was enough to provide the most popular forms of broadband (e.g. to change web pages as fast as one can flip through the pages of a book and to transmit full-motion video) and was intended by Congress to be faster than ISDN service, which operated at a data rate of 128 kbps and was widely available at the time the 1996 Act was enacted. Id.

signals by themselves are not two-way, nor are they "switched," such signals do not constitute "broadband" services.[8] Nevertheless, the FCC recognized that if two separate one-way technologies capable of delivering data rates at 200 kbps or greater to the last mile were used in concert, the result would be a broadband service.[9] The FCC has also recognized that as technology evolves, the concept of "broadband" would also have to evolve.[10]

In 2000, the FCC retained its definition of "broadband" but clarified that because the term had become so "common and imprecise" as to include a broader range of services, it was necessary to divide broadband services into two narrower sub-categories: "advanced services" and "high-speed services."[11] "Advanced services" refer to two-way data delivery services capable of data rates of 200 kbps or greater in both directions, while "high-speed services" refer to services that deliver 200 kbps in at least one direction.[12]

APTS strongly supported the FCC's retention of its distinction between "advanced services" and "high-speed services" within the definition of the term

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[8] First Broadband Report, 14 FCC Rcd 2398, 2406, ¶ 21 and n. 15.

[9] Id. at 14 FCC Rcd 2398, 1406, ¶22.

[10] Id. at 14 FCC Rcd 2398, 2408, ¶25 (allowing for the possibility that the Commission could require two-way data rates of more than 200 kbps in the future).

[11] Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, Second Report, 15 FCC Rcd 20913, FCC 00-290, ¶11 (rel. Aug. 21, 2000) ("Second Broadband Report").

[12] Id. In August of this year, the Commission proposed retaining this distinction for the reasons stated above as it prepares its third report on the deployment of advanced telecommunications. Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps To Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, Third Notice of Inquiry, FCC 01-223, CC Docket No. 98-146, ¶ 5 (rel. August 10, 2001).

"broadband." In April of last year, the U.S. Department of Commerce and the U.S. Department of Agriculture adopted the FCC definition of "broadband" while recognizing the importance of asymmetrical data-delivery systems. It stated:

> We have adopted the Federal Communications Commission's … definition of *broadband*: the capability of supporting at least 200 kilobits/second in the consumer's connection to the network ("last mile"), both from the provider to the consumer (downstream) and from the consumer to the provider (upstream). Because most consumers use the Internet to receive data, broadband service offerings are generally asymmetrical (*i.e.*, the downstream link operates at a higher rate than the upstream link).[13]

APTS urges the Administration to continue to recognize the distinction between advanced services and high-speed services within the definition of "broadband" and to include within the definition of "broadband" the one-way delivery of high-speed services using digital broadcast technology.

As demonstrated above, public television can bring a "broadband-like" experience to all Americans, particularly those living in rural areas, through digital television, and in conjunction with other technologies. It is essential that neither the Administration nor the FCC unnecessarily constrain the definition of "broadband" in ways that could delay the deployment of these educational and public safety services.

[13] NTIA/RUS Report, pp. 5-6.

Conclusion

As the Administration develops its policies related to broadband telecommunications services, APTS requests that it keep in mind the value of educational and public safety high-speed services that public television stations offer. Through Administration policies that recognize the value of each public television transmitter, public television has the ability to help the Administration to ensure that all Americans have access to broadband telecommunications capability.

