

Chapter 8. Emerging Solutions

There have been many significant developments that hold promise for addressing the current barriers to greater broadband deployment in California. This chapter identifies a number of these emerging solutions and categorizes them into three key areas: (a) technology improvements, (b) market developments, and (c) policy issues.

8.1 Technology and Infrastructure

Improved technology holds the promise of overcoming many of the barriers currently preventing more widespread deployment and use of broadband. The history of broadband technology has been one of ever-greater innovation, increasing capabilities, and decreasing costs.

8.1.1 DSL

Telecommunications companies have overcome the technical limitation of DSL requiring all-copper facilities by installing DSLAMs inside remote terminals. Because the price and capability of DSL equipment have been greatly improved in recent years, ILECs have been able to deploy more DSLAMs in remote terminals, making it feasible to provide broadband in more areas with low population density. As the ILECs continue to extend the reach of DSL farther out into more rural areas, broadband services will continue to become more widely available.

The maximum bandwidth that can be delivered via DSL remains distance-dependant, but technical advancements are also increasing the bandwidth available through DSL. By locating DSLAMs farther into neighborhoods and closer to customers, and combining 2-wire pairs in a process called “copper pair bonding,” telephone companies are also able to offer higher speed DSL services with existing facilities.¹⁷⁷

New technologies that compress digital signals also allow images to be transferred at a much higher rate over DSL.¹⁷⁸ Using compression technology, a high definition television signal which requires about 20 Mbps could be reduced to approximately 2 Mbps, allowing a standard 6 Mbps ASDL line to transmit HDTV into homes. This could facilitate an ILEC’s ability to deliver any data, including real-time video, over any medium including a twisted copper pair.

Way. The information was compiled through original research by NTIA, with reliance on existing research by NARUC and NATOA; www.ntia.doc.gov/ntiahome/staterow/rowtableexcel.htm.

¹⁷⁷ Loring Wirbel, “SBC Shifts Focus from DSL to Passive Optical Nets,” *EE Times*, November 27, 2001.

¹⁷⁸ “Carriers Get Technical Help in Bringing HDTV to Market,” *Telephony Online*, January 17, 2005.

8.1.2 Fiber to the Premises (FTTP)

Fiber to the Premises systems involve the installation of optical fiber directly into homes. The technology promises speeds of up to 100 Mbps and can reach greater distances, 6.2 to 49.6 miles, than DSL. In an effort to remain competitive with cable companies, ILECs have begun to deploy fiber in select areas, providing a single connection that can carry telephone service, high-speed Internet and video on demand. Verizon has announced plans to deploy FTTP over the next 10 to 15 years throughout its nationwide operating system. SBC has also recently announced plans to invest \$4 billion dollars over the next three years to build a fiber network using both Fiber to the Node (FTTN),¹⁷⁹ and FTTP technologies. SBC expects to reach 17 million homes with FTTN and 1 million homes with FTTP by 2007, including a residential neighborhood in Irvine, California¹⁸⁰ and a new development in San Francisco's Mission Bay.¹⁸¹

Case Study: SureWest's Broadband All-Fiber Network

SureWest Broadband, a subsidiary of ILEC Roseville Telephone serving the Sacramento area, was among the first providers in the nation to offer the "triple-play" package of integrated data, voice and video on demand over a fiber-to-the-home network in California. With over 9,000 subscribers constituting a 20 percent market penetration rate, SureWest's all-fiber broadband Internet offers speeds up to 10Mbps symmetrical. SureWest has committed to pass 150,000 homes with fiber by 2006.¹⁸²

Case Study: Verizon's FTTP Deployment

Verizon is now offering FTTP services in Riverside, Orange, and San Bernardino counties¹⁸³ with plans to offer the service to about 100,000 homes and businesses in California.¹⁸⁴ Prices range from \$39.95 per month - \$199.95 per month, based on the level of service. Maximum connection speeds range from 5Mbps download and 2Mbps upload for the entry-level service to 30Mbps download and 5Mbps upload for the fastest service.¹⁸⁵ Verizon announced plans to pass 1 million homes and businesses in nine states by the end of 2004.

¹⁷⁹ Fiber-to-the-Node, which is similar to cable modem's HFC network architecture, but SBC will use copper loop instead of coaxial cable to connect to individual customers.

