NGA Center for BEST PRACTICES

Issue Brief

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State Efforts to Expand Broadband Access

Executive Summary

Broadband communication is radically transforming the way in which Americans use the Internet by providing the ability to access voice, video, and data through a single network.[1] However, challenges remain in ensuring universal access to broadband service, as providers do not reach every person across the country. From the standpoint of economic viability, it is very costly to build the infrastructure that connects remote rural areas to broadband service, and this challenge has led to a disparity between urban (73 percent) versus rural (55 percent) broadband adoption rates.[2]

A number of compelling reasons exist for promoting broadband access and adoption. Notably, there are benefits in having access to educational institutions or telemedicine applications through the Internet. With this in mind, states have used a variety of strategies to encourage or incentivize providers to expand broadband service to unserved areas. These include:

- Establishing a task force with public and private stakeholders to evaluate the current state of broadband deployment and identify beneficial policy changes;
- Providing tax incentives designed to encourage investment in broadband infrastructure as well as other related equipment and expenses;
- Creating dedicated funding that allows states to leverage private sector funds for investing in the infrastructure, thus maximizing their return on investment and expanding broadband availability in the most efficient way possible;
- Mapping broadband availability to help both policymakers and service providers determine where to focus their efforts and reveal gaps in service to providers who wish to expand their offerings; and
- Engaging local communities to increase grassroots demand that encourages providers to deploy broadband in previously unserved areas.

This *Issue Brief* reviews state efforts to expand broadband access by offering examples of implementation strategies. In addition, we highlight how broadband access can spur economic development and improve quality of life.

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What is Broadband?

The Federal Communications Commission (FCC) defines *broadband* as "advanced communications systems capable of providing high-speed transmission of services such as data, voice, and video over the Internet and other networks."[3] For the FCC to consider Internet service to be broadband, the connection must always be on and data transmission speeds must exceed 200 kilobits per second[4] in at least one direction (upload or download).[5] The Organisation for Economic Co-operation and Development (OECD) employs similar requirements in its data collection, with the exception that its data transfer threshold is 256 kilobits per second.[6]

Types of Broadband Service

- Digital Subscriber Line (DSL)
  - Uses existing telephone infrastructure
- Cable Modem
  - Uses same coaxial lines as television service
- Fiber Optic Cable
  - Transmits data at speeds far exceeding current DSL or cable modem speeds and can also deliver voice (VoIP) and video services
- Wireless
  - Mobile
    - Mainly PC cards in laptops
  - Fixed
    - Wireless signals sent to an antenna at the consumer's premise
- Satellite
  - Another form of wireless broadband, delivered in same manner as satellite-based television service

Source: FCC: What is Broadband?

The Broadband Difference

The expansion of broadband service to unserved areas can yield significant economic benefits. Access to broadband allows workers to telecommute, thus saving driving time and commuting costs. From an economic development standpoint, broadband can attract new businesses to a community, thus creating jobs and improving an area's well-being. A July 2007 report from the Brookings Institution found that each 1-percentage point increase in broadband penetration in a state could yield a 0.2 to 0.3 percent increase in employment.[7] A July 2001 study estimated the economic benefits of ubiquitous broadband deployment to be $500 billion.[8] Furthermore, a February 2002 study from New Millennium Research Council suggested that deployment of a nationwide broadband network would create 1.2 million new, permanent jobs in the United States.[9] These figures demonstrate the tremendous economic benefits associated with broadband expansion initiatives.

Americans with Broadband at Home		Service Type for Americans with Internet at Home	
2006	2007	Broadband	Dial-up
42%	47%	70%	23%
Broadband Gap (Urban/Suburban vs. Rural)			
		Urban/Suburban	Rural
Internet Users with Broadband		73%	55%
Internet Use (Urban/Suburban vs. Rural)			
		Urban/Suburban	Rural
Occasional Use of the Internet		73%	60%
Source: Horrigan and Smith			

Broadband also offers the potential for significant benefits in the area of telemedicine. In **California**, a recent

study found that 83 percent of parents of children with special health care needs drive more than one hour to visit a specialist.[10] Broadband can allow doctors to examine patients remotely, thus eliminating geographic barriers and increasing access to quality health care for patients living in rural areas. Additionally, many patients who have illnesses, such as diabetes, that require regular vital sign reporting also can benefit from telemedicine because it lowers the cost of interacting with health care professionals. While some telemedicine applications are possible with slower connections, many advanced applications, such as video conferencing, digital X-ray transmission, and remote monitoring, require speeds of 10 megabits per second or more for patients and doctors to fully realize their benefits.

