

connecting communities



High-Speed, Fiber Optic Internet is Here



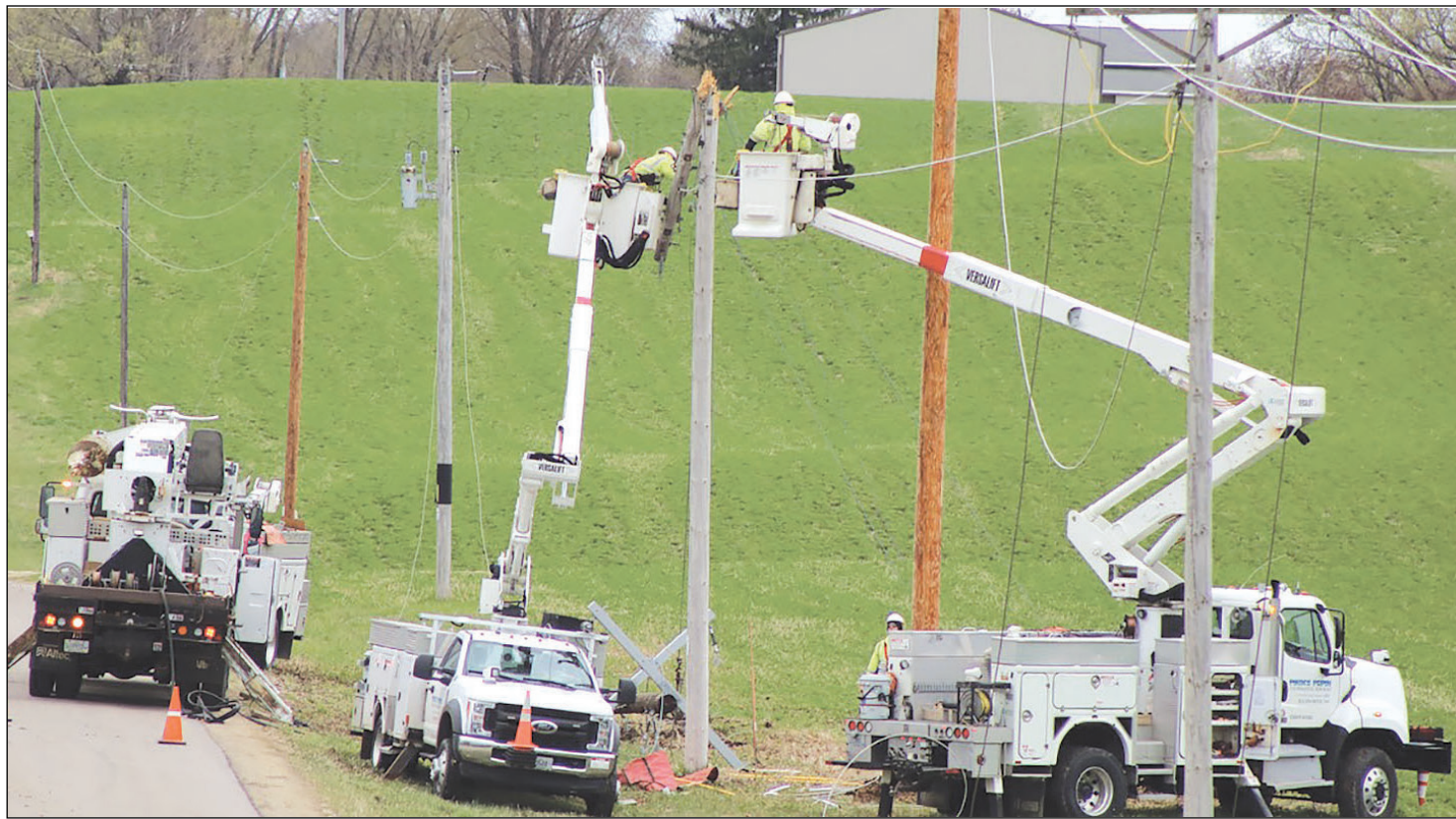
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BROADBAND POWERED BY PPCS