¹⁸⁰ Financial Times, June 22, 2004.

¹⁸¹ June 22, 2004, <http://www.sbc.com/gen/press-room?pid=5097&cdvn=news&newsarticleid=21207>.

¹⁸² SureWest, <http://www.surewest.com>, July 9, 2003; "Cisco Helps SureWest Deploy Integrated Data, Voice and Video," <http://www.cisco.com>, 2004.

¹⁸³ Verizon, "Verizon Deploying Fiber Optics to Homes and Businesses in 6 More States in Northeast and Mid-Atlantic," www.verizon.com, October 21, 2004; <http://newscenter.verizon.com>.

¹⁸⁴ Jim Duffy, "Verizon details FTTP plans," Network World, July 26, 2004; <http://www.nwfusion.com>.

¹⁸⁵ Verizon, <http://www.verizon.com>.

Case Study: SBC's Project Lightspeed

SBC's Project Lightspeed will use both FTTP and FTTN technologies. In existing neighborhoods, SBC plans to use an FTTN architecture, which takes fiber to within 3,000 feet of homes being served and makes use of advanced compression technologies along with IP switching to deliver high-quality TV, Internet access and voice services. FTTN is capable of delivering 20 to 25 Mbps downstream, sufficient to simultaneously deliver four streams of TV programming, including HDTV and Internet access with robust speeds, and IP voice—all on a common IP network platform.¹⁸⁶

8.1.3 Cable

Currently, the 40 Mbps bandwidth available to a cable node comes from the dedication of a single cable channel for cable modem service. To satisfy demands for greater bandwidth, there are efforts underway in the cable industry to increase available bandwidth by 10 Mbps to 20 Mbps through adoption of a new cable modem technical standard called DOCSIS 2.0. On December 16, 2003, Comcast doubled its downstream speeds from 1.5 Mbps to 3 Mbps for customers in the San Francisco Bay Area.¹⁸⁷ The new cable standard increases bandwidth by dedicating more TV channels to cable modem service.

In August 2004, RCN launched cable broadband service with a download speed of 7 Mbps, making it the fastest residential Internet service available in the country.¹⁸⁸ The 7 Mbps also comes with an upstream speed of 800 Kbps and is offered in the San Francisco Bay Area and Southern California markets. RCN is an OVS provider and with its 7 Mbps service, is currently offering broadband services at double the speed of the incumbent cable providers with which they compete.

8.1.4 Wireless Technologies

With a range of up to 30 miles and bandwidth of 70 Mbps, WirelessMAN technologies have the potential to become a viable last mile broadband connection, allowing prospective broadband customers to bypass the physical broadband pipes owned by the phone companies, cable companies and electric utilities. Of the two wireless broadband technologies, WiFi and WiMax, WiMax is farthest along in development. Further enhancing WiMax's prospect to become a true last mile alternative, industry heavyweight Intel plans to introduce WiMax chipsets for service providers and for integration onto desktop and laptop computers. Intel played a critical role in helping to popularize Wi-Fi by integrating Wi-Fi chipset into its Centrino chipset for laptop computers. Commercial distribution of WiMax & WiFi chips from companies like Intel is crucial, as it dramatically lowers the cost of

¹⁸⁶ SBC, www.sbc.com, November 11, 2004.

¹⁸⁷ Comcast, www.comcast.com.

¹⁸⁸ Sam Kennedy, "RCN Offers Fastest Access to Internet," *The Morning Call*, August 31, 2004. <http://www.mcall.com>.

integrating the technology onto a computer since it is included as a function of a computer chipset, rather than a separate component.¹⁸⁹

There are increasing calls for the FCC to reallocate and/or dedicate additional unlicensed spectrum for wireless broadband technologies. One promising source of new spectrum is that currently occupied by local television station analog signals. This spectrum will become available once television stations complete their migration from spectrum to broadcast high-definition television programming. The FCC has opened a proceeding to look into this issue.¹⁹⁰ The FCC also currently is undertaking efforts to better manage and allocate spectrum to meet the demands for wireless broadband, including allocating additional unlicensed spectrum for WiFi.¹⁹¹ Another federal agency, the Office of Spectrum Management is charged with coordinating the development of a comprehensive national spectrum management policy.¹⁹²

Case Study: WiFi Hot Zones in Los Gatos

Several businesses and a local wireless networking company, called Firetide, have teamed up to develop a two-block WiFi network in Los Gatos, California, complete with free broadband. Previously, organizations such as the Los Gatos Opera House and the Tollhouse Hotel were unable to offer broadband to clients due to the difficulty with wiring fragile century-old building walls. The Los Gatos project provides a glimpse at the potential for widespread use of hot zones. WiFi zones can meet the needs of multi-block neighborhoods and school campuses, and could someday replace the wired broadband networks that require miles of expensive and cumbersome underground cables to reach homes and businesses.

