

**June
2010**



Reports to the Legislature

- Status of Investments in
Advanced Telecommunications
Infrastructure in Wisconsin
- Universal Service Fund

PUBLIC SERVICE COMMISSION OF WISCONSIN

Status of Investments in Advanced Telecommunications Infrastructure in Wisconsin

Year 2008

Universal Service Fund Fiscal Years 2008 - 2009

Docket 05-ST-116

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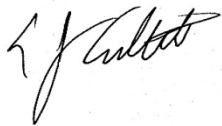
Forward

June 2010

We are pleased to present you these two reports:

- The Public Service Commission's eighth biennial report on telecommunications infrastructure in Wisconsin is submitted as required by Wis. Stat. § 196.196(5)(f). The report includes text and maps that document the progress of investments in advanced telecommunications infrastructure. This report will provide special focus on activities related to broadband deployment within the state.
- The Universal Service Fund report is also being filed in compliance with Wis. Stat. § 196.218(5r) and contains information on programs funded by the Universal Service Fund.

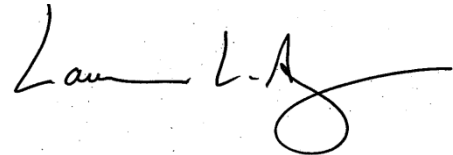
Sincerely,



Eric Callisto
Chairperson



Mark Meyer
Commissioner



Lauren Azar
Commissioner

Executive Summary

The Public Service Commission (Commission or PSC) has prepared this publication that includes two reports:

The eighth biennial infrastructure report to the Legislature is required under Wis. Stat. § 196.196(5)(f). The report contains updated information and reviews new services and technologies related to the deployment of and investment in telecommunications infrastructure throughout the state. This infrastructure report generally looks at deployment as of the end of 2008 although some more current information on broadband is provided in the text.

The PSC obtained a federal grant for broadband mapping in the fall of 2009 and has a contract in place with LinkAmerica to undertake broadband data collection, mapping and planning.

The Universal Service Fund (USF) report (Part 3 herein) is being filed in compliance with Wis. Stat. § 196.218(5r) and contains information on programs funded by the state USF. A brief description of the federal USF is also included.

The appendix of the report provides maps, information on the infrastructure report preparation, details on USF grants and alternative regulation plans and a page of telecommunications quick facts for Wisconsin.

Use of Advanced Infrastructure for Designated Purposes and Infrastructure Deployment

The first section of Part 2 of the report provides information on the use of infrastructure for distance learning, interconnection to libraries, access to health care, and assistance to persons with disabilities. The Commission notes that progress has taken place in these areas since 1993 Wisconsin Act 496 (Act 496) was passed.

Resources made available through the Technology for Educational Achievement (TEACH)¹ program and Universal Service Fund (USF) grants have made it possible to provide video distance learning to nearly all K-12 school districts and technical colleges. All public libraries are connected through wide area networks of the 17 regional library systems and are used for Internet access and shared integrated library systems. Public access to the Internet provided by libraries is one method of providing the benefits of advanced telecommunication networks to individuals that cannot afford Internet access or do not own computers. The broadband portion of this section documents a recent

¹ Now called the Educational Telecommunications Access Program

grant received by the Department of Administration under federal stimulus funding; this grant will increase broadband capabilities for schools and libraries.

In health care, there has been increased use of existing high-capacity networks between hospitals and clinics, although the number of networks is limited.

For individuals with disabilities, the focus remains on the development of assistive technologies that enable the use of the telecommunications infrastructure such as access to computers and related Internet access items.

Infrastructure Deployment

This portion of Part 2 documents the status of infrastructure in the state, mainly that of Incumbent Local Exchange Carriers (ILECs) and Competitive Local Exchange Carriers (CLECs).

Tables, figures, and maps throughout the report reflect data reported by providers on technology changes and additions. These tables and figures show changes in switching and advanced services including Voice over Internet Protocol (VoIP) and fiber-related deployments.

There has been significant activity in broadband through 2008 and 2009 and continuing to the present. Information is presented on broadband activities in the state including mapping, federal stimulus funding and a federal broadband plan. Broadband deployment projects are ongoing throughout the state. This deployment includes a number of independent companies who deployed Fiber to the Premises (FTTP) systems to the majority of their service areas.

The PSC conducted an informal consumer survey of broadband availability in the state in 2009, and the results helped identify where the need for broadband exists. The PSC also has a formal mapping effort underway at this time with LinkAmerica and will have preliminary data available in the first half of 2010, with a first interactive national map available in February of 2011. Information on maps and strategy documents will be offered to the public and other interested parties via a broadband information website. This work ties in with the federal plan for broadband mapping and deployment.

In addition to this state initiative, recent activities in broadband expansion and deployments are continuing under the American Recovery and Reinvestment Act (ARRA). The ARRA appropriated \$7.2 billion to expand broadband access throughout the United States. Stimulus funding for broadband deployment and grants for broadband mapping have been awarded in a number of states.

In the first round of federal grant applications, the following grants were awarded in Wisconsin in early 2010:

- The Wisconsin State Department of Administration was awarded a \$28.7 million grant for its BadgerNet project to provide fiber-optic facilities to schools and libraries across the state.
- The UW System received \$5.1 million for providing 100 miles of fiber optic facilities to anchor institutions in Dane County.

- One Economy was awarded a \$28.5 million multi-state grant for a sustainable broadband adoption program, with an additional \$23 million applicant-provided match.

Recently, the Federal Communications Commission (FCC), as directed by Congress, announced a national broadband plan. This plan is directed at overhauling the nation's Internet infrastructure. Under the plan, a number of goals were set by the FCC including the establishment of a Connect America Fund (CAF) to drive broadband adoption using federal funds from the Universal Service Fund. This government attention to broadband stresses the importance of having a universal broadband infrastructure in place to serve the economic, educational, and social need of communities across the nation. In Wisconsin, the Commission will continue with its broadband mapping efforts and establish a plan to meet federal requirements and also the needs of the state and its residents.

Universal Service Fund

1993 Wisconsin Act 496 established the USF to ensure all state residents have access to essential and advanced telecommunications services (Wis. Stat. § 196.218). The USF not only assists customers in areas of the state that have relatively high costs for telecommunications services, low-income customers, and customers with certain disabilities, it also assists in the deployment of the advanced service capabilities of a modern telecommunications infrastructure throughout the state. Programs under the broad umbrella of the USF consist of technology and consumer-oriented programs managed by the Commission, and some technology and education-oriented programs that direct funding to other state government entities. This report focuses on the Commission portion of the USF.

Although the Commission develops the overall policy and procedures for the telecommunications-related portions of the USF, and manages and operates several of the programs, it is required under state statute to contract with a private firm to administer the fund. The USF Council, also established by statute, advises the Commission on the administration of the USF and on proposed rule changes. The appropriation for FY 08 and FY 09 was \$6.0 million each year.

Eight Commission programs (see Wis. Admin. Code ch. PSC 160) are currently funded by the USF. These are:

- Telecommunications Equipment Purchase Program (TEPP)
- Two-line Voice or Speech Carryover
- High Rate Ceiling Credits
- Lifeline Program
- Link-Up Program
- Nonprofit Groups – Access Programs or Projects
- Medical Telecommunications Equipment Program
- Public Interest Payphones

Tables and figures included in Part 3, and maps and tables in Appendices A and C, summarize the expenditures and grant details for the fund.

Beyond the Commission-administered USF, there are some federal USF programs that also serve to support universal service for customers in Wisconsin. The FCC is in the process of reviewing the rules for the USF. The Commission will monitor these changes and provide comments when appropriate.

In spring 2010, the Legislature passed 2009 Wisconsin Act 238 which included changes to the reporting requirements for the state USF. The bill changed the existing requirement for an annual USF report to a biennial report. Future USF reports will be combined (as was this one) with the biennial Infrastructure Report.

Summary and Recommendation

These reports will continue to document the status of existing infrastructure, trends and advances in technologies and USF program statistics. The Commission considers this reporting an important part of its role to assure that infrastructure and programs are in place so that customers have access to reasonably priced and quality communication service and that legislative reporting requirements are met.

The Commission will continue to work with providers and LinkAmerica to assist in the collection and publishing of relevant data on deployment of infrastructure and new services offered in the state.

PSC annual reports and data requests continue to be a reliable and consistent source for infrastructure and related telecommunications reporting for the Commission. This information, along with LinkAmerica broadband data, will add to the existing baseline for infrastructure and service availability across the state and provide a complete picture of the status of investments and infrastructure in the communications landscape. As noted in previous reports, the PSC does not have authority over all entities that have infrastructure in the state. Providing such authority could give the PSC the ability to provide a more complete picture of the status of infrastructure in Wisconsin.

Recommendation

In the Commission's 2008 report four recommendations were noted. The legislature addressed two of these recommendations with passage of 2009 WI Act 238 and a third is being pursued under the NTIA grant for broadband mapping and planning. With regard to the remaining recommendation, the Commission reiterates the request for statutory authority to give the Commission oversight of infrastructure and universal service issues in the state:

Establish statutory authority under Wis. Stat. § 196.25 to allow the Commission to collect data from CATV, wireless and VOIP providers so that the Legislature and the public have complete and relevant information covering all areas of the communication industry. In addition, a provision should be added to assess a penalty or other form of redress where providers do not respond to data requests as required under Wis. Stat. § 196.25(3).

Introduction

Preface

This is the eighth in a series of reports on telecommunication infrastructure in Wisconsin.² In 1994 when these reports were mandated in the 1993 Wisconsin Act 496, that Act focused on industry changes and technologies that were state-of-the-art at the time. Since that time broadband deployment and related technologies have moved to the forefront of new infrastructure additions. Although this report focuses mainly on infrastructure in place, there are references to future plans particularly on broadband deployment and adoption. Federal stimulus dollars made available for broadband infrastructure and broadband mapping have been awarded to various entities and other applications are pending. The PSC obtained a grant for statewide broadband mapping in the fall of 2009. Initial broadband information was submitted to the NTIA³ in the spring of 2010. The first interactive national broadband map will be issued in the first quarter of 2011. State maps will be updated on a semi-annual basis.

Legacy copper networks continue to be replaced with fiber networks across the state. Fiber facilities are built further into the network with Fiber to the Node (FTTN) and Fiber to the Premise (FTTP) designs. New switches that provide a media gateway for voice, video, and data in one communications stream continue to replace traditional circuit switches. Wireless networks are being deployed to provide added broadband services, and VoIP-type voice service offerings exist throughout the state. VoIP services continue to grow as customers become more familiar with and comfortable in changing to new technology offerings. These changes are important not only for the infrastructure that has been placed, but also because they lay the basis for future services that will ride on this infrastructure.

Changes at the federal level continue to impact providers and their service offerings in Wisconsin and throughout the United States. As inter-carrier compensation, further deregulation, broadband plans, universal service programs, and consumer protection issues are discussed on a national front, the Commission will continue to monitor and track these issues as they affect policies on a state level.

² Recent changes under 2009 Wisconsin Act 238 removed a requirement to report on ISDN and requires the report to cover a topic only if there are issues with the availability or deployment of telecommunications infrastructure. The Act also changed the USF report requirement from an annual to a biennial report.

³ National Telecommunications and Information Administration.

Broadband deployment projects, including those funded with federal stimulus dollars are being planned and are ongoing throughout the state. Consumer reliance on and demand for broadband is very evident in the state today. In spring of 2009, the PSC conducted an informal consumer survey and received approximately 8,700 replies from consumers across the state. Although many Wisconsin rural areas have excellent broadband coverage, there remain pockets throughout the state where customers cannot get access to broadband service. The availability of broadband service provides many economic advantages to communities and can blur the line between rural and urban service areas. The PSC broadband mapping project, under [LinkWISCONSIN](#)⁴ will more clearly define these broadband service areas and will meet the federal requirement for providing this mapping of broadband coverage.