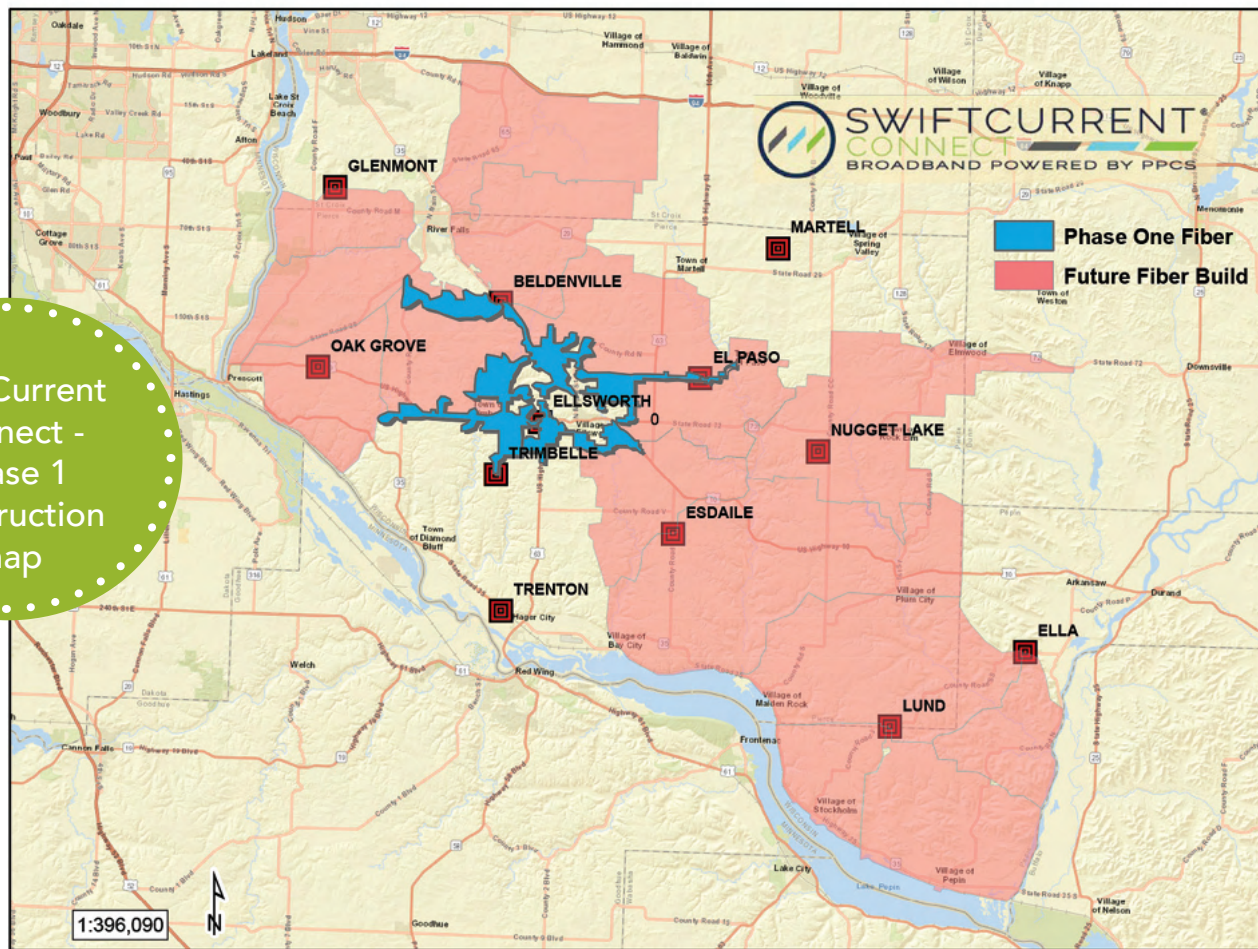
NOVEMBER 2021 | A Special Section by
THE PIERCE COUNTY JOURNAL



Replacing a pole in Trimbel township in April 2021. Photo courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect



Pierce Pepin Cooperative Services directors participated in a ground-breaking ceremony to celebrate the launch of SwiftCurrent Connect on July 14, 2021 at the company headquarters. (From left): PPCS President and CEO Nate Boettcher, directors Brian Berg, Dan Reis, Ann Young, Roger Wiff, Ginny Huber, Brian Bergsens, and Jerry Drier. Photo courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect



SwiftCurrent Connect - Phase 1 construction map

Bringing High-Speed Internet to Rural Residents PPCS Launches SwiftCurrent Connect

Pierce Pepin Cooperative Services (PPCS) launched its new company, SwiftCurrent Connect, on Wednesday, July 14 at the cooperative headquarters. This wholly owned broadband subsidiary of PPCS will provide reliable, affordable, high-speed fiber internet service to rural residents across western Wisconsin. Last fall, PPCS applied for three Wisconsin Public Service Commission Broadband Expansion grants and was awarded \$800,000 to bring high-speed internet to this area.

“The need for broadband in our rural area has been evident for years,” said Nate Boettcher, PPCS’ president and CEO. “But after the strains of online education and working from home brought about this past year by COVID-19, broad-

band is absolutely an essential service.”