Case Study: NextWeb

NextWeb is a wireless Internet service provider based in Fremont, California. NextWeb offers fixed-wireless broadband services of up to 10 Mbps to small and medium business customers utilizing unlicensed radio spectrum and proprietary technologies. It has more than 2,000 customers in more than 175 cities in California. The NextWeb wireless link is connected over carrier-class fixed broadband wireless facilities that never touch the incumbent phone company's access network, and then route through NextWeb's redundant transit providers. By combining a NextWeb wireless link with the customer's existing wireline connection - DSL, T1, Cable or a NextWeb-supplied wireline service, the customer has multiple distinct, path-diverse connections to the Internet, increasing reliability of the network.¹⁹³

¹⁸⁹ Wi-Fi Planet, <http://www.wi-fiplanet.com/news/article.php/3302591>; Intel, <http://www.intel.com/netcomms/technologies/wimax/>.

¹⁹⁰ FCC Notice of Proposed Rulemaking (FCC 04-113), May 13, 2004.

¹⁹¹ For a more detailed discussion, visit the FCC website, "Spectrum Policy Task Force Proceedings and Initiatives," at <http://wireless.fcc.gov/spectrum/proceeding.htm?pagenum=1>.

¹⁹² An office of the NTIA, U.S. Department of Commerce.

¹⁹³ <http://www.nextweb.net/network-technology.htm>.

Case Study: MetroFi

A company based in Mountain View, California, MetroFi, intends to offer a residential WiFi Internet service to Santa Clara in early 2005, and to Cupertino homes later in the year. At \$19.95 a month, the MetroFi price will be considerably less expensive than current cable modem or DSL service.¹⁹⁴

8.1.5 Satellite

Satellite broadband providers are continuing to improve their services by adding bandwidth and capacities. Satellite service providers can now offer services to nearly every Californian at speeds that exceed DSL. For example, Ground Control located in San Luis Obispo, California offers fixed location services with upload speeds now reaching between 450 and 500 Kbps and download speeds near 1.5 Mbps. Ground Control states that since July 2003, it has had over 99.9% uptime for satellite broadband service and that its services are available to over 99% of those requesting service in California. Ground Control also offers the option of a mobile broadband service. Although the mobile service does not equal the speeds of its fixed services, it is capable of reaching speeds of 1.5 Mbps download and 128 Kbps upload.¹⁹⁵ Ground Control expects to offer mobile services that match its fixed service speeds in the near future.¹⁹⁶

Case Study: NASA Uses Satellite Technology to Recover *Columbia*

As an example of how advanced commercial provider technology has become, NASA used satellite broadband to recover debris in the aftermath of the *Columbia* shuttle tragedy in February 2003. Since the debris was spread over remote areas stretching from California to Texas, Hughes Corp. made available its two-way satellite broadband service (DirecWay) to NASA. By dedicating more than 180 Mbps in bandwidth to the recovery efforts, searchers were able to take high-resolution digital photographs as large as 30 MBs and send them to NASA for review and confirmation that photographed artifacts were part of the *Columbia*.¹⁹⁷

8.1.6 Broadband Over Powerline (BPL)

Because of the ubiquity of electric power systems, BPL may be the broadband technology that proves most effective in bringing affordable broadband to lower-use communities. As such, BPL technology has the potential to become a significant player in the broadband market.

¹⁹⁴ MetroFi, www.metrofi.com.

¹⁹⁵ Ground Control, www.groundcontrol.com.

¹⁹⁶ CPUC Staff interview with Ground Control, December 8, 2004.

¹⁹⁷ CPUC Staff interview with DirecWay representative during April 2003 Broadband Summit in Washington, D.C.