The Commission is serious about its obligation to monitor and document infrastructure deployment including broadband related mapping and documenting further broadband deployments, along with universal service statistics. The Commission will keep the Legislature informed of the progress being made and the changes taking place. The Infrastructure and USF reports will continue to evolve as changes in technology and infrastructure deployment take place and as the definition of universal service changes.

Report Layout

This document is formatted in general like earlier reports and is divided into five parts. The portions on Use of Advanced Infrastructure for Designated Purposes and Infrastructure Deployment have been combined into one section and generally reflect year-end information for 2008. A further detailed description of the report preparation is contained in Appendix B.

Part 1: Provides a preface, introduction and general information for the reports.

Part 2: Includes an update on information related to the use of advanced telecommunications infrastructure for designated purposes, such as schools, libraries, health care, and persons with disabilities and the progress in deployment of ILEC and CLEC infrastructure for advanced telecommunications services including broadband with historical data through year-end 2008.

Part 3: Describes the Universal Service Fund and includes tables showing USF grant recipients and grant amounts, along with maps of USF grant recipient locations.

Part 4: Provides a summary and recommendation.

Part 5: Contains five appendices:

- Appendix A: GIS maps showing geographical reference.
- Appendix B: Information on the general preparation of the reports.
- Appendix C: Universal Service Fund programs and expenditures.
- Appendix D: ILECs operating under alternative regulation.
- Appendix E: Telecommunications Quick Facts sheet for Wisconsin.

⁴ See [Link.Wisconsin.gov](#) (The mapping portion of this website had not been activated as of the date of report preparation; however, this is expected to go “live” in early summer) at <http://www.LinkWISCONSIN.gov>

Use of Advanced Infrastructure for Designated Purposes and Infrastructure Deployment

Infrastructure for Designated Purposes

This section of the report provides information on the progress made in the use and deployment of advanced telecommunications infrastructure. After tracking the use of what was considered to be advanced telecommunications infrastructure over the years since 1993 Wisconsin Act 496 was passed, the Commission notes that progress has taken place in these areas. The evidence suggests that with a few exceptions documented in earlier reports, such as the BadgerNet which provides high speed telecommunication services to schools and libraries and the telemedicine networks established with the help of government grants, the use of telecommunications to provide services such as distance learning, interconnection of libraries, access to health care and services to persons with disabilities will occur on public high-speed broadband networks.

The most significant limiting factors for providing the services mentioned above remain the ability of customers to pay for broadband services and the computers necessary to access the Internet, the ability of service providers to recover their costs, and the development of equipment that will allow individuals in the home to use the telecommunications infrastructure.⁵

Resources made available through the Technology for Educational Achievement (TEACH) program USF grants have made it possible to provide two-way full-motion video distance learning to nearly all K-12 school districts and technical colleges. Over the past two years, more schools have been added to existing networks, additional distance education classes are being offered, and the enrollment of students has increased. The program has been so successful that it is reaching capacity and the current subsidies are not keeping up with the cost of adding capacity where needed.

⁵ For the last report see <http://psc.wi.gov/utilityinfo/tele/infrastructureCompetitive/infrastructure-index.htm>.

A network diagram of BadgerNet, the Wisconsin Department of Administration's distance education video network, is at: <http://www.doa.state.wi.us/docview.asp?docid=7231>. A map of distance education systems is at: <http://www.uwex.edu/disted/waden/resources/bnet.pdf>. More details of Wisconsin's distance education networks are on the website of the Wisconsin Association of Distance Education Networks (WADEN): <http://www.uwex.edu/disted/waden/network.cfm>.

All public libraries are connected through wide area networks of the 17 regional library systems which are used for Internet access and for shared integrated library systems. These library networks are also part of BadgerNet. More information about the library systems is found at <http://dpi.wi.gov/pld/wisysdir.html>. Public access to the Internet provided by libraries is one method of providing the benefits of advanced telecommunication networks to individuals that cannot afford Internet access or do not own computers. The broadband portion of this section documents a recent grant received by the Department of Administration under federal stimulus funding.

In health care, there has been increased use of existing high-capacity networks between hospitals and clinics; however, the number of these dedicated high-speed telehealth networks remains limited. More resources are being used for the development of monitoring equipment that can be used in the home, connected through the telephone network or through the Internet to health care providers.

For individuals with disabilities, the focus remains on the development of assistive technologies that enable the use of the telecommunications infrastructure, such as improving access to computers, web pages and Internet connections. There has not been a focus on the use of high-speed telecommunications networks. It has been difficult for organizations promoting the use of advanced technologies to improve the lives of persons with disabilities to keep up with the rapid changes in technology to make sure that the devices and programs that connect through the telecommunications network are accessible to persons with disabilities.

The growth of broadband Internet to the home does hold out the promise that more services will be available through the Internet mitigating the need to physically travel to sites for employment, health care or other services. The use of broadband for these purposes is not yet well documented because it is small scale, well dispersed and difficult to track.

ILEC and CLEC Infrastructure Deployment

This portion of Part 2 provides an update on the status of infrastructure deployment based (primarily) on year-end 2008 data.⁶ The section concentrates on ILEC and CLEC infrastructure.

The broadband portion of this section will highlight broadband related actions that have taken place in the state. It also addresses the mapping of broadband services currently underway in Wisconsin and will include information on federal stimulus funds and the FCC national broadband plan.

The following charts, tables and text provide a basic update on ILEC switching, ILEC advanced services, ILEC fiber deployment and investment dollars, along with information on CLEC infrastructure, services offered and investment dollars.⁷

Incumbent Local Exchange Carrier Infrastructure

Figures 2-1 and 2-2 indicate a record of ILEC infrastructure and advanced services for the state through year-end 2008. Figure 2-1 indicates a trend to smaller digital units replacing host and remote switches as the industry moves from a traditional circuit switched network to a packet type networks. These switches are of a smaller size, and often are more flexible and efficient at handling changes and permitting additions of new and expanded services.

⁶ Earlier infrastructure reports included many detailed descriptions of individual technologies, including the pros and cons of their deployment. Readers who would like that detail can refer to the March 2006 report available on the Commission website at: <http://psc.wi.gov/utilityinfo/tele/infrastructureCompetitive/infrastructure-index.htm>. Previous reports are available from our archives upon request.

⁷ As in previous reports, this information reflects data as reported by the companies in their 2008 annual reports to the Commission and in the responses to the data requests collected by the Commission staff in the third quarter of 2009.

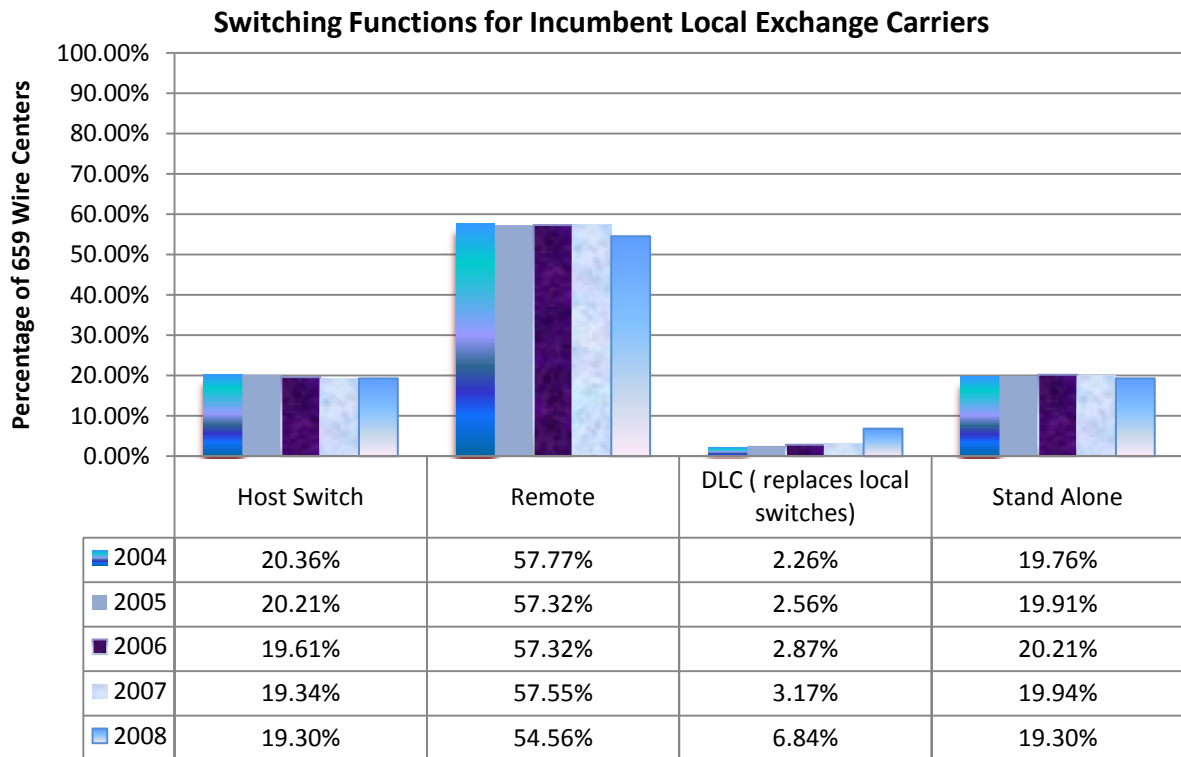


Figure 2-1

January 2010

Source: PSC ILEC Annual Reports

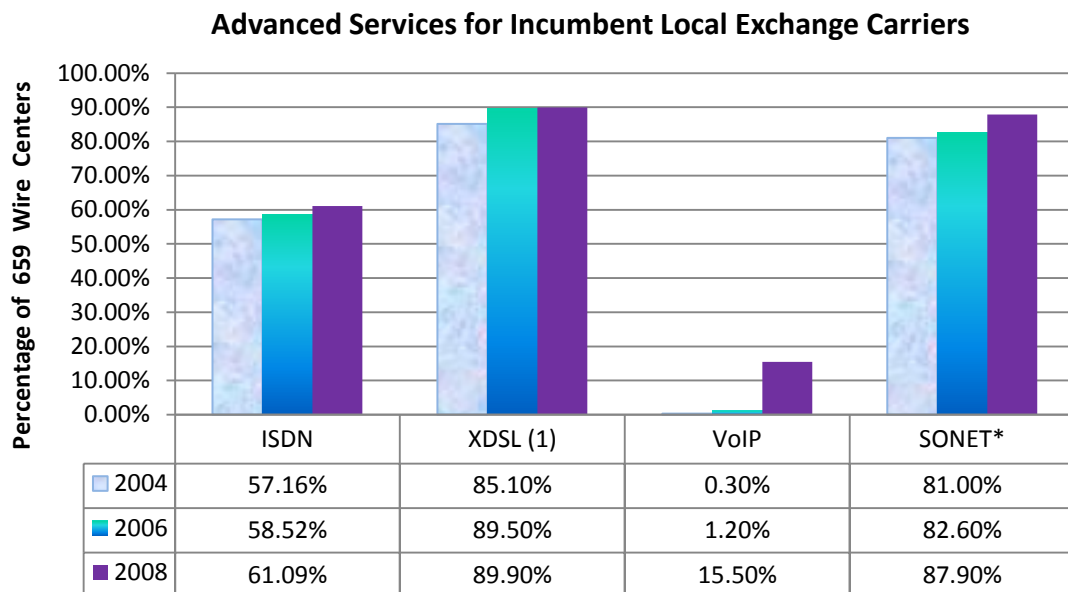


Figure 2-2

January 2010

Source: PSC Annual Report & ILEC Data Request

*Indicates information by percentage of exchanges.

(1) Percentage of wire centers does not include AT&T exchanges; DSL in AT&T exchanges is offered under an AT&T CLEC subsidiary.

Figure 2-2 shows an increase in SONET, a protocol that provides high-speed transmission over fiber optic lines, and a significant increase in the VoIP type offerings as companies offer voice service that transmits over a packetized network. The figure shows information on ILEC offerings of VoIP service. In addition to these ILECs and some CLECs, a number of other companies such as Vonage and Skype also offer voice services over broadband lines. These latter companies are not regulated by the Commission.