SwiftCurrent Connect will use fiber optic cable. Fiber optic cable is made up of bundles of hair-thin strands of very pure glass or plastic. Fiber is a long-term solution that can deliver gigabit level speeds today. There is also no loss due to line of sight issues as with satellite or wireless technologies. Fiber optic cable is durable and future proof – it will be operational far into the future without any additional investments to upgrade.

The construction of the fiber lines will follow PPCS’ power lines already in place; fiber will be installed overhead where power lines are overhead and buried where power lines are underground. Construc-

tion of Phase I, which will be approximately 175 miles of fiber and pass nearly 1,500 homes, began in September 2021, with its first customers being connected in October and November. The goal is to connect the more than 5,500 homes and businesses that have been forgotten about in Pierce, Pepin, and St. Croix counties. More information is available at www.swiftcurrent.coop.

“In total, we expect we will be installing nearly 800 miles of new fiber line to connect the underserved and unserved,” said Boettcher. “Just as we brought electricity to rural residents in 1938, we’re excited to bring this technology to the rural residents in our area. It truly will help everyone Live Better.”

It's Finally Here!

Over the past year, we have authored, posted, podcasted, and presented on broadband to anyone who would listen. I am happy to announce, it's finally here! On July 14, we launched our broadband subsidiary SwiftCurrent Connect: Broadband Powered by PPCS. The response we have received over the past year has been nothing short of amazing. We have quickly learned that starting an internet service and broadband business doesn't happen overnight and it doesn't happen without working together with many individuals. For the many members, community leaders, consultants, and colleagues who have helped us get to this point, a big thank you!



NATE BOETTCHER,
PRESIDENT AND CEO

The first question many may ask, "When can I get service?" We would love to snap our fingers and answer, "Tomorrow." The reality is, we have 800 miles of fiber to build and it's going to take some time to get everyone served. We are working at the speed of light to make sure that we deliver fiber as quickly and efficiently as possible. Our first phase will serve from south of River Falls down towards Beldenville into the north side of Ellsworth. We will also have service running west from Ellsworth towards Prescott with several areas north and south of Highway 10. We also plan to build east of Ellsworth connecting our El Paso substation.

This is an historic moment in Pierce Pepin Cooperative Services' history. We fundamentally are an electric cooperative, but we have always seen ourselves as part of our community and one that provides essential services to our members. Broadband has become an essential service for our members. The ability to be connected allows for us to work from home, educate our children, do telemedicine, and expand our opportunities.

Some might look around and question why we are doing this. Frankly, there is no other local company that is willing to invest in our members' future. And if we are true to our word about helping our members Live Better, broadband should be part of our DNA. Over the past year, our board and staff have been thoroughly

investigating options, including winning WI PSC Broadband Expansion grants, investigating potential partnerships, and listening to our membership. In providing this service, our goal is to ensure every member in our service area has access to high-speed broadband.

Our network will be a fiber to the home solution end to end. Fiber is a long-term solution and will allow for us to grow with technology changes. We aren't taking shortcuts. This will be a resilient system that provides at minimum 100/100 Mbps service to members with the ability to get Gigabit level speeds at 1000/1000 Mbps. In other words, members will be able to download and upload content to the internet at the same speed. No more issues with streaming videos, connecting with video conference calls, or just checking your email. Our service will allow your entire family to connect without having to fight over bandwidth.

For many of our members, this will be the first time they have ever had access to the internet. For many others, this will be a significant upgrade from DSL, satellite, or troublesome fixed wireless.