In November 2004, the NARUC BPL Task Force reported BPL trials or commercial deployments taking place in fifteen states.¹⁹⁸ Since that time, a number of other BPL projects have been announced, including one in the service territory of SDG&E.

On October 14, 2004, the FCC adopted rules to encourage BPL development.¹⁹⁹ The Order establishes technical and administrative requirements for BPL equipment and operators to ensure that interference with licensed radio operators does not occur. The Order also sets forth procedures to measure the radio frequency (RF) energy emitted by BPL equipment.²⁰⁰

8.2 Market Solutions

To date, competition in the broadband industry - and consumers themselves - have been the greatest drivers of broadband deployment.

8.2.1 Convergence

A torrent of innovation including Voice over Internet Protocol (VoIP) and advanced wireless technologies is causing great upheaval in the telecommunications industry, shattering traditional business models based on separate offerings of voice, video and data services over separate networks owned by distinct types of companies. Cable companies now offer phone service; telephone companies offer video programming; Internet providers offer anytime, anywhere calling plans; and wireless carriers offer email, Internet access and even video news delivered to consumers through their cell phones. Electric utilities are working to provide all these services through BPL. The traditional models are gone. This market development, referred to as “technology convergence,” is the future of the telecommunications industry. The choices, lower prices and benefits available to consumers from convergence is driving the demand for broadband.

Price is the key to broadband use.

Convergence is the key to lower prices.

Many experts agree that deployment of advanced services networks, while not yet ubiquitous, is less of an obstacle to broadband penetration rates today than the price of service and the perceived value of those services to consumers. In fact, in most areas including rural California, supply still outstrips demand for broadband services.²⁰¹ Many industry surveys show that at a price point of \$30 per month, broadband subscribership would significantly increase. One consumer survey in 2004, for example, showed that at \$29.99 per month, 46% of dial-up users would be likely to upgrade to broadband.²⁰²

¹⁹⁸ The 15 states are: Arizona, Florida, Hawaii, Indiana, Maryland, Massachusetts, Michigan, Missouri, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Texas and Washington.

¹⁹⁹ The CPUC filed comments in this docket, expressing support for the FCC’s efforts.

http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6516209118

²⁰⁰ News Release, FCC 04-245 *Report and Order*, ET Docket No. 04-37.

²⁰¹ Pew Internet and American Life Project, *Rural Areas and the Internet*, February 17, 2004.

²⁰² Jupiter Research, *The DSL Market Opportunity* (January 2004)

Technology convergence is driving competition among broadband service providers, and competition is the single, most effective way to lower prices and bring greater value to consumers. For example, when ComTek started offering BPL in Manassas, Virginia, the leading cable competitor dropped its broadband prices by 55%.²⁰³

The average household in California spends \$160 per month for telecommunications services today.²⁰⁴ As technology convergence continues, providers are competing with each other to offer multiple services bundled together as a package, which is driving down the price of all services in the bundled package. As illustrated below, virtually every major telecommunications provider today offers a 10%-30% discount to customers who buy multiple services from them:

- Verizon's "Freedom" plan currently offers unlimited local and long distance calling plus DSL for \$89.95 per month or DirectTV for \$97.95 per month. For packages that include all three (unlimited calling, DSL and DirectTV) customers would pay approximately \$127 per month.²⁰⁵
- East Coast cable giant Cablevision, in a battle for customers with Verizon, offered a promotion in 2004 called the "Triple Play" that included telephone, high-speed Internet and TV services for \$29.95 each with a one-year contract.²⁰⁶
- Cox Communications in San Diego offers combination packages including standard cable, digital telephone, high-speed Internet and digital cable programming for \$99.99 (unlimited local calling) and \$124.99 (unlimited nationwide calling).²⁰⁷
- Time Warner Cable offers digital cable, high-speed Internet and nationwide digital phone service for approximately \$127 per month plus equipment installation charges.²⁰⁸
- SBC Communications Chairman and Chief Executive Officer Ed Whitacre recently said in an interview with the *Wall Street Journal* that he expects SBC to offer a full slate of video services, Internet access, wireless calling and all-distance phone service with the cost of the combined package (including wireless) to decline to approximately \$100 per month.²⁰⁹

²⁰³ Gubbins, *supra*, p. 9.

²⁰⁴ TNS Telecom Report, October 2004. www.TNStelecoms.com.