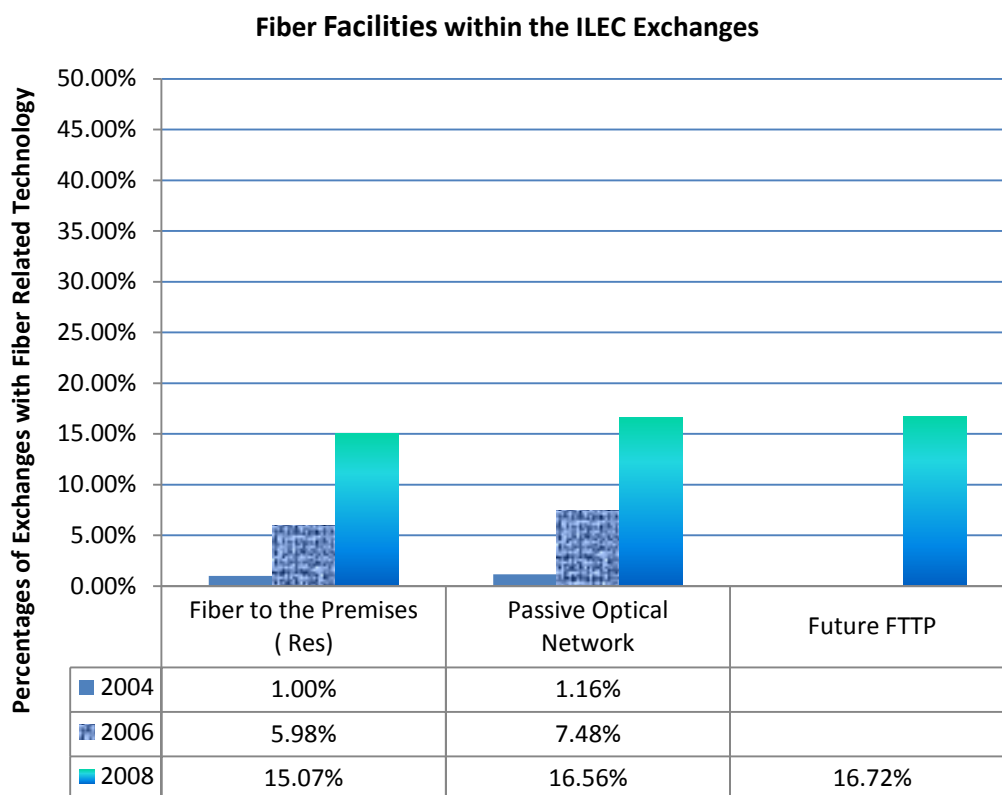


Figure 2-3

January 2010

Source: ILEC Data Request

Figure 2-3 indicates fiber optic related deployments. In addition to the increased deployment of FTTP, the figure indicates Passive Optical Network (PON) deployments have also increased as fiber facilities replace legacy copper networks and fiber is extended further into the network. Although this report documents infrastructure in place, it is also interesting to note that a significant number of companies reported plans to deploy FTTP within the next few years. See Infra Map 3 in Appendix A for a view of existing and future FTTP deployment locations. These fiber deployments include builds to additional portions of urban areas, greenfield builds to new subdivisions, or entire service area builds to replace copper networks.

As fiber facilities replace legacy copper networks, they provide increased bandwidth, thus enabling state-of-the-art voice, video, and data services and provide the basis for future advanced services. Table 2-A indicates ILEC reported overall fiber mileage.

ILEC Fiber Deployment	
Year	Total Fiber Miles in Place
2008	23,194
2007	21,542
2006	20,465
2005	19,553
2004	18,902
2003	17,946
2002	16,847
2001	16,084
2000	14,133

Table 2-A January 2010 Source: PSC ILEC Annual Reports

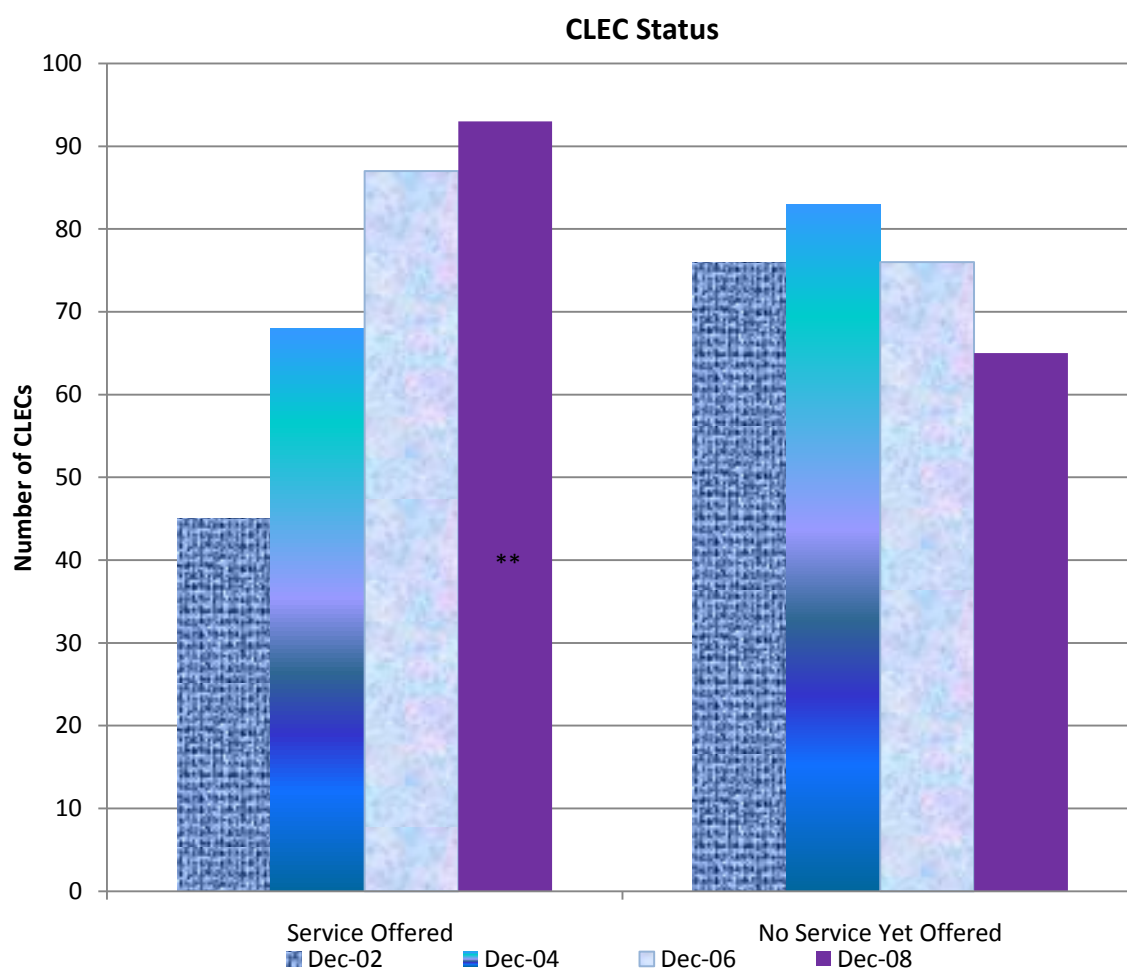
Table 2-B indicates the annual ILEC capital investments reported in annual reports filed with the Commission. These expenditures cover all types of infrastructure deployment including switching and outside plant. Note that plant additions do fluctuate from year-to-year depending on the infrastructure requirements of the companies. For example, large expenditures for switching or fiber deployment may drive up cost for an individual year. In addition, companies have become more efficient as some technologies have been improved or become less costly.

Total ILEC Plant Additions		
Year	Plant in dollars	Change from Previous Year
2008	\$415,250,000	12.93%
2007	\$367,703,000	6.02%
2006	\$346,822,000	8.35%
2005	\$320,088,000	7.41%
2004	\$298,010,000	11.99%
2003	\$266,103,000	-42.14%
2002	\$459,944,118	-31.87%
2001	\$675,075,438	20.70%
2000	\$559,306,926	7.67%
1999	\$519,487,322	16.24%
1998	\$446,899,834	19.36%
1997	\$374,403,187	-4.26%
1996	\$391,080,104	10.13%
1995	\$355,114,857	20.18%
1994	\$295,488,914	-6.07%
1993	\$314,575,622	3.70%
1992	\$303,348,717	

Table 2-B January 2010 Source: PSC ILEC Annual Reports

Competitive Local Exchange Carrier Infrastructure

At year-end 2008, 158 CLECs filed annual reports for Wisconsin, although not all of these certified companies are actively providing service. CLECs that offered service reported various types of services from high-speed Internet lines to dark fiber service; 41 CLECs reported offering some type of local service.



** 41 CLECs offer some type of basic local service-business, residential or both.

Figure 2-4 January 2010 Source: PSC CLEC Annual Reports

The data shows that at year-end 2008, CLEC numbers have increased over the last two years. Like many ILECs, the CLECs that offer local service often bundle their services into packages that include local, long distance, and advanced services, such as three-way calling and call waiting. Figure 2-5 indicates the type of services offered by CLECs and the number of CLECs that reported offering these services at the end of 2008.

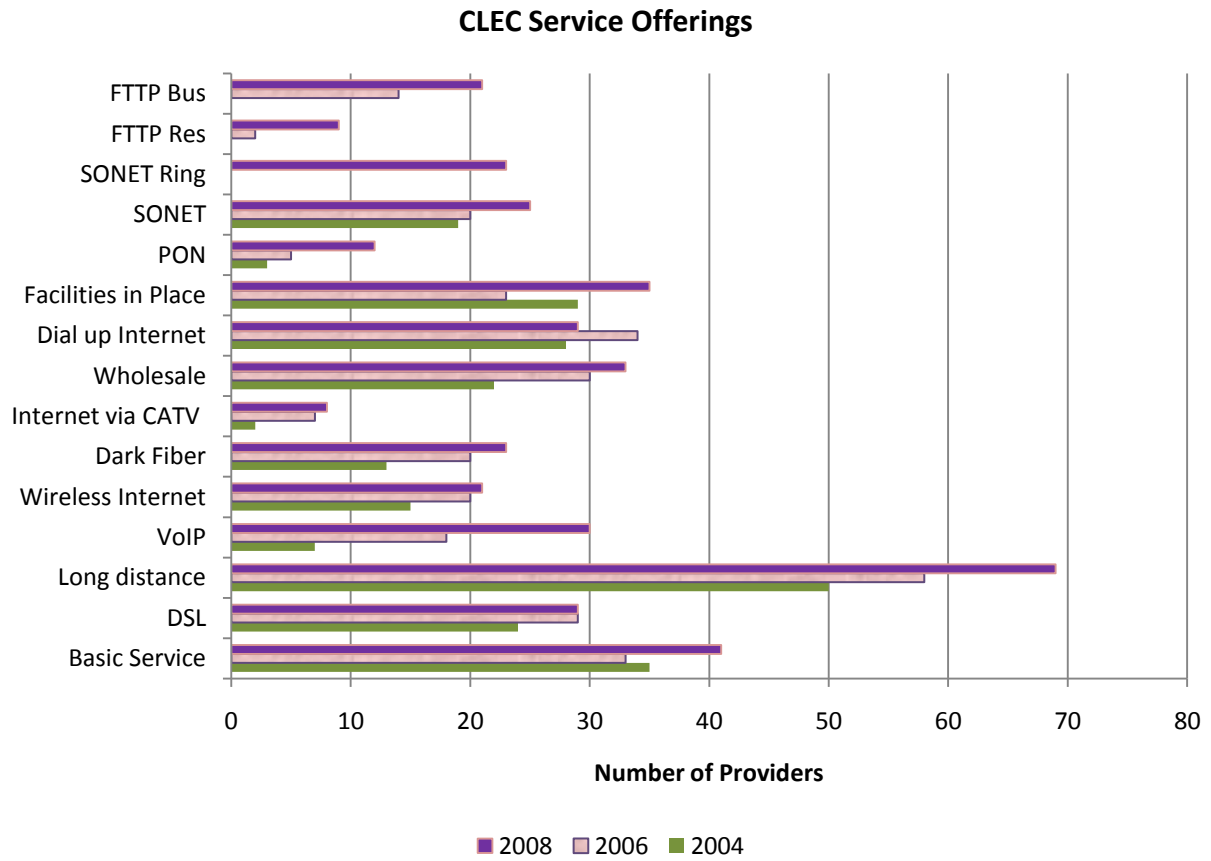


Figure 2-5 January 2010 Source: PSC CLEC Annual Reports and CLEC Data Request

Table 2-C indicates CLEC-reported additions to plant for each year from 2001 to 2008.