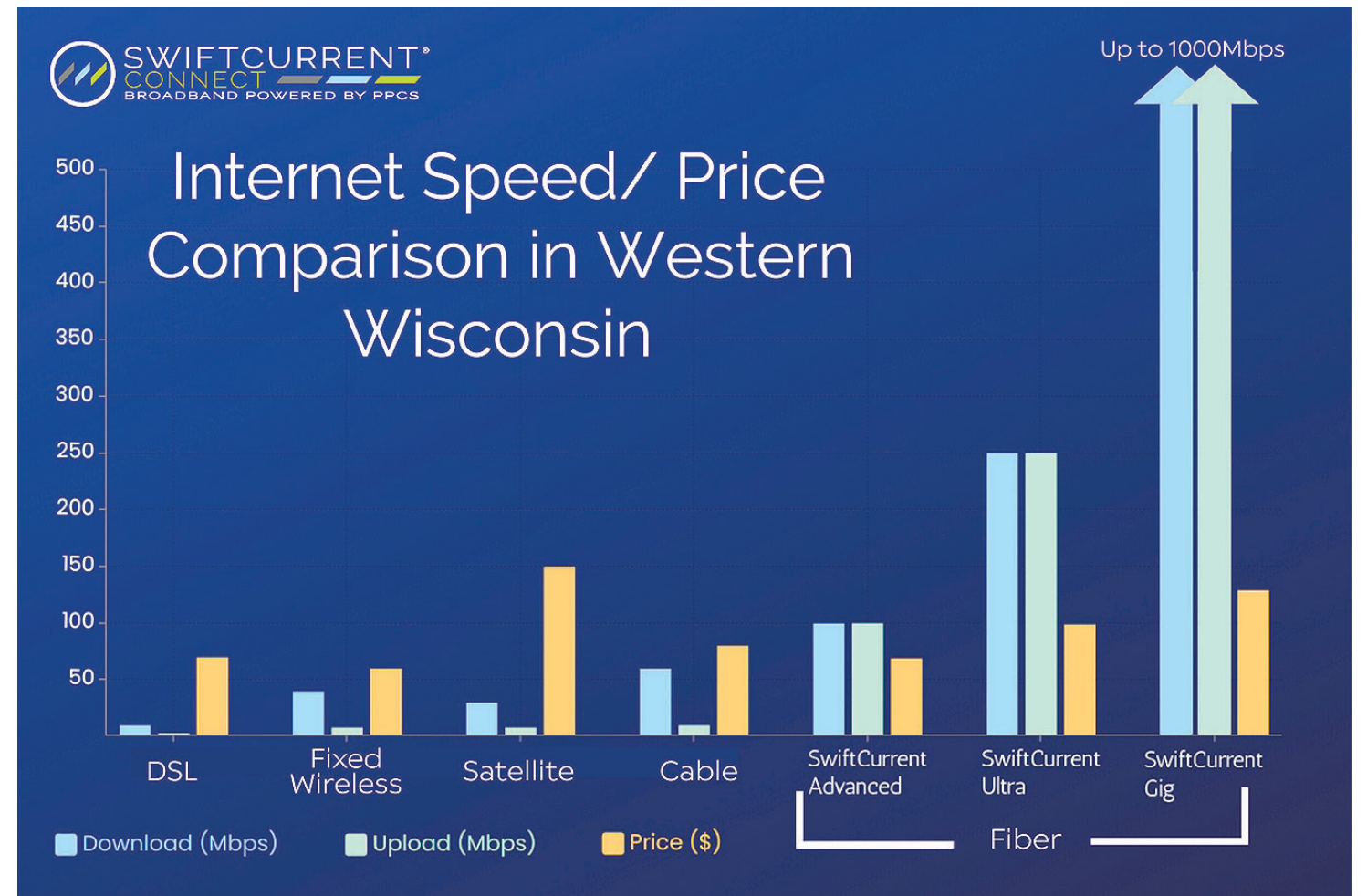
We won't limit your data usage; we want you to use our service. We also believe our service will be affordable with rates that are comparable to prices in larger communities. Service will start at \$69.95 a month with phone service being available for an additional \$25/month with an internet plan.

We are not interested in promotional offerings, only to jack your price up after 12 months. We aren't fancy marketers or slick salespeople; we are your trusted local cooperative. We want you to sign up, be completely satisfied, and be able to call us if you have any issues with your service. We're your local provider with the people you know, your neighbors and your friends.

We can't wait to bring fiber and great internet to our members. To sign up for service go to our website, www.swiftcurrent.coop. If you are included in our first phase, you will be able to select your service offering. Otherwise, please sign up as we will be tracking interest in other areas. By signing up, we will better gauge where to focus for phases two, three, and four.



Contractors discuss construction planning details on Sept. 13 and took part in safety briefings. Photo courtesy of Pierce Pepin Cooperative Services/ SwiftCurrent Connect



WHAT COULD FASTER INTERNET DO FOR YOU?

HOME SECURITY

WORK FROM HOME

TELEHEALTH

SMART HOME PRODUCTS

ONLINE CLASSES

STREAM TV IN HD

VIDEO CHAT

ONLINE GAMING

UPLOAD & DOWNLOAD LARGE FILES

ONLINE BANKING

INTERESTED IN GETTING FIBER TO YOUR HOME? HERE'S WHAT YOU CAN DO:

- 1 VISIT SWIFTCURRENT.COOP AND CLICK "CHECK AVAILABILITY"
- 2 COMPLETE THE SHORT REGISTRATION AND CLICK "SUBMIT"
- 3 ASK FRIENDS AND NEIGHBORS TO REGISTER TOO! YOUR FEEDBACK INFLUENCES WHICH AREAS RECEIVE FIBER FIRST

CHOOSE FROM THREE FIBER PACKAGES

<p>GIG</p> <p>129⁹⁵</p> <p>1000 Mbps</p>	<p>ULTRA</p> <p>99⁹⁵</p> <p>250 Mbps</p>	<p>ADVANCED</p> <p>69⁹⁵</p> <p>100Mbps</p>
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Original Pierce Pepin Electric Cooperative Board (1937): (back, from left) William Butel, Paul Johnson, Nicolai Johnson, Manley Olson, Almon VandeBerg, and George Andrews; (seated, from left) Manager A.M. Anderson, Vice President Roland Johnson, President Sidney Peterson, Secretary-Treasurer Walter Leonard, and Xavier Dettling. Dettling served as a director on the board of the originally organized Pierce County Rural Electric Cooperative (April 28, 1936). He was replaced by Roland Johnson upon the reorganization and incorporation of the Pierce-Pepin Electric Cooperative.