²⁰⁵ www.verizon.com.

²⁰⁶ "Here Comes Cable...", *Wall Street Journal*, September 13, 2004.

²⁰⁷ <http://www.cox.com/sandiego/coxcombo>.

²⁰⁸ www.timewarnercable.com.

²⁰⁹ "Meet the New TV Guy," *Wall Street Journal*, November 24, 2004.

- By the end of 2006, more than half of the households in the U.S. (an estimated 110 million) will have the option of getting phone service from their cable company.²¹⁰ The nation's largest cable providers, including Comcast, Time Warner and Cox Communications, are also discussing the formation of a joint venture to add cell phone service to their bundled packages.²¹¹

The price of broadband service as part of these bundled packages drops as low as \$19.95 to \$26 per month plus the cost of customer premises equipment²¹²

8.3 Policy Issues

8.3.1 Universal Service

The Universal Service Fund (USF) was designed to promote ubiquitous deployment of basic phone services by subsidizing deployment costs in rural and low-population density areas. California expanded Universal Service to provide subsidies to low-income individuals for the cost of basic telephone service. Nationally, the USF collects and distributes approximately \$6 billion in funding. Some states, including California, have added a separate surcharge to customers' bills to fund a higher level of subsidies. California collects and distributes approximately \$1 billion per year in additional subsidies through two High Cost Funds (HCF-A and HCF-B for different types of carriers). The federal USF surcharge is imposed on interstate and long-distance calls.

With technology convergence, all-distance calling plans and IP-telephony, interstate and long distance revenues are falling rapidly - reducing the funding source for Universal Service programs. The FCC is engaged in several proceedings dedicated to reforming intercarrier compensation (a significant source of revenue for USF), Universal Service Funding and IP-enabled services. As an integral part of these proceedings, the FCC and states will address future funding for USF and whether Universal Service should be expanded to include subsidization of broadband, wireless technologies and other types of telecommunications services. As Congress begins amending the 1996 Telecommunications Act, these policy issues will be central to the debate.

8.3.2 Public Ownership of Advanced Service Facilities

Governmental organizations have a long history of providing basic services such as water, electricity, trash removal; sewage, and natural gas to constituents, in part due to the classification of these services as essential. A number of local governments have deemed high-speed Internet access to be essential and have opted to use government resources to build, as well as own and/or operate public broadband networks.²¹³ Others have opted to

²¹⁰ "Here Comes Cable..." Wall Street Journal, September 13, 2004.

²¹¹ "Cable Titans Discuss Offering Cellular Services..." Wall Street Journal, November 8, 2004.

²¹² See Verizon online, Comcast, SBC Yahoo.

²¹³ See, e.g., Ed Fletcher, "West Sac Mayor Rolls Out Plan for Free Wi-Fi," The Sacramento Bee, April 6, 2005; Miguel Helft, "Whining Telcos Battle Cities' Broadband Plans, San Jose Mercury News, March 30, 2005. For additional information on this subject: Nancy Bedard, "Progress on

provide wholesale access only with the end-user services being provided by a private sector companies.²¹⁴ Some states prohibit local governments and municipal utilities from providing broadband services based on the view that government entities engaging in commercial broadband ventures displace private investment, stifle competition, and operate with an unfair competitive advantage due to superior access to capital and a captive ratepayer base. The alternative view is that high capacity telecommunications infrastructure is as essential to a community's economic well being in today's world as its airport, freeways, and reliable water supply, and with deployment costs rapidly declining, chosen to provide low-cost or free broadband access as a public benefit.²¹⁵ This debate was most recently and publicly played out in Philadelphia, Pennsylvania.²¹⁶

Case Study: Loma Linda

Loma Linda, California enacted an ordinance requiring new homes to be FTTP-equipped. Contractors must install the networks according to specifications provided by the city, similar to installing sewer and water lines, and then deed the networks back to the city, which owns and operates the network. A city spokesperson has stated that the fiber requirement adds approximately \$3,000 to the cost of a home, but contractors have cooperated with the city's ordinance.²¹⁷