Reported Investments by CLECs	
Year	Additions to Plant
2008	\$107,638,000
2007	\$63,220,000
2006	\$65,396,000
2005	\$98,917,000
2004	\$77,336,700
2003	\$61,711,989
2002	\$67,731,081
2001	\$99,763,868

Table 2-C January 2010

Source: PSC CLEC Annual Report

CLEC service areas were compiled by referencing ILEC exchange areas or zip codes. Infra Map 2, in Appendix A, indicates where these CLECs report that service is available. The CLECs may not offer service to the entire ILEC service or zip code area.

Other Information

Infra Map 4 in Appendix A indicates ILEC regulation status and provides a picture of the geographic areas open to competition within the state.⁸

Many municipalities are certified as CLECs and can provide telecommunications services. Table 2-D indicates general information on municipalities with CLEC certifications.

⁸ Generally, those areas shown as being under price regulation or alternative regulation are open to entry by competitors.

Certified Municipal CLECs	
Utility ID	Municipal CLEC
3320	MANITOWOC PUBLIC UTILITIES
3420	MARSHFIELD ELECTRIC AND WATER DEPT
3560	MENASHA ELECTRIC & WATER UTILITIES
4360	OCONTO FALLS WATER AND LIGHT COMM
4970	REEDSBURG UTILITY COMMISSION
5070	RICHLAND CENTER ELECTRIC UTILITY
5350	SHAWANO MUNICIPAL UTILITIES
5990	TWO RIVERS WATER & LIGHT UTILITY
2720	VILLAGE OF JACKSON WATER UTILITY
3636	CITY OF WAUPACA
180	ANTIGO WATER UTILITY *
350	BANGOR MUNICIPAL UTILITY
740	BRODHEAD WATER AND LIGHT COMMISSION
1200	CLINTONVILLE WATER & ELECTRIC UTILITY
1300	COLUMBUS WATER AND LIGHT DEPT
1580	DEFOREST MUNICIPAL WATER UTILITY
1980	FENNIMORE WATER AND LIGHT
2650	HUSTISFORD UTILITIES
2770	JOHNSON CREEK WATER UTILITY
2800	KAUKAUNA UTILITIES
3000	LAKE MILLS LIGHT AND WATER DEPT
4130	NEW LONDON ELECTRIC & WATER UTILITY
4340	OCONOMOWOC CITY OF UTILITIES
4740	PLYMOUTH UTILITIES
5110	RIVER FALLS MUNICIPAL UTILITY
5745	STOUGHTON MUNICIPAL UTILITIES
5780	STURGEON BAY UTILITIES
5810	SUN PRAIRIE WATER & LIGHT COMMISSION
6220	WATERLOO WATER AND LIGHT COMM
6290	WAUPUN PUBLIC UTILITIES
Bold text indicates those municipalities offering CLEC service as of year-end 2008.	

*Antigo Water Utility's communications facilities were sold to Wittenberg Wireless in spring 2010.

Table 2-D

January 2010

Source: PSC File

Competition from cable companies, wireless providers and VoIP type providers is impacting ILECs and CLECs. Both categories of provider lost access lines from 2007 to 2008. Figure 2-6 is a snapshot of ILEC and CLEC lines in Wisconsin reported through year-end 2008.

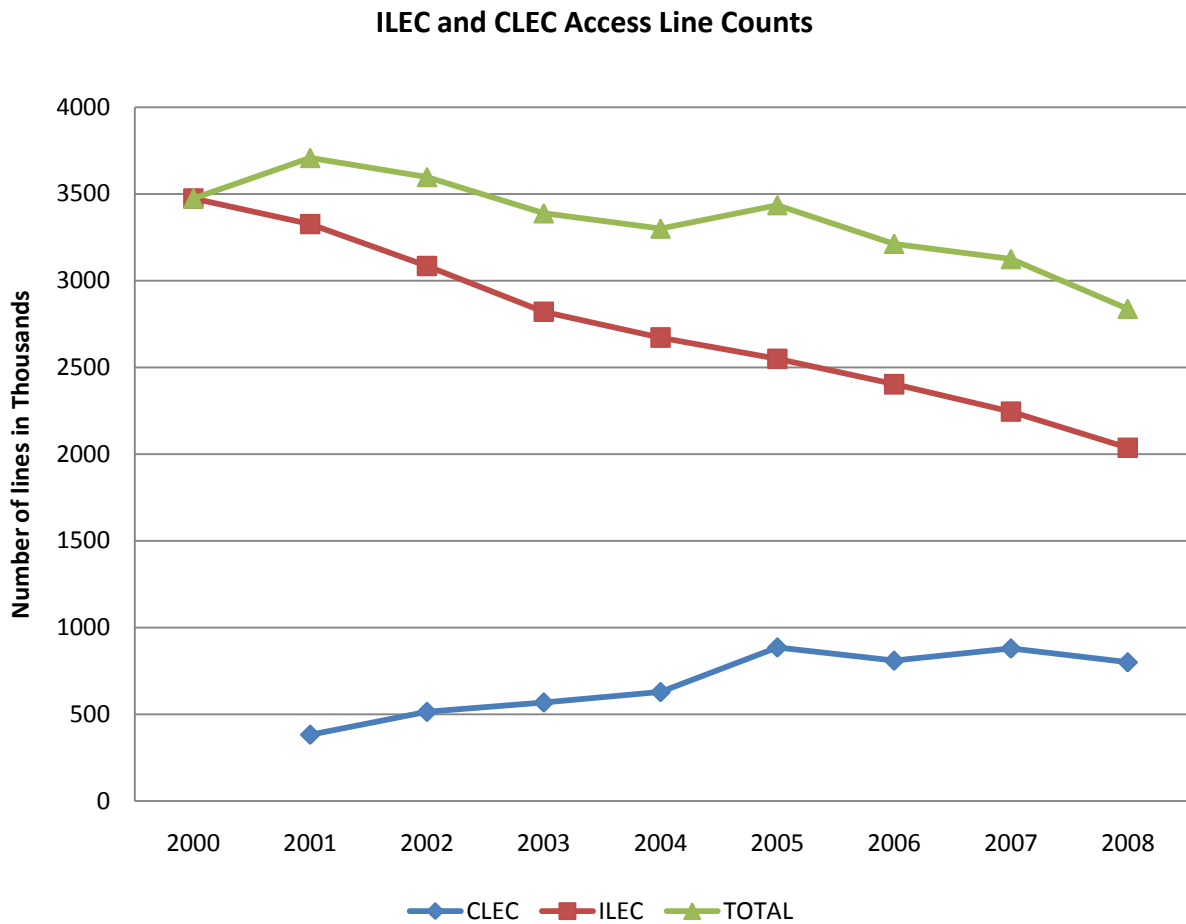


Figure 2-6

January 2010

Source: PSC Annual Reports

The PSC does not have jurisdiction over Cable TV, wireless or VoIP providers, so does not have data from these entities. The future LinkWisconsin broadband map will have information on some of these providers and where they provide broadband in Wisconsin.

Broadband Deployment

There has been significant activity on the broadband front not only in 2008 but through 2009 to the present. Although this report for the most part documents 2008 infrastructure in place, this broadband section will include information on 2009 and 2010 activities as they are important steps in the future deployment of broadband in the state. This report includes information on broadband mapping efforts and federal actions concerning stimulus funding, and the FCC national broadband plan.

Previous reports have noted that the term “broadband” is not so much a technical term as a marketing description that refers to speeds faster than dial-up service. Broadband service is a measure of how much or how fast information can be transmitted. Broadband technology is offered by a number of different types of providers including: ILECs, CLECs, wireless, CATV, and satellite providers.⁹ While a broadband definition¹⁰ is provided in the text box above based on the Department of Agriculture’s Rural Utility Service (RUS) standards, the speeds offered by broadband providers often exceed this basic defined speed. Broadband offerings continue to grow as providers deploy state of the art broadband facilities. These offerings include expanded fiber networks and FTTP deployments. While DSL lines continue to be deployed on existing copper networks, newer fiber networks offer expanded bandwidth availability and new service offering capability. Data collected by the FCC¹¹ indicates that an estimated 1,739,000 broadband connections existed in the state as of December 31, 2008. Figure 2-7 indicates the distribution of these high-speed access connections by technology.

For this report, broadband is based on the RUS definition of providing two-way data transmission with advertised speeds of at least 768 kbps downstream and 200 kbps upstream to end users. The FCC broadband plan recently recommended a goal of getting 100 megabits to 100 million households over the next decade.

⁹ This report generally addresses infrastructure at the end of 2008. The Commission does not regulate wireless or CATV providers and has very limited data on those market segments. Satellite service providers, also unregulated, have also advertised broadband service offerings more heavily in the state. Many companies using these various technologies have applied for federal stimulus funds for broadband deployment.

¹⁰ The definition of broadband may differ from previous reports. This report uses an updated RUS definition of broadband.

¹¹ FCC report titled High Speed Services for Internet Access: Status as of December 31, 2008 can be found on the FCC web site at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296239A1.pdf

Market Share Percentage of Broadband Connections by Provider Type

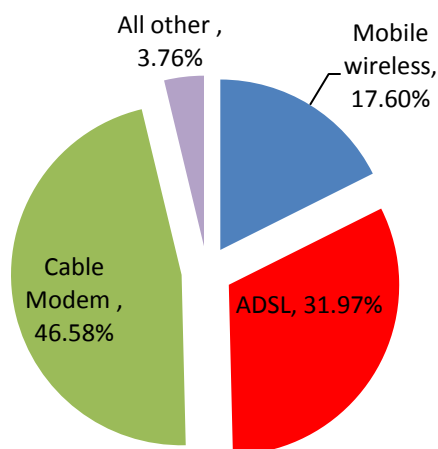


Figure 2-7

January 2010

Source FCC 477 Form

A number of Wisconsin companies have deployed or are in the process of deploying fiber networks that include FTTP designs. Some of these companies deploy fiber in new greenfield situations or for backhaul service. A number have designed their entire networks to provide FTTP to the majority of their service territories, replacing the aging copper network. FTTP designs provide state of the art broadband services. See Infra Map 3 for a picture of the area where companies reported FTTP in place and FTTP planned for the future deployment.

There are a number of companies including Lemonweir Valley Telecom, Cochrane Telephone Co-op and Siren Telephone Company that are installing state of the art fiber optic systems throughout the majority of the companies' service areas. These new fiber systems provide broadband service from 20Mb to 100Mb for Internet service. FTTP installations position the communities these companies serve with the availability of high-quality communications services. They also provide for future services that could provide an opportunity to enhance the economic growth of the communities and establish state of the art educational and telemedicine opportunities. Despite these types of deployments in the state, there are areas where broadband is not available to customers.

In the spring and summer of 2009, the PSC conducted an informal survey of consumers around the state to collect information on the status of broadband availability. This data collection plan was tied in with the federal stimulus funds initiative for broadband deployment. This survey was made available via an online data collection form, however survey forms were also taken by phone and mail when more convenient for the responders. The survey helped identify where the need for broadband exists. An estimated 8,700 respondents completed the survey. The results were made available with frequent updates on the PSC web site¹².