Before the light...

A group of optimistic Pierce County farmers met Saturday, Nov. 23, 1935 at the Ellsworth Theatre to learn about rural electrification from a member of the Wisconsin Public Service Commission. Three weeks later, more than 200 farmers met at Ellsworth Theatre to hear a Rural Electrification Administration spokesman explain the agency's purpose and how federal REA loans could facilitate farm electrification.

It was at this meeting that the first

organizational steps were taken to create a county electric cooperative. The REA generally required interest from 1,000 farmers, or three farms per mile of line.

The official organizational meeting of the first Pierce County rural electric cooperative took place at the Ellsworth Theatre on Tuesday, April 28, 1936. The cooperative's name, Pierce County Rural Electric Cooperative, had been chosen. The 44 meeting attendees, now new mem-

bers, approved the filed Articles and adopted the pre-drafted bylaws, making the cooperative one of the first 13 rural electric cooperatives organized in Wisconsin.

Elections of permanent board members occurred at the June 9, 1936, annual meeting. Membership dues of \$1 were set and a recruitment committee formed. Paid membership had stalled at about 300 and recruiters were needed to enlist as many new cooperative members

**FIBER
FACTS:**



Internet Service Provider (ISP): A company that provides users with access to the Internet and related services.

as possible from within the geographic service area that had been established. Recruiting activities were both educational and practical. Members expected friends and neighbors to sign up after hearing more about the overall benefits of electrification as well as Pierce County Rural Electric Cooperative's organization and purpose. But overwhelming success did not occur. By the July 10 board meeting, only 135 additional members had signed their intentions to join the organization. Four Pierce County townships- Clifton, Diamond Bluff, Spring Lake, Union- as well as Pepin and St. Croix counties yielded no new members. Soliciting a hard-earned dollar in exchange for the promise of wiring up was more difficult than anticipated.

Through persistent recruitment efforts, Pierce County Rural Electric Cooperative garnered over 1,000 signatures of interested farmers by the fall of 1936. The Agricultural Extension office then drew a county map with each member farm location and submitted it with survey forms to the Madison REA office where engineers would draft an official map to accompany the Co-op's loan application to the REA offices in Washington, D.C.

A letter arriving from Madison in late 1936 notified the Co-op's directors that the Articles of Incorporation



Reading by lamplight strained the eyes of many young scholars before electricity came to rural homes.



Early linemen work on Pierce Pepin electric lines.

they submitted to the Secretary of State the previous March did not comply with all REA and Wisconsin Rural Electrification Coordination (WREC) incorporation requirements. Changes were necessary before any loan application could be considered and reincorporation was advised.

Pierce County Rural Electric Cooperative members duly voted at the Ellsworth Theatre on Feb. 3, 1937, to disband the young organization in order to reorganize and reincorporate. On April 2, the Pierce Pepin Electric Cooperative emerged as the new entity in place of the Pierce County Rural Electric Cooperative. Three months later, it had 649 paying members.

It is hard to imagine the pace of Wisconsin's rural electrification effort between 1935 and 1938. What began as a bold idea with no infrastructure to carry it out became a network of coordinated programs and organizations that created working cooperatives and re-energized investor-owned utilities.

Pierce Pepin's first manager and project superintendent joined the organization in October 1937. The REA had approved the Co-op's loan application for \$330,000 to construct 318 miles of line serving a projected 982 member farmers.

With office space in the upper level of the Larson-Quinn building in Ellsworth and membership steadily growing, Pierce-Pepin Electric Cooperative began to function as a seasoned energy distributor in 1938, one of only 316 such REA funded cooperatives in the country. With most of the organizational tasks



Milking was one of many tasks made easier by rural electrification.

behind it and Willie Lehman hired as the Co-op's first lineman, human energy was directed at building infrastructure in preparation for energizing the Co-op's lines. Manager Andy Anderson was a tireless promoter for rural electrification. He and Agricultural Extension Agent Harlan G. Seyforth held meetings in February to educate farmers on wiring their houses, barns, and out-buildings and to explain that low interest loans were available from REA for 80 percent of cost. He adver-

**FIBER
FACTS:**



Table of Units: The following units are associated with broadband:

- Bit:** Smallest unit of digital information.
- Byte:** Equal to 8 bits.
- Bps:** Bits per second.
- Kbps:** Kilobits per second (1000 bits per second).
- Mbps:** Megabits per second (1 million bits per second). 30 seconds to download an MP3 song.
- Gbps:** Gigabits per second (1 billion bits per second). 10 seconds to download HD movie.
- Tbps:** Terabits per second (1 trillion bits per second)

tised Pierce Pepin's monthly board meetings to encourage potential members to attend and invited farmers seeking information or wanting to "sign up" to visit the Co-op's new office building, the former Ellsworth Bottling Works in East Ellsworth.