Respectfully Submitted,

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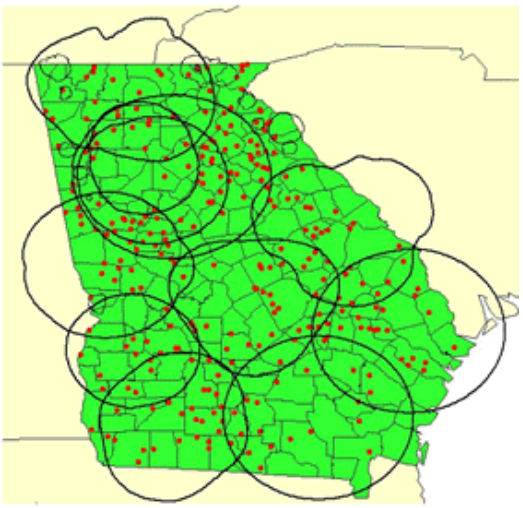
APPENDIX A

Public Television in Georgia- Serving Rural Areas

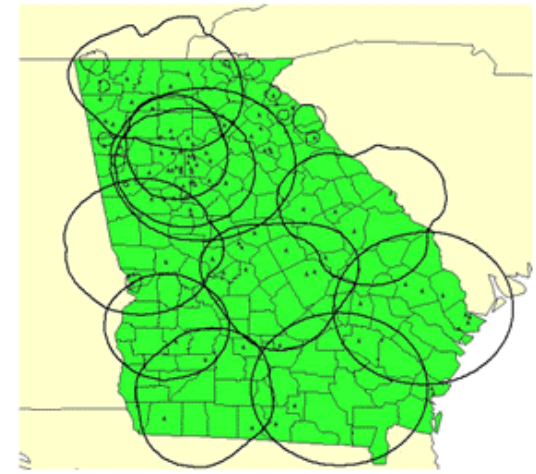
- Only 8% of internet users in rural areas have access to broadband service.
- 65 million Americans live in rural areas.
- Less than 1% of towns with populations below 1,000 have cable modem access available, none have DSL.
- Cable providers will not upgrade areas with fewer than 10 homes per square mile.



PTV Coverage Areas
Towns with fewer than 1,000 residents

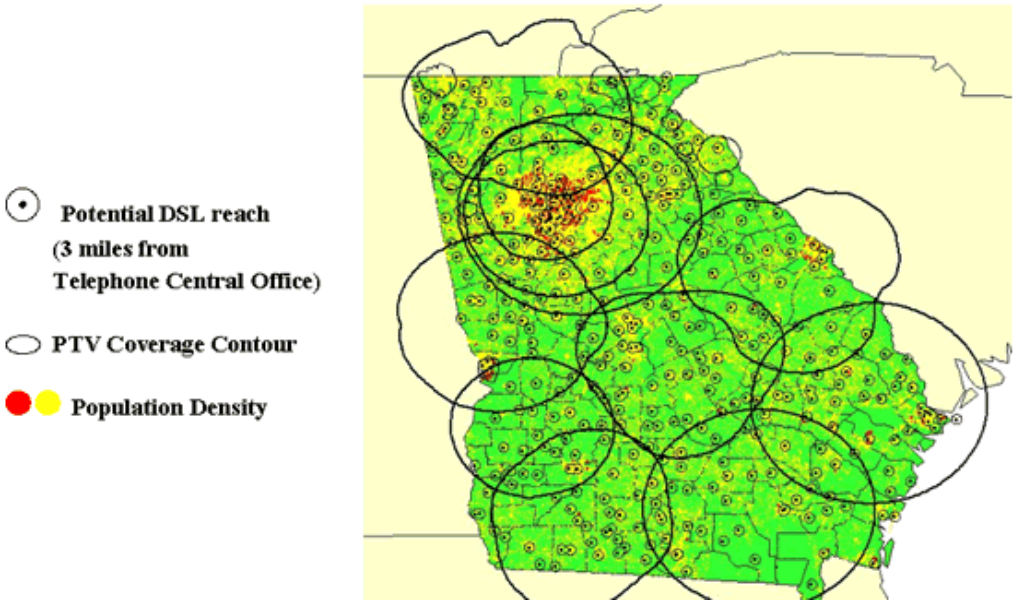
Public Television in Georgia- Helping Education in the 21st Century

- Over 1,200 schools in Georgia have either no access to the internet or slow "narrow-band" connections.
- The value of public television's high speed, broadband delivery of data to unconnected, or narrow-band connected schools in GA is $30 million per year.
- The total value of PTV's broadband delivery to all GA schools is $61 million per year.