Infra Map 5 in Appendix A indicates a map location of the responses received as of June 2010. For the majority of those customers who reported that they did not have broadband, this was because

¹² See: <http://psc.wi.gov/recoveryAct/sfResultsSurvey.htm>

they did not have access to broadband service at their locations. See PSC web site for more information on this survey and the results at: <http://psc.wi.gov/recoveryAct/sfbroadband.htm>. This map is only a preliminary picture of broadband availability and more detail will be available as PSC mapping efforts continue.

The PSC also has a formal mapping effort underway. Governor Doyle made the PSC the single eligible entity in Wisconsin to receive a grant under the National Telecommunications and Information Administration (NTIA) State Broadband Data and Development Program. The PSC sought bids through an RFP to provide these mapping and planning services. The LinkAmerica Alliance was chosen in the fall of 2009 as the winning bidder. This \$1.7 million dollar contract was funded by a NTIA grant.¹³ The contract covers a two-year period, with deliverables that include producing a statewide interactive map of broadband availability, addressing the demand-side assessment of broadband covering researching current and future broadband uses, mapping broadband demand scenarios and facilitating regional planning teams. LinkAmerica's initial work is underway and a web site has been established with broadband related information for the state, LinkWISCONSIN. Preliminary data was provided to the FCC in the first quarter of 2010, with a first national broadband map due in February of 2011. The LinkWISCONSIN web site will offer maps, strategy documents and FAQ's for further information on broadband for the public and other interested parties. This work ties in with the federal plan for broadband mapping and deployment.

In addition to this state broadband mapping and planning undertaking, other activities in broadband expansion are continuing under the American Recovery and Reinvestment Act (ARRA). This Act appropriated \$7.2 billion dollars to expand broadband access in communities throughout the United States. Stimulus funding for broadband deployments and grant availability for broadband mapping have been awarded for a number of states. Monies are being distributed through the NTIA through the Broadband Technology Opportunities Program (BTOP) and through the RUS's Broadband Initiatives Program (BIP). BIP will make loans and grants for "broadband infrastructure projects in rural areas," and BTOP will provide grants to fund broadband infrastructure, public computer centers and sustainable broadband adoption projects. See www.broadbandusa.gov for more detail on these programs.

In the first round of NTIA grant applications, the following grants were awarded for Wisconsin:

- The State of WI Department of Administration was awarded \$28.7 million for its BadgerNet project to provide fiber optic facilities to education facilities and public libraries. (See <http://www.dpi.wi.gov/pld/arrabbfunding.html>)
- The UW System received \$5.1 million for providing 100 miles of fiber optic facilities to anchor institutions in Dane County.
- One Economy was awarded a \$28.5 million multi-state grant for sustainable broadband adoption with an additional \$23 million applicant-provided match.

¹³ The NTIA has invited applications for supplemental funding to extend the broadband mapping and planning effort beyond two years. The PSC is exploring the submittal of a further application.

A second round of grant applications was filed in March of 2010. Although a number of entities in the state applied for funds, Round 2 awardees had not been announced at the time of this writing.¹⁴

There will be continued activity over the next two years as broadband construction gets underway and mapping efforts are progressing. Recently the FCC, as directed by Congress, announced a [national broadband plan](#).¹⁵ This plan is directed at overhauling the nation's Internet infrastructure. Under the plan, a number of goals were set by the FCC including a proposal for the establishment of a Connect America Fund (CAF) to drive broadband adoption using funds from the federal Universal Service Fund. Initial goals include creating a broadband data depository as a public resource for broadband information. This federal government attention to broadband stresses the importance of having a universal broadband infrastructure in place to serve the economic, educational and social needs of communities across the nation.

In Wisconsin, the PSC will continue with its mapping efforts and planning to meet federal requirements and also to meet the needs of the state and its residents. The Commission will collect and publish data on broadband availability, government requirements and provide planning steps through its LinkAmerica contract work. All these efforts and activities taking place now and in the years ahead will not only provide a more clear picture of the status of broadband deployment in the state, but will promote the expansion of broadband by providing accurate and improved information on broadband availability and uses.

¹⁴ See [Broadband Technology Opportunities Program \(BTOP\): Expanding broadband access and adoption in communities across America](#). | [BroadbandUSA - NTIA](#) See: <http://www2.ntia.doc.gov>

¹⁵ See [The National Broadband Plan: Connecting America](#) at <http://www.broadband.gov>

Universal Service Fund

Background and History: The Wisconsin Universal Service Fund (USF) was established under 1993 Wisconsin Act 496 to ensure that all state residents have access to essential and advanced telecommunications services. As part of the change in telecommunications regulation, the Act included explicit requirements for universal service. Universal service can be defined as getting and keeping people on the network, making certain that all customers, including customer groups with specific needs, have access to affordable telecommunications services, and providing access to advanced service capabilities. Act 496 required the Commission to establish a Universal Service Fund, appoint a USF Council, and promulgate rules on universal service including definitions of essential services and advanced service capabilities.¹⁶

The first universal service rules (Wis. Admin. Code ch. PSC 160) were approved in 1996. The rules were subsequently revised in 2000 and are currently in the process of being revised again.

The purpose of the USF is to provide funds for programs to: (1) assist customers in areas of the state that have relatively high costs of telecommunications services, low-income customers, and disabled customers in obtaining affordable access to a basic set of essential telecommunications services; and (2) assist in the deployment of advanced service capabilities of a modern telecommunications infrastructure throughout the state.

As provided in Wis. Stat. § 196.218(3), landline and commercial mobile radio service telecommunications providers in the state are required to contribute to the Universal Service Fund. Assessments are based on the providers' gross intrastate operating revenues as reported in their annual reports to the Commission and the budget appropriation approved in the state budget process. The assessment rate is a monthly rate and is adjusted annually.¹⁷ State tax dollars do not contribute to the Universal Service Fund.

Programs included under the broad umbrella of the USF consist of technology and consumer-oriented programs managed by the Commission and technology and education-oriented programs that direct funding to other state government entities. These latter programs include the Educational Telecommunications Access Program administered by the Department of Administration; the University of Wisconsin, which receives funding for BadgerNet services; and the Department of Public Instruction (DPI), which receives funding for library services, BadgerLink and Newsline for the Blind.

¹⁶ This USF report is submitted in compliance with Wis. Stat. § 196.218(5r).

¹⁷ Companies generally recover their USF assessments through increased rates or surcharges on consumers' bills.

While these programs receive USF funding,¹⁸ the Commission has no administrative authority over these programs. For purposes of this report, reference to the USF generally refers to the Commission portion of the USF.

Administration: While the Commission develops the overall policy and procedures for the USF and manages and operates several of the programs, it is required by statute to contract with a private firm to administer the fund.¹⁹ Responsibilities under that contract include sending USF assessment bills to providers, sending reimbursements to participants in the USF programs, and administering some of the USF programs under PSC direction.

The USF Council advises the Commission on the administration of the USF and on proposed rule changes. Currently, the Council is comprised of 12 members with 5 representing the telecommunications industry and 7 representing consumer groups. By statute, the majority of the Council members must be representatives from consumer groups. The Council met four times over FY08 and FY09 and discussed budget issues, program direction, and draft rule changes.

Budget: The appropriation for FY08 and FY09 was \$6.0 million for each year. For FY10 and FY11, the USF budget was reduced by one percent from the previous fiscal year, as were most other state agency budgets for most of the USF programs. The budget for FY10 and FY11 is \$5.94 million for each year.

The expenditures over the past three fiscal years have remained fairly steady. Other than needing to stay within the slightly reduce appropriation level of \$5.94 million, this trend is expected to continue for FY10 and FY11.

USF Programs: Eight Commission programs are funded by the USF to assist in providing telecommunications access to low-income households, disabled individuals and to households in high cost areas of the state and to provide grants to hospitals and clinics for advanced telecommunications equipment. The budget summaries include funding for administrative costs for the USF programs. Administrative costs comprised about five percent of the USF budget for both FY08 and FY09. Comparisons of expenditures for Commission USF programs over the past three years are shown in Figure 3-1 and Figure 3-2.

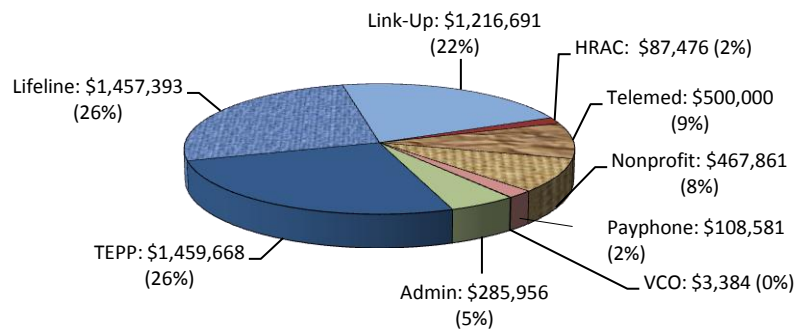
¹⁸ Recent appropriations for these non-Commission USF programs were as follows:

	FY08	FY09	FY10
TEACH	\$17,278,500	\$17,278,500	\$17,069,100
UW System	\$1,054,800	\$1,054,800	\$1,054,800
DPI	\$16,458,300	\$7,705,100	\$19,644,600

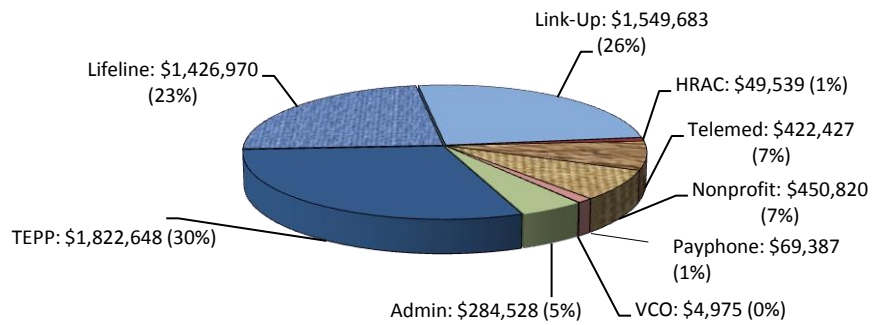
In addition, \$11,297,400 is being assessed to providers in FY10 for FY09 expenditures for library aids for a total FY09 expenditure of \$19,002,500 for DPI programs.

¹⁹ The currently-retained administrator of the USF is Wipfli, LLP.