Finally, word came that Pierce Pepin was ready for power transmission from the Chippewa generating station. On the evening of May 26, 1938, members living east and west of the substation in Hartland Township saw their lights come on for a full 15 minutes. Three weeks later, their lines were energized 24 hours a day. Complete energizing of all constructed lines occurred on July 4. About 485 customers received electricity. Twenty to 30 more a day were scheduled to be connected after that. With poles, wires, and lights in Pierce County for all to see, 1,400 signed their intent for membership.



Pumping water by a hand-pump was common before electrification.

Katie Pata shares struggles with lack of internet service

Dream farm, nightmare internet

BY SARAH NIGBOR

TOWN OF RIVER FALLS – Imagine finding your dream home. The place you want to put down roots, raise your family, maintain as a sanctuary from the world. It's perfect, except for just one thing. One really, really big thing. It has terrible internet service or none at all.

Carmen and Katie Pata have gone through this. What at first was a major annoyance became a crisis when the COVID-19 pandemic hit. As the world ground to a halt, online became the main means of conducting business, working, schooling and communicating.

Carmen and Katie live on a 40-acre United States Department of Agriculture-recognized farm four miles south of River Falls. Their farm is largely rented acreage for crops and grazing.

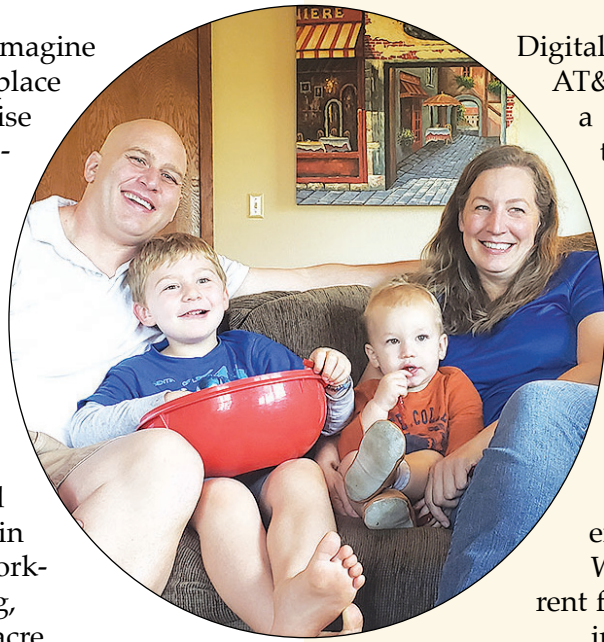
"We both have professional careers outside of our home where working from home prior to COVID-19 was an only occasional occurrence," Katie Pata said. "During the pandemic, I worked from home exclusively."

Carmen is the director of athletic performance at University of Wisconsin – River Falls; Katie is the park operations supervisor for Dakota County, Minn., with an office in Eagan. Both also operate separate consulting/professional services businesses: Coach Pata Consulting and CK Productions.

Currently, and for the foreseeable future, Katie will continue to work from home one to two days per week, she said. Carmen reported to work in-person throughout the pandemic and will continue to do so.

TERRIBLE INTERNET

When the Patas lived at their first home just one-half mile south of River Falls near Highway 65, they used



Carmen and Katie Pata enjoy streaming movies at home with their sons, but that has been next to impossible since moving to their town of River Falls farm. They were dismayed to discover the lack of reliable, affordable internet available to them after they'd bought the home. Photo courtesy of Katie Pata

Digital Subscriber Line (DSL) from AT&T for eight years. DSL users get a high-speed bandwidth connection from a phone wall jack on an existing telephone network.

"That was all that was available and was enough for our basic internet needs, though our modem would have frequent intermittent function and was very frustrating," Katie said.

They had to replace their modem annually, which was expensive.

When they moved to their current farm five years ago, they had no internet options available, not even DSL.

"We were not interested in the cost and poor performance of satellite internet that many of our friends and neighbors in the community had," Katie said.

"And due to their feedback and frustration with satellite, decided on the largest mobile data package available to us from our Verizon cellular phone service."