Broadband creates possibilities in a variety of other areas as well. For example, a school's access to broadband generates a much richer learning experience for its students. Instructors can use video conferencing, interactive lessons, music, and educational gaming programs to enhance traditional forms of educating students. To realize their potential, many of these educational applications require data transmission speeds in excess of one megabit per second. Broadband also offers farmers access to real-time market information that can expand their customer base and locate the most affordable supplies. Finally, in public safety, higher data transfer rates can facilitate automated information sharing between jurisdictions and can mean less time spent filling out paperwork. Broadband also can provide officers with the ability to download photos of suspects and victims as soon as they are available, increasing the chances of capture or rescue.

Given the speed of technology deployment in broadband communications, the FCC's current definition may actually "underdefine" the term broadband. While basic Internet functions can be carried out using speeds equivalent to the FCC's definition of 200 kilobits per second, many increasingly popular applications, such as telecommuting, streaming media, file sharing, and telemedicine require faster transmission rates, of at least 1 megabit per second. Accordingly, the Information Technology and Innovation Foundation calls for a "robust" broadband definition of at least 2 megabits per second that increases with speed and application needs.[11] Still, the FCC definition can provide a baseline for defining broadband.

Implementation Strategies

States have employed a variety of strategies to expand broadband access. In general, a first step is establishing a task force with public and private stakeholders to evaluate the current state of broadband deployment and identify beneficial policy changes. Task forces provide policymakers with the valuable advice of public and private sector subject matter experts and can potentially yield useful, state-specific recommendations for moving forward. Another strategy is the use of tax incentives designed to encourage investment in broadband infrastructure as well as other related equipment and expenses. States also can create dedicated funding to enable the use of public or private sector funds for investing in infrastructure; map broadband availability to help both policymakers and service providers determine where to focus their efforts; and engage local communities to increase grassroots demand for broadband. The following sections provide an overview of the principal strategies that states have used to encourage service providers to expand the reach of broadband.

Creating Task Forces to Leverage Public and Private Sector Expertise

In a number of states, task forces have proved effective at evaluating the current state of broadband deployment and identifying possible regulatory changes to increase service availability. These groups can be created by a governor's executive order, as in **California** and **Missouri**, or through legislation, as in **Hawaii** and **Maryland**. Task forces are typically comprised of representatives from local governments, state government, public utilities commissions, Internet service providers, telecommunications companies, nonprofit organizations, legislatures, or universities. Generally, either the task force members or the state agencies provide staff support to task forces.[12] In a period ranging from 12 to 36 months, task forces produce reports that can include, but are not limited to, baseline assessments of initial broadband deployment and policy recommendations for how to achieve ubiquitous access and increased adoption.[13] For example, the California Broadband Task Force (CBTF), created by Governor Arnold Schwarzenegger in 2006, not only provided recommendations for achieving ubiquitous access in its final report but also created regional broadband maps that detailed broadband availability as well as connection speed.[14]

Maryland's Rural Broadband Task Force (MRBTF), created in 2003, is comprised of elected officials and employees from both state and local governments. The MRBTF was charged with examining broadband expansion initiatives in other states; determining what resource and infrastructure investments would work best for Maryland; and developing proposals, legislation, and procurement policies that would further the goal of broadband proliferation in the state. MRBTF recommended, among other things, the creation of a public-private partnership to oversee the planning and deployment of a rural fiber-optic network that would improve the economic feasibility of providing last mile service to unserved communities. The MRBTF also recommended creation of the Rural Broadband Assistance Fund, which seeks to spur private investment in broadband infrastructure through matching grants.

Created in 2007, Hawaii's Broadband Task Force (HBTF) focuses on both broadband availability and adoption. The HBTF is comprised of elected officials, representatives from service providers, state government officials, and university faculty. In terms of availability, the task force is charged with determining the current reach and affordability of broadband as well as identifying current gaps in coverage. Regarding adoption, the task force aims to determine current broadband usage and identify any existing geographic and socioeconomic gaps. The HBTF also plans to survey other state efforts in broadband expansion and identify policies that facilitate progress in that area.

Employing Tax Incentives for Broadband Infrastructure and Related Expenses

A number of states have augmented their tax codes to encourage investment in broadband infrastructure and other related equipment as well as alter consumer or employer behavior.

Mississippi provides tax credits and sales tax exemptions for investments made from June 30, 2003, through July 1, 2013, on equipment used for the deployment of broadband technologies. The tax credits range from 5 percent to 15 percent while the sales tax exemptions range from 50 percent to 100 percent. Mississippi has structured the incentives so that percentages increase as

investments are made in more rural areas of the state. The credits and exemptions can be used for a total of 10 years.

Some states have used tax incentives as a vehicle for economic development in disadvantaged areas. **Missouri** provides a tax credit of 40 percent per year per entity for a period of three years for high-speed telecommunications equipment costs incurred while opening or relocating a business facility. To be eligible, the entity must be opening in or relocating to an economically distressed community. A tax credit that offers incentives for organizations to relocate can have a beneficial effect on the demand for access to service in that community.