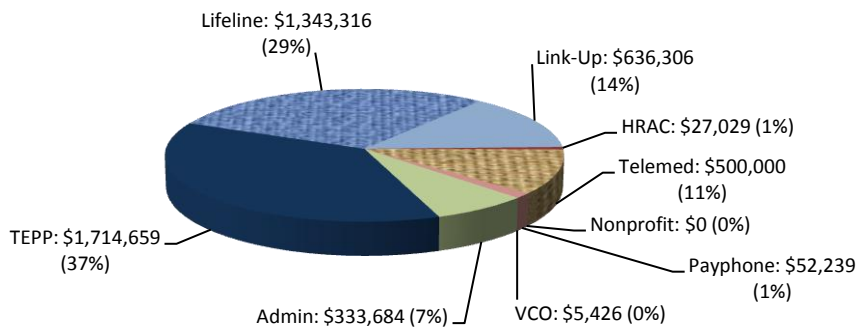
FY 2007 USF EXPENDITURES - \$5,587,010



FY 2008 USF EXPENDITURES - \$6,080,977



FY 2009 USF EXPENDITURES - \$4,612,659



TEPP: Telecommunications Equipment Purchase Program	Nonprofit: Nonprofit Access Grants
Lifeline: Lifeline	Link-Up: Link-Up
Payphone: Public Interest Payphone	VCO: Two Line Speech or Voice Carry Over
HRAC: High Rate Assistance Credit	Admin: Administration
Telemed: Telemedicine Equipment Grants	

Figure 3-1

May 2010

Source: PSC Staff

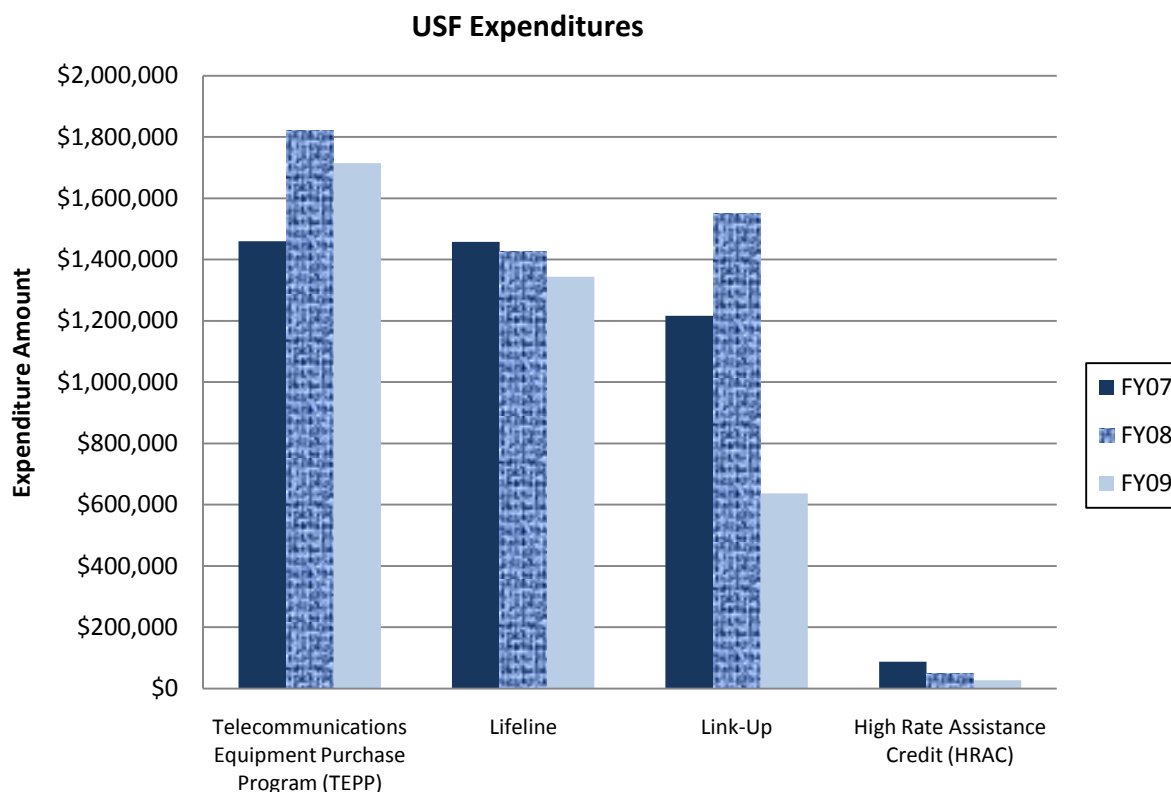


Figure 3-2

May 2010

Source: PSC Staff

Telecommunications Equipment Purchase Program (TEPP): TEPP assists persons with disabilities to purchase certain telecommunications equipment so that they can use the telephone system. Examples of equipment that can be purchased with the vouchers include amplified phones, TTYs,²⁰ speech amplified phones, and signaling systems. Vouchers are given to the qualifying individuals and these vouchers are used to pay vendors for a portion of the cost of the necessary telecommunications equipment. Voucher values vary for different types of disabilities because the typical equipment needs of persons in different disability categories varies in price. In most cases, the purchaser must make a \$100 co-payment when purchasing the equipment. If the co-payment and voucher are not sufficient to cover the equipment price, the purchaser pays the additional amount. Low-income eligible individuals may qualify for funding to pay the \$100 co-payment.²¹ Over the biennium, about \$3.6 million in vouchers were used by over 17,000 individuals with disabilities to assist them in using the telephone.

²⁰ TTYs are electronic typewriter devices that hearing impaired or speech impaired persons use to send or receive typed messages.

²¹ The Telecommunications Assistance Program (TAP) may be able to pay the \$100. TAP is a program of the Office for the Deaf and Hard of Hearing (Department of Health Services). TAP is only for persons who are deaf or severely hard of hearing in a low-income household.

Two-line Voice or Speech Carryover: Two-line voice or speech carryover is a service that some persons with hearing or speech impairments use to communicate over the telephone. With carryover service, a TTY or CapTel telephone is used only in one direction for the call when the user is able to either speak or hear, but not both. This small program reimburses providers that have customers that use two-line voice or speech carryover and require a second line. USF rules allow a customer to get a second line without a service connection charge and without a monthly charge for most of the costs of that second line. Many CapTel phone users use the two-line voice feature which has resulted in increased expenditures for this program. Expenditures for this program have steadily increased from \$1,550 in FY05 to \$5,426 in FY09. Total program costs remain small as compared to other USF programs. Customers who use this carryover service report that it is very valuable.

High Rate Ceiling Credits: The high rate ceiling credit program provides USF payments to local exchange service providers to reimburse them for credits given to customers to keep local rates at affordable levels. Monthly service rates are compared to median household incomes for each county. If the rate that a telecommunications company charges exceeds the threshold established in the rules, the customers only pay the threshold price and the USF pays the company the necessary increment it needs. Adjustments in funding levels for this program are dependent on changes in income levels for the county and changes in local service rates.

The expenditures for this program have varied drastically over the past ten years. The peak of expenditures over that period was \$1.3 million and the lowest level of expenditures was \$5,000. The trend for expenditures continues to decline with FY08 expenditures totaling \$49,539 and FY09 expenditures totaling \$27,029.

Lifeline and Link-Up: The Lifeline and Link-Up programs make telephone service more accessible for low-income Wisconsin residents. Lifeline provides a lower monthly rate for telephone service for low-income consumers. Link-Up requires telecommunications providers to waive service connection charges up to \$60 when low-income consumers establish or move their telephone service. The Lifeline and Link-Up programs are provided jointly by the FCC and the State of Wisconsin. Providers are reimbursed from the state and federal USF for rate credits given to Lifeline customers and for the waived charges applicable to Link-Up customers.

USF expenditures for the Lifeline program were \$1,426,970 in FY08 and \$1,343,316 in FY09. Lifeline provided lower priced landline telephone service to almost 72,000 low-income customers. Link-Up services were provided to almost 15,000 customers over FY08 and FY09, enabling those customers to have telephone connection fees waived. Link-Up expenditures totaled \$1,549,683 in FY08 and \$636,306 in FY09. Link-Up expenditures dropped significantly in FY09 because the Commission approved a rule changes that limited the amount a provider could receive for reimbursement from the USF and it limited the number of times a customer could receive Link-Up credits to one time per year at the same address. Lifeline and Link-Up have experienced fluctuation in participation levels. The current trend appears to be toward lower participation levels for land line customers as customers drop their landline service and opt for only cellular service. Lifeline credits for consumers are available for cellular service from certain providers. Currently the state USF does not reimburse cellular companies for Lifeline credits.

Nonprofit Grant – Access Programs or Projects: Nonprofit organizations were awarded \$450,820 in USF grants in FY08. The purpose of these grants is to develop or support programs or projects that facilitate the affordable access to telecommunications and information services. Applicants must be nonprofit organizations and must provide a 50 percent match for the total project cost. The projects must assist in providing telecommunications or information services to low-income or disabled customers, or must assist in deploying advanced telecommunications services.

In FY08, 25 applications were submitted and the Commission-approved 23 grants for a total of \$450,820. Table C1, in Appendix C, provide information on grants that were awarded. USF Map 1 indicates the counties where grant funds were awarded. Examples of projects that received funding include providing Internet access and training to low-income youth, seniors and unemployed adults, providing outreach and assistance to individuals with disabilities in obtaining and installing telecommunications equipment. Due to the state budget general fund deficit, the Department of Administration directed the PSC to cancel the Nonprofit Access Grant Program for FY09.

Medical Telecommunications Equipment Program: Nonprofit medical clinics and public health agencies can receive grants from the USF to purchase telecommunications equipment. Purchase of medical telecommunications equipment under this grant program must promote technologically advanced medical services, enhance access to medical care in rural areas of the state, or enhance access to medical care to underserved populations or person with disabilities in the state. Applicants for this program must be a nonprofit clinic serving federally designated health professional shortage areas, medically underserved areas, medically underserved populations, or are a public health agency.

In FY08 and FY09, a combined request for applications resulted in 36 applications submitted for the Telemedicine Grant program. The Commission-awarded 25 grants totaling \$422,427 for FY08 and \$500,000 for FY09. Examples of projects that received funding include teleradiology systems, home health care monitoring equipment, and video conferencing equipment. Tables C2 and C3, in Appendix C, provide information on grants that were awarded. USF Map 2 and USF Map 3 indicate the counties where the grants were awarded.

Public Interest Payphones: This program provides funding for placement of pay telephones when they are needed for the public interest but might not otherwise be provided. Under the PSC rules, when a pay telephone is installed after being designated as a public interest pay telephone, the provider of that telephone may be reimbursed for the costs associated with provision of the service, less any federal universal service support or revenues generated at the pay telephone. About 40 public interest payphones were located throughout the state in schools, parks, libraries, recreation facilities, boat landings, medical clinics, and village halls at the end of FY09. The USF Council and the Commission determined that funding for this program should be eliminated for the FY10 budget. As a result, the USF no longer funds public interest phones.

Federal USF Programs: The information above relates to the state created and funded Wisconsin universal service program. The federal government also has a universal service fund that provides funding through some federal programs to support universal service objectives. Per the Federal Telecommunications Act of 1996, preserving and advancing universal service is a function of

both federal and state universal service programs.²² The previously described state specific programs are funded solely through assessments on Wisconsin intrastate telecommunications revenues. The federal USF programs are funded through national assessments on telecommunications revenues. Funding universal service through national programs maintains the competitiveness of the State of Wisconsin as assessments are no higher in Wisconsin than any other state. In some cases, federal USF programs complement state USF programs (i.e., for low-income customers), and in other instances, the federal USF addresses needs not duplicated by the Wisconsin USF. Many rural companies in Wisconsin have costs that are higher than national average costs and are eligible for federal support under the federal USF programs.

The following is a description of the federal universal service support programs and the funding from them that was provided to Wisconsin telecommunications companies in 2007 and 2008.

²² 47 U.S.C. § 254(b)(5)

Federal Universal Service Programs	2007 Amount	2008 Amount
<p>Low Income This support is commonly known as Lifeline and Link-Up. It provides discounts that make basic local telephone service affordable for low-income customers. Low income support is administered by the state in a partnership with the federal government. The dollars shown here are the federal contributions to this program.</p>	\$10,096,000	\$9,037,000
<p>Rural Health Care This support provides reduced rates to rural health care providers for telecommunications and Internet services so they pay no more than their urban counterparts for the same or similar telecommunications services.</p>	\$1,200,000* \$1,900,000*	\$2,300,000* \$3,013,000*
<p>Schools and Libraries This support referred to as E-rate support, provides affordable telecommunications and Internet access services to connect schools and libraries to the Internet. This support goes to service providers that provide discounts on eligible services to eligible schools, school districts, libraries, and consortia of these entities.</p>	\$20,042,000*	\$21,367,000*
<p>High Cost Loop This support provides financial assistance to rural telephone companies for providing the “last mile of connection” when the cost of this service exceeds 115 percent of the national average cost per loop.</p>	\$41,976,000	\$38,998,000
<p>High Cost Model This support provides carriers with support for all intrastate costs per line that exceed two standard deviations of the national average cost per loop.</p>	\$0	\$0
<p>Interstate Access Support This support helps price-cap telephone companies recover some of their fixed interstate access charges.</p>	\$256,000	\$181,000
<p>Interstate Common Line Support This support helps rate-of-return telephone companies recover some of their fixed interstate access charges.</p>	\$68,891,000	\$81,715,000
<p>Local Switching Support This support provides financial assistance designed to reduce the high fixed switching costs for carriers that serve 50,000 loops or fewer.</p>	\$30,730,000	\$25,463,000
<p>Total 2007 and 2008 Federal Support to Wisconsin</p>	\$173,891,000	\$179,774,000

*Includes only actual disbursements. Additional dollars have been committed but are not included.