They've had to use cellular data and hot spots for internet service, which is less than ideal. Mobile hot spots let you share your cell phone network connection with other devices so they can access the internet. Devices can connect to a hot spot using Wi-Fi. But while devices are connected, you are charged for any data they use.

Using this method meant any television streaming services like Netflix were unavailable at the Patas' home. Attending meetings online was next to impossible.

"Basically, we could do intermittent web browsing," Katie said. "I remember well taking screenshots of emails when using data so I could draft replies to them in batches when my data was off so I wouldn't eat away our data."

For years, the Patas brought their laptops into restaurants and coffee shops about once a month so they could do their security and system updates without using precious data. Avid photographers, uploading their photos to websites like Shutterfly or making photo calendars was out of the question.

"Using cellular data/hot spots was terrible, stressful and expensive," said Katie.

The first two years on their farm, they contacted AT&T frequently about internet connectivity, but customer call center representatives gave them conflicting information. AT&T promised internet connectivity "coming soon" through their U-Verse telecommunications service, but the Patas kept waiting.

Feeling helpless, Carmen even flagged down an AT&T truck in River Falls one day to ask about the orange fiberoptic markers along Highway 65 in front of their farm. Why couldn't they be hooked up to fiber internet?

"We then learned about the different types of fiberoptic lines, and that the one right in front of our house was not for residential use," Katie said. "We also learned our home was indeed hooked up to the AT&T network. We could get dial-up internet through our existing AT&T phone line. Imagine, dial up?"

Dial up connects to the internet through a standard telephone line by dialing a number. It's the slowest type of internet access. Only 0.3 percent of U.S. households have a dial-up only internet connection, according to 2017 data reported by Statista.

"We kept hearing, once AT&T activated their U-Verse program, we would have internet as we were already wired for it through our phone line," Katie said. "However, AT&T wouldn't be 'turning on the switch' for U-Verse, so to speak, to make internet available at our home because there wasn't enough customers in our area interested yet to make it profitable enough."

The AT&T employee in the truck told Carmen about Fixed Wireless Access service, which they switched to. FWA provides wireless broadband using radio links between two fixed points. It's an alternate meth-

od of providing wireless internet while eliminating the need for physical connections such as phone lines, cable or fiber. A dish was attached to their roof that picks up a giant Wi-Fi signal from a tower, and as long as a "line of sight" was maintained, they had internet.

"It was a great day when we learned FWA internet was a possibility for us," Katie said. "We were right on the edge of a tower's reach and could get 10mbps download speed and 0 upload speeds."

Ten mbps is just fast enough for Netflix, but not fast enough for Disney+, Katie said.

"For the past three years, we've had the bare minimum and have been grateful," Katie said.

But then the pandemic hit.

PANDEMIC INTERNET NEEDS

When the pandemic hit, pressure on Wi-Fi signals everywhere skyrocketed. The Patas' speeds de-

creased radically. Katie couldn't use her camera during work Zoom meetings, because her husband also needed bandwidth to do his job and the kids watched Netflix to stay occupied while Katie and Carmen worked.

"When we received weekly, or sometimes daily COVID-19-related emails from the school district with linked letters and attachments, the linked letters would never open for us to view or download," Katie said. "We would have to turn off our Wi-Fi and use our cellular data to see these important communications."

Their in-home router needed to be re-booted monthly and their broadband signal always seemed to flash red on the days they needed it most for important work meetings. They managed better than others in Pierce County, Katie said.

"We can't forget how traumatic the past year was for students trying to learn at home," Katie said.



Carmen Pata and his sons enjoy streaming movies at home; however, their current internet service at their rural River Falls home doesn't always allow for it. They're looking forward to SwiftCurrent Connect's reliable connection. Photo courtesy of Katie Pata



5G: The term for emerging 5th generation wireless telecommunications standards usually associated with network speeds of up to 1 Gbps or more.

She has friends with high school aged children who struggled to attend virtual school and complete assignments online with poor internet service. Not to mention the teachers who struggled with connectivity and figuring out a whole new way of teaching, she added.

Last month during a broadband outage that stretched on for days, AT&T finally sent a service tech to their house. The tech replaced and repositioned their Wi-Fi dish which miraculously gave them 15 mbps download speeds and 5 mbps upload speeds.

"This means I can safely turn on my camera for Zoom meetings and we no more have Disney+ buffering circle of doom," Katie joked. "I still can't do any large photo-upload/web editing-related work. It just takes too much time. Apps that auto-sync like Google Photos or Amazon Photos take too long."

CONTINUED CHALLENGES

The Patas continue to be frustrated with intermittent internet broadband outages, sometimes four to five times per month.