Other states have used tax credits to encourage consumers to change their purchasing patterns. For example, **Georgia** offers a tax credit of up to $1,200 to employees who participate in programs that encourage telecommuting, which increases the demand for broadband in all communities. Please refer to Appendix B for more information about broadband-related tax incentives.

Creating Dedicated Funding to Attract Service Providers

Many states have created funds to help encourage private sector investment in broadband infrastructure. These states typically employ matching grants to improve the financial feasibility for service providers to expand operations to previously unserved areas. Other states have issued direct funding for projects or research, including the creation of public sector entities that use state funds to construct and lease broadband infrastructure.

The **California** Advanced Services Fund (CASF) was established by the California Public Utilities Commission in December 2007 as a two-year program to facilitate broadband deployment in unserved areas of the state. The program has been allocated a total of $100 million and will provide matching funds of up to 40 percent of the total project cost for the deployment of broadband infrastructure. The CASF is funded by a 0.25 percent surcharge on end-users' intrastate telecommunication bills, which has been offset by an equal reduction in the California High Cost Fund-B. Priority will be given to those projects that seek to expand broadband access in unserved areas; remaining funds will be allocated to areas where broadband is available, but no provider offers service capable of at least 3 megabits per second download and 1 megabit per second upload.

While not the dominant strategy to expand broadband access, some states are exclusively using public sector funds for the purchase and construction of broadband infrastructure. Created in 2007, **Vermont's** Telecommunications Authority (VTA) is charged with several tasks, among them bringing affordable broadband service capable of transfer rates of at least 1.5 megabits per second to every Vermont household by 2010. The VTA has the authority to issue up to $40 million in state-backed bonds. The resulting infrastructure will be owned by the state and leased to service providers. The VTA plans to build whatever infrastructure is best suited to bring broadband service to all its communities. Out of its efforts, the VTA hopes to spur up to $200 million of private investment in broadband infrastructure.

Mapping Broadband Availability to Identify Gaps in Service Coverage

Broadband availability mapping has become a popular tool for states that wish to evaluate their current state of broadband access. A comprehensive map of broadband availability can help policymakers determine where to dedicate resources. Additionally, broadband availability maps identify locations where it is economically feasible for service providers to expand their operations.[15]

In 2007, the **California** Broadband Task Force (CBTF) undertook California's first comprehensive assessment of broadband availability. The CBTF not only wanted to map service availability, but data transmission speed as well. Employing a popular strategy, the CBTF contracted its broadband availability data collection efforts out to a neutral third party in order to offer data confidentiality to service providers. Because deployment information is competitively sensitive, data confidentiality increases the likelihood that service providers will respond to a data request. The third party agreement also allowed the CBTF to complete its mapping effort at an accelerated pace. The State of California along with Cisco Systems, Inc. provided much of the staff required to compose the CBTF final report and create the maps. The CBTF's mapping effort took about six months to complete and was paid for in part by a grant from providers to the California Emerging Technology Fund, a nonprofit corporation established by the California Public Utilities Commission and funded through conditions of the merger approvals of four prominent telecommunications companies. The CBTF found that while 96 percent of all California's households had access to broadband services, availability in some rural areas was as low as 57 percent. California also surveyed transfer rates and determined that 56 percent of Californians had access to broadband at speeds greater than 10 megabits per second and 94 percent had access to speeds of between 5 megabits per second and 10 megabits per second.

In July 2007, **Tennessee's** Broadband Task Force released its first comprehensive survey of broadband availability, which found that between 86 and 90 percent of Tennessee households had access to broadband. Similar to California, Tennessee also collects broadband deployment data through a third party and uses nondisclosure agreements to maintain confidentiality and build trusting relationships with service providers. Tennessee's first annual inventory of service availability lasted approximately 3 months and cost about $200,000. However, Tennessee's effort costs more in the long run because the state continually updates its service availability maps as providers expand their networks to reflect the progress made in Tennessee's other broadband expansion pursuits.[16]

Engaging Communities to Increase Grassroots Demand

Many states have undertaken efforts to work directly with communities to encourage broadband adoption. **Kentucky's** broadband initiative, ConnectKentucky, has been cited by news organizations and policymakers as a model approach to broadband expansion. ConnectKentucky employs a three-year process that aims to expand access to broadband while also increasing demand for service.

The first step in the ConnectKentucky model was the creation of a comprehensive map of broadband availability. ConnectKentucky representatives then work with local volunteers to develop community plans that serve as the strategy for bringing broadband to unserved areas.

ConnectKentucky formed "eCommunity Leadership Teams," comprised of approximately 4,000 volunteers from all of Kentucky's counties. The volunteers came from various backgrounds including agriculture, education, tourism, and local government to formulate a strategy for bringing broadband access to their community, thereby demonstrating to service providers a community-wide demand for broadband service.