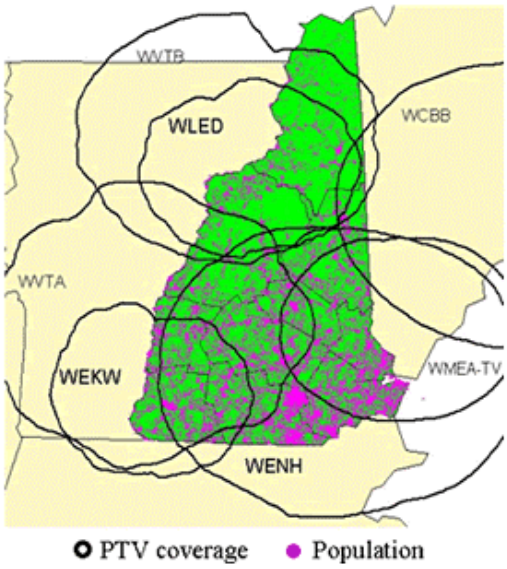
PTV Coverage Areas
★ Schools with only dial-up (narrow-band) access to the internet

Public Television in Georgia
PTV vs DSL



Public Television for Broadband and Education in New Hampshire

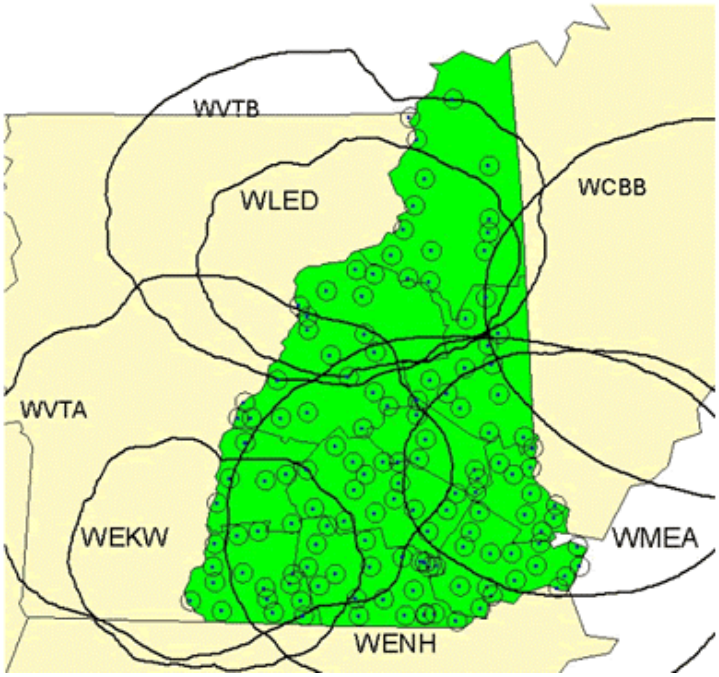
- Only 38% of schools in New Hampshire have high speed connection to the internet.
- Public Television's broadband for education commitment is worth over $16 million per year to all the schools in NH; the cost to convert the New Hampshire Network is $10 million.
- The New Hampshire Network's educational outreach efforts will reach over 1,000 teachers around the state.
- There are no commercial stations that broadcast into NH that are owned by companies in New Hampshire.