Table 3-A

January 2010

Source: Universal Service Administrative Company 2007 and 2008 Annual Reports

The FCC is in the process of reviewing the rules for the Universal Service Fund (and the issue is a topic of interest in Congress). The Commission will continue to monitor these rules and provide comments when appropriate. The Commission also recognizes that universal service concerns are very much intertwined with issues of competition and intercarrier compensation. All these issues carry heavy price tags and require broad and creative thinking on all fronts to assure the maintenance and promotion of competition, the protection of service to consumers, and the creation of a fair, rational and efficient system of compensation among providers.

In the spring of 2010, the Legislature passed 2009 Wisconsin Act 238 that removes the existing requirement for an annual USF report and changes this to a biennial reporting requirement. Future USF reports will be combined (as was this one) with the biennial Infrastructure Report

**Part
4**

Summary and Recommendation

The Commission believes it is important to keep the Legislature informed about the status of telecommunications infrastructure and the administration of the USF. These reports will continue to document the status of existing infrastructure and trends, changes, and advances in technology, along with statistics on USF programs. The Commission considers this reporting an important part of its role to assure that infrastructure and programs are in place so that customers have access to reasonably priced and quality communications services and legislative reporting requirements are met. Publishing broadband data the PSC collects will give consumers appropriate and relevant information to assist them in making informed choices for broadband services.

General

There have been significant advances in fiber deployment and broadband networks across the state. Broadband mapping and data collection now underway by LinkAmerica under the [LinkWISCONSIN](#) initiative will further enhance and document the current status of broadband in the state.

The Commission will continue to work with providers and LinkAmerica to assist in the collection and publishing of relevant data on deployment of infrastructure and new services offered in the state. The Commission will also monitor FCC activities as they affect providers and consumers in the state. As with the PSC's previous efforts, the results of this work will provide legislators, local communities and consumers with information on the status of infrastructure and the technology changes affecting communications services available in the State of Wisconsin.

Reporting

As the PSC has noted in numerous reports, PSC annual reports and data requests continue to be a reliable and consistent source for infrastructure and related telecommunications reporting for the Commission. The Commission collects data from all ILECs and CLECs, and now, LinkAmerica will add broadband related information for customers served by CATV, wireless, satellite, and independent VoIP providers. This data collection will add to the existing baseline for infrastructure and services available across the state and provide a more complete picture of the status of investments and telecommunications and broadband infrastructure in the communications landscape.

The LinkAmerica provider information was filed confidentially with LinkAmerica. The PSC will not have access to this data. As noted in previous infrastructure reports, the PSC does not have authority over all these entities that have infrastructure in the state. Providing such authority could give the PSC the ability to provide a more complete picture of the status of infrastructure in Wisconsin on an ongoing basis.

Recommendation

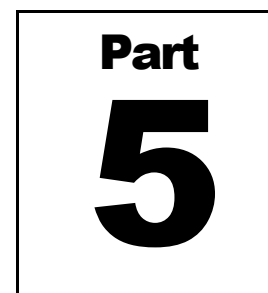
In the Commission's report to the Legislature in 2008, the Commission recommended the following:

- 1) Change Wis. Stat. § 196.196(5)f. reporting requirements, including replacement of the specific ISDN mandate with a more neutral technology reference.
- 2) Complete a broadband inventory for the state of Wisconsin.
- 3) Establish statutory authority under Wis. Stat. § 196.25 to allow the Commission to collect data from CATV, wireless and VoIP providers so that the Legislature and the public have complete and relevant information covering all areas of the communications industry. In addition, a provision should be added to assess a penalty or other form of redress where providers do not respond to data requests as required under Wis. Stat. § 196.25(3).
- 4) Change the annual USF reporting requirement to a biennial requirement so that future USF reports and infrastructure reports can be jointly prepared and filed.

Recommendation numbers 1 and 4 above were addressed and promulgated by the Legislature by passage of 2009 Wisconsin Act 238. The Commission appreciates the Legislature's attention to those earlier suggestions. Recommendation number 2 above is now being pursued under the NTIA grant that the Commission received to undertake broadband mapping and planning for Wisconsin. That effort is underway and will be continuing.

As to recommendation number 3 above, the Commission reiterates it here: this action would give the Commission necessary oversight of infrastructure and universal service issues in the state:

Establish statutory authority under Wis. Stat. § 196.25 to allow the Commission to collect data from CATV, wireless and VoIP providers so that the Legislature and the public have complete and relevant information covering all areas of the communications industry. In addition, a provision should be added to assess a penalty or other form of redress where providers do not respond to data requests as required under Wis. Stat. § 196.25(3).



Appendices

- A Infrastructure and USF Maps
- B Commission Report Preparation
- C Nonprofit and Telemedicine USF Grants
- D Incumbent Local Exchange Companies under Alternative Regulation (Wis. Stat. § 196.195)
- E Wisconsin Telecommunications Quick Facts

Appendix A

Reference Maps

Map A: County Boundaries
Map B: Telephone Exchange Boundaries

Infrastructure Maps

Infra Map 1: ILEC SONET Availability
Infra Map 2: Competitive Providers Service Location
Infra Map 3: FTTP Locations
Infra Map 4: ILEC Regulation
Infra Map 5: PSC Customer Survey Data

Universal Service Fund Maps

USF Map 1: 2008 Nonprofit Grant Locations
USF Map 2: 2008 Telemedicine Grant Locations
USF Map 3: 2009 Telemedicine Grant Locations

Appendix B

Report Process

This eighth infrastructure report generally gives a 2008 year-end update of the information provided in previous reports. See the Commission website at <http://psc.wi.gov/utilityinfo/tele/infrastructureCompetitive/infrastructureReport.htm> for copies of previous reports.

A notice in docket 05-ST-116 was issued in September, 2009. Comments were received from the Wisconsin State Telecommunications Association (WSTA). See PSC ERF filing #120911 for the complete filing. The Wisconsin Department of Public Instruction also provided statistics on interconnection and networking of Wisconsin public libraries.

The information in Part 2 provides comments on the status of the progress made in the use of advanced telecommunications infrastructure for distance learning, interconnection of libraries, access to health care, and assistance to persons with disabilities and also covers telecommunications infrastructure deployments throughout the state. The data was obtained from the 2008 ILEC and CLEC annual reports and by a Commission infrastructure data request that was sent to ILECs and CLECs.

The ILEC data request focused on exchange level information for ease of utility reporting. The exchange refers to the geographical area defined by the incumbent where all customers have access to the same services at the same rate. Information was collected from all 602 ILEC exchanges. The ILEC annual report collects information by wire centers. 659 wire centers were reported in 2008. A wire center is normally a subset of an exchange, although for most of the exchanges in the state, the wire center and exchange are synonymous. Larger exchanges may be made-up of two or more wire centers. These larger exchanges, such as Milwaukee or Madison, have multiple wire centers within the exchange and can further have multiple switches within an individual wire center.

CLEC annual report data is reported by rate center, service area or zip code. A rate center or service area is similar to an ILEC exchange in that it normally refers to the geographical area where the company provides service. CLECs normally report their rate centers using ILEC exchange numbers or using zip code designations.

The information compiled from the ILEC and CLEC annual reports and the ILEC and CLEC data requests were used throughout the report to update data and analyze the information presented.²³ The ILEC annual report information is complete and historically reliable. The CLEC annual report data is much improved in recent years; however, this data is less robust because gaps remain in the data or information was filed incorrectly. Confidentiality is not as much of a problem as it was in the past

²³ Commission staff estimated a range of 3 to 4 percent error rate in the data presented. In some instances, changes in reported results may be due to errors in data submitted previously.

as there is now automatic confidentiality granted to some information via the Commission's annual report program. Staff reported summary data to protect confidentiality while still providing a picture of the status of the various infrastructure deployments in the state. Missing or unfiled data was substituted when possible with data available from other sources, including summary data from the FCC.²⁴

The data and source of the data are indicated for the figures, tables and maps are used throughout the report. The maps reflect company provided corrections to filed data wherever this was available.

The section on USF grants administered by the Commission was compiled from staff records for the grant programs.

Acknowledgement and Questions

Acknowledgements for assistance in preparing this report go to Judy Klug, Duane Wilson, Anita Sprenger, Jamie Maday, Renee Schmitt, Gary Evenson and Nick Linden.

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²⁴ See Federal Communications Commission (FCC) Local Competition and Broadband information filed under Form 477. The reports are available on the FCC home page at: <http://www.fcc.gov/wcb/iatd/comp.html>. For the 2008 report, detailed information was provided to the Commission confidentially.

Appendix C

NONPROFIT ACCESS PROGRAM GRANT AWARDS - FY08

Table C1

Project #	Name and Location of Organization	Grant Dollars Approved	Summary of Project
A08-1	ABC for Health, Inc.	\$27,105	Purchase equipment to enable web-based informational tools including webcasts that will educate families about advanced telecommunication options that are available to assist families with children with disabilities that are on Medicaid.
A08-2	Adult Learning Center	\$17,800	Provide Internet access and training for low-income individuals at Online Learning Computer Lab to do online job searches, online GED coursework, apartment searches, etc.
A08-3	Badger Assoc. of the Blind and Visually Impaired	\$28,210	Provide Internet access and training to individuals who are blind or visually impaired at the association facilities or in the homes of clients.
A08-4	Boys & Girls Clubs of Greater Milwaukee	\$40,200	Upgrade the existing Internet connectivity for six club locations by replacing routers, installing a user management system and improving safe use of the Internet.
A08-5	Center for the Deaf and Hard of Hearing	\$2,375	Provide in-home assistance to low-income, disabled individuals requiring assistance installing using specialized telecommunications equipment.
A08-6	Center for Independent Living for Western Wisconsin	\$20,000	Provide outreach to disabled individuals in west central WI by promoting the TEPP, increasing consumer knowledge of equipment, and increasing consumer acquisition of telecommunications equipment.
A08-7	Community Action Coalition for South Central Wisconsin	\$15,000	Assist low-income clients in obtaining or maintaining basic telephone service by providing counseling on financial literacy, financial assistance and available telecommunications resources. Provide mediation with current providers as needed.
A08-8	Goodman Atwood Community Center	\$44,065	Provide wiring, networking, DSL services, lab maintenance and staffing for the public access computer lab at the new Community Center.
A08-9	Hmong American Friendship Assoc.	\$11,300	Update the organization's computer lab and provide Internet access and training for low income individuals to do online job searches, and educational searches.
A08-10	Independence First,	\$24,000	Provide one year of broadband access to low-income