During this phase, ConnectKentucky also conducted household and individual surveys to understand computer and Internet use in the state. Through this information, Kentucky was able to identify barriers to broadband adoption among residents. The resulting knowledge from the surveys enhances the community plans and therefore increases the likelihood of statewide broadband adoption.

The state of Kentucky contributed approximately $7.5 million over three years for the ConnectKentucky program. This contribution has funded an ongoing effort that includes continual mapping, community outreach, and research. ConnectKentucky secures 20 percent of its operating costs from service providers and other stakeholders.

According to ConnectKentucky, there has been a 58 percent growth rate in broadband deployment since they began operating in Kentucky. Since January 2004, 1.2 million Kentucky residents have received access to broadband services. ConnectKentucky reports that 95 percent of Kentucky residents now enjoy access to broadband compared with 60 percent in 2004. Between 2005 and 2007, Kentucky saw an 83 percent growth rate in broadband adoption, compared to a national growth rate of 57 percent during the same period.[17] Furthermore, Kentucky reports an overall investment of $860 million in state telecommunications networks. Kentucky has also donated approximately 2,000 Internet-ready computers to underprivileged households as part of the No Child Left Offline program.

Ohio and **Tennessee** have since adopted the ConnectKentucky model. All three public-private partnerships are subsidiaries of Connected Nation, a national nonprofit organization that works with states to expand access to broadband. Connected Nation also has produced broadband deployment maps for **West Virginia** and **South Carolina**.

Conclusion

According to the FCC, more than 99 percent of zip codes in the United States enjoy access to high-speed Internet.[18] Many of these areas, however, are covered by satellite service, which is much slower and more expensive than other broadband technologies such as cable or DSL.[19] More progress is needed to achieve ubiquitous deployment of broadband, capable of handling the ever-increasing complexity of today's Internet-based media.

States are assuming a leadership role in expanding broadband access given the economic benefits to both the private and public sector. In this role, states have established task forces, requested service providers to map coverage, and provided incentives for deployment. Appendix A provides an overview of broadband initiatives in 14 states, giving a wide range of implementation strategies employed across the country. Appendix B lists 2007 tax credits that encourage increases in broadband access or adoption.

Appendix A: Recent State Broadband Expansion Programs

This table details information on selected recent broadband expansion programs by states; it does not seek to rank initiatives and may not include every state program. Much of the language is taken directly from the Web sites listed.

State	Broadband Expansion Initiative
California	Governor Arnold Schwarzenegger created the California Broadband Initiative to, among other things, establish a broadband task force, better coordinate fiber-optic installation, and map broadband availability by collecting data from broadband providers. After mapping broadband availability, the task force found the following: • 96 percent of California residences have access to broadband; • Availability in rural areas is as low as 57 percent; and • 1.4 million Californians, most of whom live in rural areas, lack broadband access. California is encouraging the expansion of both broadband access and broadband adoption. First, the California Advanced Services Fund (CASF) will provide matching funds of up to 40 percent of the total project cost for the deployment of broadband infrastructure in unserved areas of California. Priority will be given to those projects that seek to expand broadband access in unserved areas; remaining funds will be allocated to areas where broadband is available, but no provider offers service capable of at least 3 megabits per second download and 1 megabit per second upload. Second, California will seek to encourage broadband adoption through the California Emerging Technology Fund (CETF). The CETF is a nonprofit corporation established by the California Public Utilities Commission as a condition of the merger approvals of four prominent telecommunications companies. The CETF: • Will receive a total of $60 million over five years, $5 million of which must be used for telemedicine projects; • Requires a 3-to-1 cash match for grants; and • Focuses on rural and disadvantaged communities that lack access to broadband infrastructure, computers, and affordable service. The California Broadband Initiative also establishes policies that increase the adoption of broadband and the expansion of telemedicine networks. California Broadband Initiative
Hawaii	The Hawaii Broadband Task Force was established to remove barriers to broadband access and identify opportunities for increased broadband deployment and adoption. The Hawaii State Legislature appropriated $50,000 for the task force. In its final report, the Hawaii Broadband Task Force plans to gather data about the current availability and adoption rates of broadband in Hawaii. In 2008, the task force also plans to: • Determine how many states have initiated broadband collection projects;