Case Study: City of Cerritos

The City of Cerritos is a southern Los Angeles county community of 51,000 residents with a median household income of \$73,000. Seeking to provide broadband to more residents in the area, Cerritos entered into an agreement with Aairnet Wireless, LCC, allowing Aairnet's antennas to be attached to city owned buildings and other properties. In exchange, Aairnet is able to provide wireless broadband service for the entire city. WiFi is available without cost near the civic center area during certain hours of the day. Elsewhere, a variety of payment and service plans are available.²¹⁸

Point -Periodic Commentaries on the Policy Debate: A Survey of Government-Provided Telecommunications"; Kent Lassman and Randolph J. May, "Disturbing Growth Trend Continues Unabated," October 2003; "Community Broadband, Separating Fact from Fiction," Yankee Group, January 2004; "Wholesale Communications Strategies Reports, Municipalities Make their Own Broadband Opportunities," January 2004.

²¹⁴ Ibid.

²¹⁵ "The UTOPIA Story: Wholesale Telecommunication Services and Regional Development", Roger Black, Deputy Director and Chief Operating Officer, Utah Telecommunications Open Infrastructure Agency, August 2004.

²¹⁶ See, e.g., Stephen Lawson, "Law May Snag Philadelphia Wi-Fi Rollout," and "Philadelphia Wi-Fi Plans Move Forward," IDG News Service, December 2, 2004.

²¹⁷ Carol Wilson, "FTTP 'Revolution': Bell Companies," Telephony, February 28, 2005.

²¹⁸ CPUC Staff interview with Cerritos representative, January 31, 2005.

Case Study: Truckee Public/Private Partnership

In Truckee, a mountain community near Lake Tahoe in California, consumers complained about the service quality of the available cable modem and satellite broadband dish services. The Truckee Donner Public Utility District researched the feasibility of creating a fiber optic network, and spent four years obtaining the permits, funding and partners needed to launch an integrated service that will combine digital cable television, voice over IP telephony, and high-speed Internet access. The utility consequently formed a partnership with Eagle Broadband, a private company, to deliver the services. The proposed fiber-optic network will cost \$24 million and will provide Internet access at 1.5 Mbps, faster than the typically 256 to 768 Kbps speeds available from DSL or cable modems. Construction was scheduled to begin in October 2004. The holder of the local cable franchise, Cebidge Connections, objected however, stating that the business plan is financially unviable and arguing that the arrangement is unfair competition. In September, the permit authority agreed to reconsider the city's permit.²¹⁹

Case Study: San Diego's Tribal Digital Village

The Tribal Digital Village is a Wireless Internet Service Provider owned and operated by Native American tribes and located in a remote part of San Diego County. The Southern California Tribal Chairmen's Association began the project in March 2001 after obtaining a "Digital Village" grant from the Hewlett-Packard Development Company. The Tribal Digital Village's goals are focused in five key areas: (1) linking the tribes to a community network infrastructure and the Internet; (2) preserving tribal traditions and culture for future generations; (3) improving educational opportunities through distance learning; (4) enabling community interaction using online tools; and (5) launching a community-led economic development project. With a \$5 million grant from Hewlett Packard, including \$4 million in computers and peripherals and \$1 million over a period of 3 years, TDV uses a series of solar-powered radio towers to wirelessly connect a central data center with various locations, creating 250 miles of point-to-point and point-to-multi-point links throughout the underserved reservations of rural San Diego County. Using point-to-point broadband transmission towers, 65 different tribal buildings - including libraries, community resource centers, tribal offices and administration buildings, sheriff substations, and fire stations - are connected to a 45 Mbps backbone. Each end point receives between 1.5Mbps to 4Mbps+ of broadband connectivity.²²⁰

8.3.3 Legislation

The importance of promoting broadband deployment has been recognized by both the United States Congress and the California Legislature. In recent months, a significant number of federal and state legislative proposals that have been introduced.

²¹⁹ John Gartner, "Public Fiber Tough to Swallow," *Wired*, September 13, 2004.
<http://www.wired.com/news/technology/0,1282,64902,00.html>.