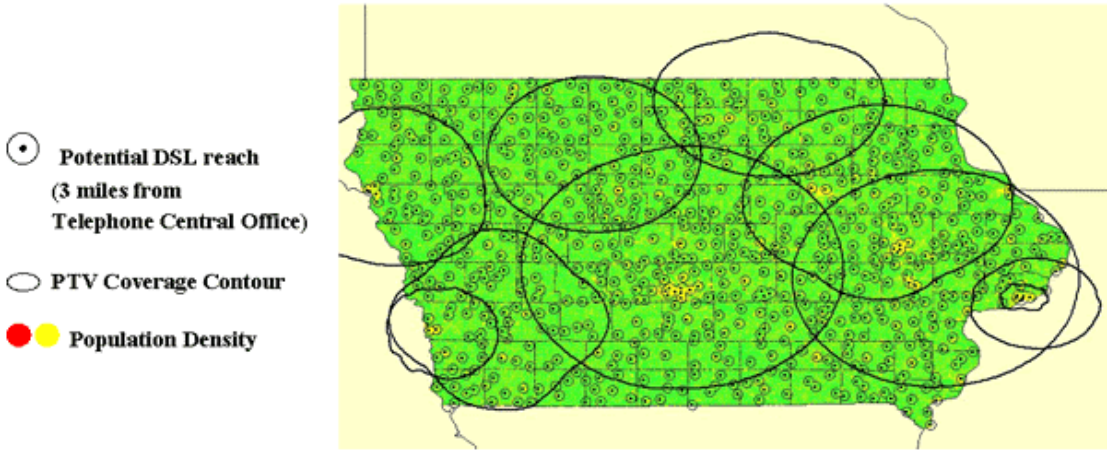
Public Television for Broadband in New Hampshire
PTV vs DSL

Potential DSL reach (3 miles from Telephone Central Office)

PTV Coverage Contour

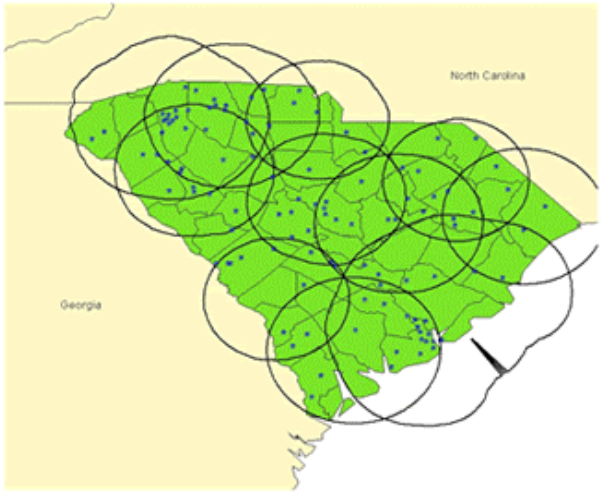


Public Television for Broadband in Iowa
PTV vs DSL



South Carolina ETV: Helping Education in the 21st Century

- Approximately 110 schools in South Carolina have no internet access.
- Almost 160 schools have dial-up, or ***narrow-band***, connections.
- The value of public television's ***broadband*** delivery of content to non-internet or narrow-band schools is over $6.7 million per year
- The total value of PTV broadband to SC schools is $34 million per year.

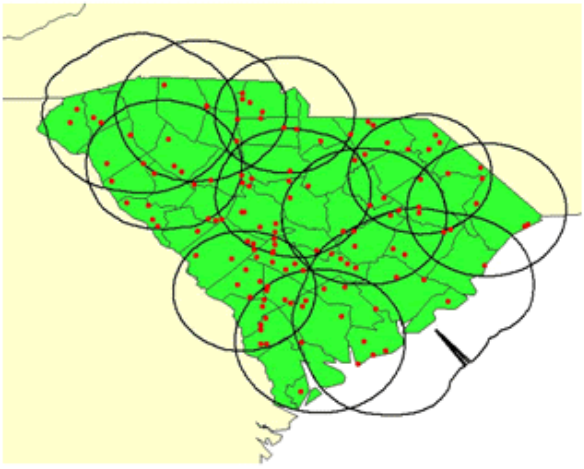


Schools with only dial-up (narrow-band) access to the internet

Public television coverage

South Carolina ETV- Serving Rural Areas

- Only 8% of internet users in rural areas have access to broadband service.
- 65 million Americans live in rural areas.
- Less than 1% of towns with populations below 1,000 have cable modem access available, none have DSL.
- Cable providers will not upgrade areas with fewer than 10 homes per square mile.



PTV Coverage Areas
Towns with fewer than 1,000 residents

Public Television in South Carolina
PTV vs DSL