State	Broadband Expansion Initiative
	• Survey any regulatory changes made by states; and • Understand the factors behind certain states' decisions to invest in particular kinds of infrastructure, such as fiber-optic networks. In its final report, the task force will provide an overview of applicable broadband technologies; it also is looking at initiatives in other states to determine the best methods for expanding broadband coverage. Hawaii Broadband Task Force
Idaho	In 2006, Idaho's State Legislature appropriated $5 million for extending broadband access to rural communities. Details are as follows: • The program offered grants for up to 50 percent of the cost of projects with a cap of $1 million for any specific project; and • In June 2006, $4.9 million in grant funds was made available to four Idaho companies, yielding a total public-private investment of $9.8 million to finance 79 projects bringing broadband access to 50,000 potential new subscribers.
Iowa	The Iowa Communications Network (ICN) is an independent state agency that was approved in 1989 for the original purpose of equalizing educational opportunities between schools in rural and urban areas of Iowa. The ICN is governed by the Iowa Telecommunications and Technology Commission. The state of Iowa owns and administers the backbone of the statewide fiber-optic network and leases the last mile connections to eligible facilities. Additional details include the following: • The ICN serves educational institutions (K-12 and universities, both public and private), state and federal government agencies, the National Guard, public libraries, hospitals, and physician clinics. • The ICN owns 3,100 miles of backbone fiber and leases 3,500 miles of last mile connections to authorized facilities. • Overall, Iowa has invested more than $227 million in the ICN. Last mile connections to schools, area education agencies and libraries are funded by an annual $2.7 million appropriation made from the state Technology Reinvestment Fund. All other fees associated with use of the ICN are paid for by the authorized users.
Kentucky	ConnectKentucky is a public-private partnership that supports statewide technology expansion, planning, public policy, networking, and recruitment. ConnectKentucky created the Connected Nation model for rural broadband expansion. ConnectKentucky estimates: • 95 percent of Kentucky households have access to broadband; • More than 1.2 million Kentucky residents have received broadband access since January 2004; • $860 million in private capital has been invested in Kentucky telecommunications; • A 24 percent growth rate of computer ownership in Kentucky (to 72 percent from 58 percent) over the last three years; • An 83 percent growth rate in broadband adoption compared to 57

State	Broadband Expansion Initiative
	percent national growth rate from 2005 to 2007; • A 58 percent growth rate in broadband availability since ConnectKentucky began its work in 2004; • 14,500 high-tech jobs were created in 2005 and 2006 in Kentucky and the state has a rate of job development in the IT sector that is 31 times the national average; and • Approximately 2,000 Internet-ready computers delivered to underprivileged households as part of the No Child Left Offline program. Kentucky has contributed about $7.5 million to the ConnectKentucky effort, providing funding for mapping, community outreach, and research. ConnectKentucky has worked with about 4,000 volunteers from various backgrounds in Kentucky communities to formulate county-level strategies to expand broadband access and increase adoption. ConnectKentucky secures 20 percent of its funding from other stakeholders. Through an emphasis on the expansion of both broadband access and adoption, ConnectKentucky has made the state a nationally recognized technological leader. ConnectKentucky
Maine	The ConnectME Authority was created in 2006 to develop proposals for broadband expansion projects for underserved areas of the state and to oversee the process for selecting and funding those projects. The ConnectME Authority's source for funding is a 0.25 percent surcharge on all communications, video, and Internet service bills for retail in-state service, expected to generate between $750,000 and $1 million per year. Additionally, the ConnectME Authority will receive a one time, voluntary cash payment of $2.5 million from Verizon as a result of its February 2008 merger with FairPoint Communications, Inc. The authority will fund projects through grants, direct investments, and loans made to local governments. Many of the funds will be made in partnership with communications service providers. The ConnectME statute also provides for reimbursement up to $500,000 annually of Maine sales and use taxes in connection with the purchase of machinery and equipment for use primarily in the development of advanced communications infrastructure. Additional details include the following: • In 2005, 14 percent of Maine households representing 170,000 residents did not have access to broadband; • The authority awarded seven grants totaling $787,174 for total project amounts of more than $1.7 million; and • The grants fund broadband service to more than 50 underserved communities representing 14,400 households and businesses. When completed, the current projects will yield an approximate 2.8 percent increase in broadband availability. Recipients of the grants, being either local governments or organizations, will own the resulting infrastructure. The ConnectME Authority expects to announce the second round of grants in summer 2008. ConnectME Authority