	Inc.		deaf individuals for accessing video relay services.
A08-11	Independent Living, Inc.	\$3,493	Provide increased reliability and access to the computer lab at McKee Park Apartments to low income seniors through computer and infrastructure upgrades.
A08-12	Independent Living Consultants	\$13,000	Provide co-pay for speech mobility TEPP recipients and provide outreach and demonstrations on availability of specialized telecommunications equipment at the demonstration model accessible home.
A08-13	New Concept Self Development Center	\$23,082	Expand the computer lab at the George Sanders Father's Resource Center for low-income fathers and their families for using the Internet for GED and HSED completion and for employment searches and practice tests.
A08-14	Neighborhood House of Milwaukee	\$20,000	Provide access, training and technical support for the Internet and computers to low-income youth and families at the International Learning Center.
A08-15	North Country Independent Living	\$25,000	Provide a community site in Ashland and Superior for free access to video relay and for remote video interpreting.
A08-16	Omega School, Inc.	\$0	Provide free cell phone service for six months to 50 GED students with stable attendance but are struggling with stable housing to maintain regular contact with the students.
A08-17	Options for Independence	\$14,955	Increase telecommunications access for individuals with disabilities by promoting TEPP, securing specialized telecommunications equipment and provide in-home assistance for installing the equipment. Provide TEPP co-pay for low-income speech and mobility impaired vouchers.
A08-18	St. Catherine Residence	\$3,200	Provide a computer resource lab to enable low-income, disabled women to have access to computers and the Internet and to upgrade their computer skills.
A08-19	St. Mark A.M.E. Church	\$27,300	Expand access to computers and the Internet to low-income youth and adults by expanding and operating the cyber café.
A08-20	Society's Assets	\$33,500	Provide outreach and access to specialized telecommunications equipment to disabled individuals with expanded outreach to the Hispanic community and provide co-payment for low-income qualified TEPP recipients.
A08-21	Stout University Foundation	\$20,000	Provide training to service providers statewide on TEPP and specialized telecommunications equipment.
A08-22	United Community Center	\$20,000	Develop a distance learning lab at the United Community Center to enable distance learning opportunities for low

			income students, faculty, staff and community members.
A08-23	Wisconsin Council of the Blind and Visually Impaired	\$12,000	Provide ADA Section 508 training to webmasters in Dane County so that non-profit and other organization Web sites are accessible to blind and visually-impaired consumers.
A08-24	Wisconsin Judicare, Inc.	\$5,235	Provide an updated telephone and voicemail system to allow more extensive and efficient services to low-income individuals with legal problems.
A08-25	YMCA of Metropolitan Milwaukee	\$0	Create a small technology lab at the YMCA and provide 250 refurbished PC's to youth in the mentoring program.
Total Awarded		\$450,820	

MEDICAL TELECOMMUNICATIONS EQUIPMENT GRANT AWARDS –FY08/FY09

Table C2

Project #	Name and Location of Organization	Grant Dollars Approved	Summary of Project
T09-1	Adams County Health and Human Services	\$3,769	Purchase Router and services for one year for a dedicated T1 line for telehealth services.
T09-2	Aspirus Wausau Hospital	\$46,420	Purchase five telehealth units to enable patients to have access to specialty care, to provide telehealth training and education and to enable distance education for professionals.
T09-3	Barron Memorial Medical Center	\$39,432	Purchase four telehealth units to enable the emergency room in Barron to connect to Luther Hospital in Eau Claire
T08-4	Bellin Home Health	\$75,000	Purchase 75 telemedicine monitors and peripherals to upgrade the services to wireless web-based monitors to provide home-based health monitoring.
T09-5	Berlin Memorial Hospital	\$49,137	Purchase 12-lead capable automatic external defibrillators (AEDs) and cellular phones that communicate with the AEDs to transmit cardiac information from the emergency vehicle to the hospital.
T09-6	Burnett Co. Dept. of Health and Human Services	\$28,702	Purchase four videoconferencing units to provide expanded psychiatric services to four local county health agencies (Burnett, Trempealeau, Jackson and Pepin Counties)
T08-9	Community Memorial Hospital	\$25,000	Purchase six videoconferencing systems to enable remote pharmaceutical dispensing at primary care clinic locations in Oconto County.
T09-11	Grant Co. Health Dept.	\$14,452	Purchase six home health monitoring systems including peripherals to enable closer monitoring of patients at-risk for hospitalization.
T09-13	Gundersen Clinic	\$40,925	Purchase telehealth monitors and peripherals to enable the clinic in Blair to offer specialty health care services via telemedicine.
T08/09-14	Hess Memorial Hospital	\$73,288	Purchase a computed radiology system that will enable 24/7 access to radiologists for reading x-rays.

T09-15	Home Health United	\$40,000	Purchase eight home health monitoring systems for use in southern Wisconsin that will transmit five key vital signs to medical professionals to evaluate need for a home visit.
T09-16	Howard Young Health Care	\$32,450	Purchase an additional module to the PACS that will enable sharing of patient medical images with medical professionals located at another facility.
T09-17	Human Service Center	\$10,000	Purchase videoconferencing equipment and 3 months of T-1 line service costs to provide expanded psychiatric services in Forest, Oneida and Vilas Counties
T08-20	Marshfield Clinic	\$25,000	Purchase video conferencing equipment, point-of-sale systems, printer and pharmacy workstations to enable expanding the telepharmacy program to five additional communities.
T09-21	Memorial Hospital of Lafayette Co.	\$65,900	Purchase a computed radiology system that will enable 24/7 access to radiologists for reading x-rays.
T09-22	Moundview Memorial Hospital & Clinics	\$40,000	Purchase telehealth monitors and peripherals to enable the hospital to offer specialty health care services via telemedicine and to offer educational opportunities to hospital medical staff.
T09-23	North Central Health Care	\$36,512	Purchase five videoconferencing units to provide expanded psychiatric services available in Wausau and Madison to rural clinics (Merrill, Tomahawk and Antigo).
T09-24	Polk Co. Health Dept.	\$23,925	Purchase ten home health monitoring systems and peripherals and the software interface to integrate two home health systems currently in use to improve home health delivery in Polk Co.
T08/09-26	Rock Co. Human Service Dept.	\$10,298	Purchase two videoconferencing units to provide expanded psychiatric services to the Beloit clinic.
T08-28	St. Mary's Hospital of Superior	\$19,344	Purchase special monitors and computer for a radiology reading station that will be part of the PACS and enable a radiologists to read digital images sent from Ashland and Hayward.
T08-29	Scenic Bluffs Health Center	\$36,251	Purchase a digital radiology system that will enable 24/7 access to radiologists for reading x-rays, send images between the Norwalk clinic and hospital and able to store and send images electronically.
T08-30	Shawano Co. Dept. of Community Programs	\$10,102	Purchase a videoconferencing unit to provide expanded psychiatric services to the Shawano Mental Health Clinic by having access to psychiatrists in other locations.
T08-31	Sixteenth Street Community Health Center	\$136,520	Purchase telephone systems to upgrade telephone service at two clinics to improve patient access to clinic services and to provide linkage among the three health center clinics.

T08-34	Vernon Co. Dept. of Human Services	\$10,000	Purchase video conferencing equipment, video conferencing security equipment, and facsimile to connect to mental health centers with additional staffing resources to provide expanded mental health services to clients.
T08-35	Winnebago Co. Human Services	\$30,000	Purchase four video conferencing equipment systems for the main clinic, outpatient clinics and the Neenah branch office to increase access to child psychiatrists and additional services for adult clients.
Total Awarded		\$922,427	

Appendix D

APPROVED ALTERNATIVE REGULATION PLANS (Wis. Stat. § 196.195)

Company	Docket #	Date Approved or Extended	Altreg Plan Expiration Date
Badger Telecom, Inc.	300-TI-101	2/5/02	Indefinite
Black Earth Telephone Company	540-TI-101	2/5/02	Indefinite
Bonduel Telephone Company	640-TI-101	2/5/02	Indefinite
Central State Telephone Company	1020-TI-101	2/5/02	Indefinite
CenturyTel of Fairwater-Brandon-Alto, Inc.	1910-TI-101	10/5/00	11/1/05
	1910-TI-102	2/10/05	11/1/09
	1910-TI-103	4/2/10	7/1/16
CenturyTel of Forestville, Inc.	2050-TI-100	10/5/00	11/1/05
	2050-TI-101	2/10/05	11/1/09
	2050-TI-102	4/2/10	7/1/16
CenturyTel of the Midwest-Kendall, LLC	2815-TI-103	12/23/03	2/1/08
	2815-TI-104	5/22/08	5/22/09
	2815-TI-105	10/19/09	2/1/16
CenturyTel of Wisconsin, Inc.	2930-TI-101	11/30/99	
	2930-TI-102	2/10/05	3/1/09
	2930-TI-104	10/19/09	2/1/16
CenturyTel of Larsen-Readfield, Inc.	3070-TI-100	10/5/00	11/1/05
	3070-TI-101	2/10/05	11/1/09
	3070-TI-102	4/2/10	7/1/16
Mid-Plains Telephone, Inc.	3650-TI-102	8/28/96	
	3650-TI-107	6/28/02	Indefinite
EastCoast Telecom, Inc.	3880-TI-100	2/5/02	Indefinite
Mount Horeb Telephone Company	3940-TI-102	7/3/97	6/30/02
	3940-TI-103	3/3/03	Indefinite
CenturyTel of the Midwest-Wisconsin, Inc.	4260-TI-100	6/21/96	
	4260-TI-101	4/13/00	
	4260-TI-102	2/10/05	4/11/09
	4260-TI-103	10/19/09	2/1/16
Grantland Telecom, Inc.	4580-TI-103	4/26/01	Indefinite

CenturyTel of Southern Wisconsin, Inc.	4590-TI-100 4590-TI-101 4590-TI-102	10/5/00 2/10/05 March 2010 ¹	11/1/05 11/1/09 7/1/16
Riverside Telecom, Inc.	5140-TI-100	4/26/01	Indefinite
Frontier Communications-St. Croix, Inc.	5210-TI-101 5210-TI-102 5210-TI-103	10/21/96 5/15/02 8/9/06	5/15/06 8/9/10
Scandinavia Telephone Company	5280-TI-101	2/5/02	Indefinite
CenturyTel of Northwest Wisconsin, Inc.	5530-TI-100 5530-TI-101 5530-TI-102	10/5/00 2/10/05 4/2/10	11/1/05 11/1/09 7/1/16
Stockbridge and Sherwood Telephone Company	5710-TI-100	2/5/02	Indefinite
Tenney Telephone Company	5850-TI-101	2/5/02	Indefinite
UTELCO, Inc.	6030-TI-100	2/5/02	Indefinite
CenturyTel of Northern Wisconsin, Inc.	6040-TI-100 6040-TI-101 6040-TI-102	10/5/00 2/10/05 4/2/10	11/1/05 11/1/09 7/1/16
Frontier Communications of Wisconsin, Inc.	6050-TI-101 6050-TI-102	9/25/98 7/21/03	10/31/02 Indefinite
Frontier Communications of Viroqua, Inc.	6150-TI-101 6150-TI-102 6150-TI-103	11/21/97 5/15/02 8/9/06	5/15/06 8/9/10
Waunakee Telephone Company	6250-TI-101	2/5/02	Indefinite

Appendix E

WISCONSIN TELECOMMUNICATIONS QUICK FACTS

Incumbent Local Exchange Carriers (ILECs) EOY 2008 <i>From PSC annual report filings</i>	85
Competitive Local Exchange Carriers (CLECs) EOY 2008 <i>From PSC annual report filings</i>	158
CLECs providing service EOY 2008 <i>From PSC annual report (income statement) filings</i>	93
Resellers certified to provide service EOY 2008 <i>From PSC annual report filings summary</i>	229
Certified Eligible Telecommunication Carriers (ETC's) in WI May 2010 <i>From PSC certification list at http://psc.wi.gov/utilityInfo/tele/newsInfo/eligibleCarriers.htm</i>	85 Incumbent Carriers 31 Competitive Carriers* *including wireline and wireless providers
Total ILEC access lines EOY 2008 <i>From PSC annual report filings: service data and access usage schedule</i>	2,036,781 bus and res lines
Total CLEC access lines EOY 2008 <i>From PSC annual report filing: service data and access usage schedule</i>	800,125 bus and res lines
Mobile Wireless connections EOY 2008 <i>From FCC form 477</i>	4,265,463
Broadband connections EOY 2008 <i>From FCC form 477</i>	1,739,000
Federal USF support to WI 2008 <i>From information on Federal USF programs</i>	\$179,774,000
Lifeline customers in Wisconsin include ILEC, CLEC and Reseller customers. EOY 2008 <i>From PSC annual report filings; service data and access usage filings</i>	77,982