²²⁰ Visit of Assigned Commissioner to TDV, September 2004; see also www.sctca.net

Federal Legislation

In December 2004, President Bush signed the Internet Tax Nondiscrimination Act (SB 150), which put a new four-year ban on state and federal taxation of certain kinds of Internet transactions. SB 150 expands the definition of Internet access to include dial-up as well as DSL, cable modem and wireless Internet connections. It is expected to promote broadband deployment by prohibiting the taxation of Internet access, double taxation of a product or service bought over the Internet, and discriminatory taxes that treat Internet purchases differently from other types of sales. The new law does not apply to sales taxes on Web transactions nor Internet telecommunication services.²²¹

In January 2005, H.R. 3 was introduced. Titled the “Transportation Equity Act: A Legacy for Users,” this bill would require the Secretary of Transportation in cooperation with the Secretary of Commerce, state departments of transportation, and other appropriate state, regional, and local officials, to conduct a feasibility study on whether installing fiber optic cable and wireless infrastructure along multistate Interstate System route corridors would improve communications services to rural communities along those corridors. The report would specifically identify rural broadband access points for such infrastructure.

H.R. 144 was also introduced in January 2005. This bill, titled the “Rural America Digital Accessibility Act,” would authorize the Secretary of Commerce to make grants and guarantee loans to facilitate private sector deployment of broadband capabilities to underserved rural areas. In aggregate, the grants/loans would not exceed \$100 million annually for years 2005 through 2009. The bill states that particular attention shall be given to providing Internet service to underserved rural areas, new models or technologies for broadband service, and the use of broadband service to stimulate economic development. In addition, tax credits may be granted to holders of qualified technology bonds, and \$25 million will be appropriated for the National Science Foundation to research the facilitation or enhancement of access to broadband services, particularly for rural areas.

H.R. 146 would amend the Public Works and Development Act of 1965 and would provide grants for broadband-based economic development. Eligible applicants include state or local governments, institutions of higher learning, and nonprofit economic development organizations, while the affected regions shall contain populations of less than 1,000,000 individuals. \$50 million will be appropriated for these grants, which individually shall not exceed \$1 million; the federal share of the cost of each project will be set at 50%.

S. 14, titled the “Fair Wage, Competition and Investment Act of 2005”, would establish a broadband access tax credit, permitting electing taxpayers to treat any qualified broadband purchase, lease, installation or connection expenditure as a deductible expense to any taxable year.

S. 497, titled the “Broadband Rural Revitalization Act of 2005,” would establish a Rural Broadband Office within the Department of Commerce to coordinate all Federal resources relating to the expansion of broadband technology into rural areas. The Rural Broadband Office would be required to annually submit a report to Congress that assesses the

²²¹ <http://internetnews.com/xSP/article.php/3443631>.

availability of broadband technology, estimates the number of individuals using broadband technology and establishes a plan to meet unmet demand for broadband technology in rural areas. This bill would also permit electing taxpayers to expense qualified broadband Internet access expenditures in any taxable year.

State Legislation

A number of bills have been introduced by California legislators in the current legislative session, including:

SB 631, enacting the “Real Investment in California's Economy Program,” would provide qualified taxpayers, beginning on or after January 1, 2006, with an exemption from those taxes on personal property capable of providing broadband services at speeds greater than 128 Kbps.

SB 850 would declare the Legislature’s intent that California’s universal service policy includes the concept of universal availability of broadband to all areas of the state. This bill would require the Secretary of the Business, Transportation and Housing Agency to develop a strategy for making broadband telecommunications service accessible to all areas in California. This bill would also require the Public Utilities Commission to determine which areas in California lack broadband service and which areas are lacking competition in the provision of broadband service, and report the findings to the Legislature by July 2006.

AB 1388, titled the “Digital Opportunity Act of 2005,” would express the intent of the Legislature to promote the accelerated deployment of next-generation broadband networks in California. This bill would require the Department of General Services (DGS) to submit an annual status report to the fiscal and policy committees of the Legislature, the Department of Finance (DOF), and the CPUC on implementation of this bill. This bill would also require DGS, in consultation with the Director of Transportation and the CPUC, to report to the fiscal and policy committees of the Legislature, the DOF and the CPUC on the extent to which the residents in each census tract in the state will have or are likely to have access to advanced communications services networks by 2011.

AB 1458 would amend current law relative to leases of state-owned property to wireless telecommunication providers. Currently, 15% of revenues from fees collected pursuant to a lease agreement must be available, upon appropriation by the Legislature, for the purpose of addressing the state’s digital divide. Current law excludes revenues from fees collected from lease agreements signed before January 1, 2004 from this requirement and AB 1458 repeals this exclusion.