State	Broadband Expansion Initiative
Maryland	In Maryland, a series of entities work to encourage broadband expansion, including: • The Maryland Technology Development Corporation, whose February 2003 report recommended a statewide task force to address disparities in broadband access; • The Rural Broadband Task Force, which was created to examine best practices and expand broadband communications in rural Maryland. The task force's spring 2006 report on broadband expansion in western Maryland and the eastern shore recommended an authority to support public-private partnerships in infrastructure deployment; • The Maryland Broadband Cooperative, a public-private partnership that oversees the planning, construction, and management of the network; and • The Maryland Rural Broadband Coordination Board, created in 2006, whose purpose is to assist in the deployment of broadband infrastructure and approve expenditures to that end. In 2006, the Rural Broadband Communication Services Act provided $10 million over three years to bring fiber-optic lines to the nine counties on the eastern shore and the three counties in southern Maryland. Another $2 million in federal money will construct a fiber-optic network connecting NASA on Wallops Island, **Virginia**, with communities on Maryland's eastern shore. Future projects include crossing the Chesapeake Bay Bridge, as well as fiber installation in both southern Maryland and on the upper eastern shore. With the fiber backbone in place, the private sector is expected to provide last mile service to businesses and residents. Maryland Broadband Cooperative
Missouri	Governor Matt Blunt established the Rural High-Speed Internet Access Task Force to identify opportunities to increase Internet access across the state. The task force's preliminary report details: • An assessment of Missouri's current broadband availability; • An identification of barriers to rural deployment; and • Recommended policy changes to increase high-speed Internet availability to underserved communities. Missouri Rural High-Speed Internet Access Task Force
New York	The New York State Council for Universal Broadband was created in December 2007 to develop strategies that will ensure every New Yorker has access to affordable, high-speed Internet service. Details of the initiative are included below. Five Action Teams will carry out the following functions: • Identify and map the state to baseline areas with and without broadband access infrastructures; • Develop programs that address affordability of service, computer ownership and adoption, digital literacy, and consumer education; • Improve access to e-government, or government services offered

State	Broadband Expansion Initiative
	online; • Build stronger economies and promote the economic growth of New York; and • Use current or planned public assets and locally based initiatives to increase broadband penetration in New York State. The 2007-2008 state budget appropriated $5 million for broadband expansion, divided evenly between two purposes: to facilitate increased physical access to broadband Internet services statewide and to provide equal and universal access to broadband Internet services for underserved rural and urban areas, including schools and libraries. Specifically: • A Request for Proposals was released to begin the process of distributing funds to projects that promote accessible Internet for underserved areas of the state; • Public-private partnerships will provide communities across New York with access to high-speed Internet service and computer literacy programs; • Matching grants were required, with a suggested match ratio of 4:1; and • Fifty grant applications were accepted from eligible communities and organizations that create public-private partnerships to meet the strategic goals of the council. Nine grants were recently announced by the Governor's Office, ranging in amounts from $75,000 to $1.3 million. New York State Council for Universal Broadband
Ohio	In December 2007, Governor Ted Strickland announced the Connect Ohio initiative, a public-private partnership that will help expand broadband services across the state by working with local communities and providers to map gaps in access. Connect Ohio is a subsidiary of Connected Nation and therefore uses the following three-year strategy for rural broadband expansion: • First, Connect Ohio will form partnerships with broadband providers to create detailed maps of broadband coverage in order pinpoint gaps in Ohio's broadband availability; • Connect Ohio will then form community-based teams to create local plans that promote increased broadband deployment and adoption; and • Connect Ohio also will conduct annual, quantitative surveys on the use of and access to broadband services and computing applications. The state cost for the program is estimated to be $2.9 million in the 2008-2009 biennium and $3.9 million in the 2010-2011 biennium. Connect Ohio
Tennessee	In 2005, the Tennessee General Assembly created the Tennessee Broadband Task Force. In its January 2007 report, the task force recommended that Tennessee create a public-private partnership similar to ConnectKentucky to map statewide broadband availability, encourage broadband adoption, and establish a program that promotes access to broadband for all Tennesseans. By May 2007, Governor Phil Bredesen had come to an agreement with Connected

State	Broadband Expansion Initiative
	Nation to establish a Nashville-based subsidiary, Connected Tennessee. Connected Tennessee has accomplished the following: • Released the state's first broadband inventory map showing current levels of high-speed Internet availability across the state; • Conducted a technology survey that highlights use and impact of computers, the Internet, and broadband technology among Tennessee residents and businesses; and • Released a county-by-county reading of average Internet speeds across Tennessee. Connected Tennessee's market intelligence (maps, survey data, and grassroots demand aggregation) benefits companies by causing the cost of doing business to go down and the ease of doing business to go up. The mapping process lasted approximately 3 months and cost about $200,000 for the first annual inventory of service availability. Connected Tennessee will continue to develop comprehensive county-level growth plans that address each county's challenges related to rural broadband expansion. Connected Tennessee
Utah	In July 2007, the Utah State Legislature created the Rural Broadband Service Fund, which appropriated $1 million for providers who wish to expand access to broadband in rural areas. The following stipulations apply: • The project must be in a rural community with a population of 10,000 or less that lacks access to broadband; • To qualify for a grant, the provider and the county/city must match funds with the state; • The project must guarantee a minimum rate of data transmission of 256 kilobits per second; and • The amount of the grant is capped at a maximum of 50 percent of the total investment. Rural Broadband Service Fund
Vermont	Vermont's Broadband Grant Program (BGP) was created in 2004 to expand broadband access to unserved communities. The program provides up to four towns with $200,000 in funding per year. The BGP was aimed at providing local governments with enough funds to create a partnership with wireless broadband providers to bring service to their communities. The BGP is now in its fourth year and has provided a total of $800,000 in grants to 16 communities. As of early 2006, broadband was available to approximately 84 percent of Vermonters by population. As of 2007, this figure is estimated to be nearly 90 percent. The Vermont Telecommunications Authority was created in June 2007 to achieve affordable statewide broadband and cellular access by 2010. Details of the authority are as follows: • The authority plans to finance the construction of any type of infrastructure so long as it furthers the goal of statewide access to affordable broadband service; • The authority will own the resulting infrastructure, thereby leasing it to

State	Broadband Expansion Initiative
	service providers to justify their initial investment (Vermont is prohibited from being a Internet service provider itself by statute); • The state can provide the authority with up to $40 million in bonds for projects in the first year of construction and possibly more if needed and sustainable. The state is hoping to leverage more than $200 million in private sector investment with the state's backing; and • The authority will solicit proposals from partners who are willing to provide telecommunications services and build telecommunications infrastructure (fiber and wireless) and from investors who will work with the state to leverage the state's contribution. Vermont Telecommunications Authority
Virginia	In June 2007, the Governor Tim Kaine created a Broadband Roundtable to accelerate the realization of affordable broadband connectivity to every business by 2010. In its final report to the governor, the Broadband Roundtable will: • Discuss various models for measuring broadband adoption; • Identify existing and emerging technologies that are suitable for delivering affordable broadband service across Virginia; • Highlight valuable applications of broadband including telework, telemedicine, distance learning, public safety interoperability, and social empowerment; and • Develop community-oriented models to facilitate infrastructure deployment with a focus on expanding access to all Virginia businesses. Broadband Roundtable

Appendix B: Selected State Tax Incentives Related to Broadband Penetration and Adoption

This table details 2007 tax credits that encourage increases in broadband access or adoption; this table may not include every state tax credit. The information in this table is taken from the National Conference of State Legislatures Web site.

State	Statute	Description of Tax Incentive
Connecticut	Conn. Gen. Stat. § 12-412	Exempts sales tax on items used to provide telecommunications, high-speed data transmission or broadband Internet services.
Florida	Fla. Stat. § 212.08	Exempts development projects sponsored by nonprofit or government "eligible sponsors" to increases access to high-speed broadband capability for rural communities with enterprise zones from sales tax.
Florida	Fla. Stat. § 220.183	Provides income tax credits for any project designed to provide increased access to high-speed broadband capabilities, which includes coverage of a rural enterprise zone.
Georgia	O.C.G.A. § 48-7-29.11	Offers tax credit of up to a limit of $1,200 for each participating employee to both employees and employers who participate in telework programs. Effective July 1, 2007.
Georgia	O.C.G.A. § 48-7-40.2 et. seq.	Offers telecommunications companies a state tax credit for existing telecommunications infrastructure. Tax credits are 1 percent, 3 percent, or 5 percent depending on location.
Hawaii	Hawaii Rev. Stat. § 235-110.51	Offers tax credit to build or improve high-speed telecommunications.
Idaho	Idaho Code § 63-3029I	Offers a nonrefundable income tax credit of 3 percent to service providers for a qualified investment in broadband equipment installed between January 1, 2001, and December 31, 2005.
Mississippi	Miss. Code Ann. § 27-65-101	Provides tax exemptions that vary according to the economic development needs of a given area for telecommunications equipment used in the deployment of broadband after June 30, 2003, and before July 1, 2013.
Mississippi	Miss. Code Ann. § 57-87-1 et seq.	Provides tax credits for investments made between June 30, 2003, and July 1, 2013, ranging from 5 percent to 15 percent over 10 years; also provides sales tax exemptions ranging from 50 percent to 100 percent, with the greater credits going to those companies investing in the least populous regions of the state. Allows the tax credit to be used for nine consecutive years after the year in which it is earned. Amends a section of the state code to allow the sale of

State	Statute	Description of Tax Incentive
		equipment to telecommunications entities made during the eligible period and installed for use in broadband deployment be exempt from 1/2 of the state sales tax. Waives the sales tax for equipment to be used in the most rural areas.
Missouri	77. § 135.535 R.S.Mo.	Provides tax credits for the high-speed telecommunications equipment expenses of companies relocating to economically distressed areas.
Oregon	Or. Rev. Stat. § 315.507	Provides a tax credit for capital asset investment, including the installation of broadband infrastructure, by firms engaged in electronic commerce if they are located in approved or designated areas.
Virginia	Va. Code Ann. § 58.1-400.1	Establishes a minimum tax for telecommunications providers in place of the corporate tax.
Virginia	Va. Code Ann. § 58-1-3506	Creates separate classification for tangible personal property owned and used by certain providers of wireless broadband Internet service for local taxation purposes.
Wisconsin	Wis. Stat. § 71.07(5e) et seq.	Provides a tax credit for Internet equipment capable of transmitting data packets or Internet signals at speeds of at least 200 kilobits per second in either direction.

Resources

For more information about broadband or broadband policy, please refer to the following resources:

- National Conference of State Legislatures Resource Page
- Pew Internet & American Life Project
- The Information Technology and Innovation Foundation
- National Association of State Chief Information Officers Broadband Publications
- Federal Communications Commission Strategic Goals: Broadband
- Organisation for Economic Co-operation and Development Broadband Portal
- Connected Nation Report: *The Economic Impact of Stimulating Broadband Nationally*
- Arizona Broadband Initiative Framework: Analysis and Report (Contains an overview of 14 state broadband initiatives, 7 of which are not mentioned in this issue brief.)

Endnotes

[1] Federal Communications Commission, "Strategic Goals: Broadband" [online]. Available at: <http://www.fcc.gov/broadband/>.

[2] John B. Horrigan and Aaron Smith, "Home Broadband Adoption 2007," Memo [online] (Washington, D.C.: Pew Internet & American Life Project, June 2007). Available at: <http://www.pewinternet.org/pdfs/PIP_Broadband%202007.pdf>.

[3] Federal Communications Commission, "Strategic Goals: Broadband" [online]. Available at: <http://www.fcc.gov/broadband/>.

[4] Originally, the threshold was designed to exclude Integrated Services Digital Network (ISDN) and satellite services. Many have criticized the threshold for being too low, an issue that has recently been debated in Congress.

[5] Federal Communications Commission, "Broadband" [online]. Available at: <http://www.fcc.gov/cgb/broadband.html>.

[6] Organisation for Economic Co-operation and Development, "OECD Broadband Statistics to December 2006" [online]. Available at: <http://www.oecd.org/document/7/0,3343,en_2649_34223_38446855_1_1_1_1,00.html>.

[7] Robert Crandall, William Lehr and Robert Litan, "The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data," The Brookings Institution [online]. Available at: <http://www.brookings.edu/~/media/Files/rc/reports/2007/06labor_crandall/200706litan.pdf>.

[8] Robert W. Crandall and Charles L. Jackson, "The $500 Billion Opportunity: The Potential Economic Benefit of Widespread Diffusion of Broadband Internet Access," Criterion Economics [online]. Available at: <http://www.criterioneconomics.com/docs/Crandall_Jackson_500_Billion_Opportunity_July_2001.pdf>.

[9] Stephen B. Pociask, "Building a Nationwide Broadband Network: Speeding Job Growth," New Millennium Research Council [online]. Available at: <http://www.newmillenniumresearch.org/event-02-25-2002/jobspaper.pdf>.

[10] California Broadband Initiative, "The State of Connectivity: Building Innovation Through Broadband. Final Report of the California Broadband Task Force — January 2008" [online]. Available at: <http://www.calink.ca.gov/pdf/CBTF_FINAL_Report.pdf>.

[11] Robert D. Atkinson, "Framing a National Broadband Policy," The Information Technology & Innovation Foundation [online]. Available at: <http://www.itif.org/index.php?id=118>.

[12] In creating its final report, **Tennessee's** Broadband Task Force was supported by the staff of the Tennessee Regulatory Authority. For their final reports, **Hawaii's** Broadband Task Force will be supported by the staff of the Hawaii Office of the Auditor while **Missouri's** High-Speed Internet Task Force will be supported by the staff of the Missouri Department of Economic Development.

[13] Depending upon scope, task forces vary greatly in the timeframes in which they produce final reports. While **California's** Broadband Task Force produced its report in about 13 months from formation of the task force and **Tennessee's** Broadband Task Force produced its in about 18 months, **Kentucky's** Final Report of the Broadband Task Force took about 30 months to complete.

[14] Please see the next section for more information about mapping broadband service availability.

[15] Atkinson.

[16] For additional information about broadband programs in Tennessee, please refer to the section entitled "Engaging Communities to Increase Grassroots Demand" and the Tennessee portion of Appendix A.

[17] Connected Nation, "The Economic Impact of Stimulating Broadband Nationally," [online]. Available at: <http://www.connectednation.org/documents/NewForPrint_2008_02_21_TheEconomicImpactofStimulatingBroadbandNationally_AConnectedNationRep.pdf>.

[18] Federal Communications Commission Wire Competition Bureau Industry Analysis and Technology Division, "High-Speed Services for Internet Access: Status as of December 31, 2006" [online]. Available at: <http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-277784A1.pdf>.

[19] Atkinson.