"Sometimes the fix is in an hour, sometimes it's been several days," Katie said. "I'm not able to do my job without internet and neither my husband nor I could do our consulting businesses without reliable internet. I have had to use precious vacation time for days I wasn't able to work because of my lack of internet."

Pre-COVID, Katie did the majority of her work and business in-person. The pandemic taught her and many others that more work can be done more efficiently online. Also, new online business consulting opportunities are commonplace now, she said, and both she and Carmen have efficient ways of reaching customers and audience members online. But those require reliable internet ser-

vice, as do virtual meetings.

"Prior we would schedule lectures at schools or meeting rooms," Katie said. "Now, the efficiency of a Zoom Room webinar is more convenient for both presenter and attendee."

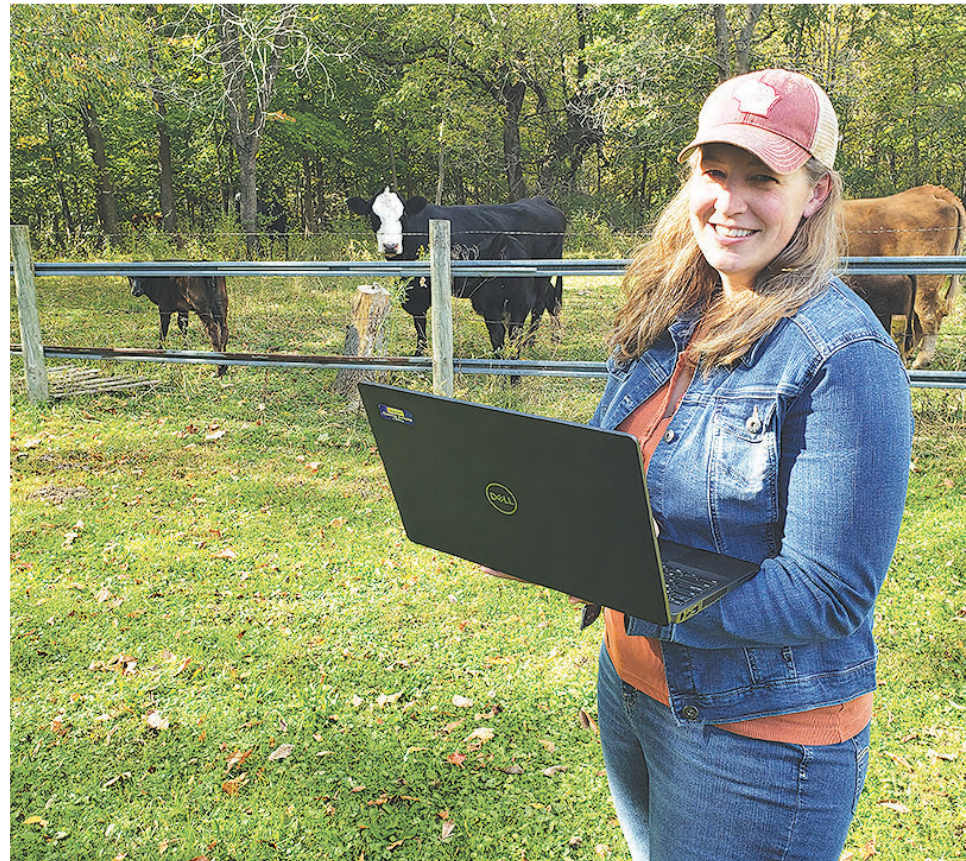
Before the Patas moved to their farm, they called AT&T and asked if they had internet available there. AT&T said yes, but that was not the case, leaving them feeling angry and misled.

"After we moved and called to start it up, we discovered they were referring to dial-up internet," Katie said. "When we asked about DSL (like they had at their previous home), they said 'no,' because the former owner of the farm was not a DSL customer, we would not be grandfathered in, as it was a service they were phasing out and would not hook up anything new."

Which the Patas felt was silly, since they have the right connections for it. This gave them a slight case of buyers' remorse, though they love where they live: The land, the landscape, the community.

"We wrongly assumed living off a major state highway there would be highspeed fiber available," Katie said. "We felt like AT&T deliberately misled us. Dish TV and large data plans were things not in our former household budget and we had a significant adjustment period affording our new mortgage and new telecommunications expenses."

They're not the only ones they know affected. Last fall, six acres of land adjacent to their property came up for sale. Their good friends were interested in the property, but ultimately decided against it. Why? Because there was no fiber broadband internet.



When the Patas bought their farm in the town of River Falls, they had no idea the challenges they would face with internet service. As a multi-tasker who often works from home, Katie Pata relies on a reliable connection, no matter where she's working from. Photo courtesy of Katie Pata

"One of them works from home part-time and post-COVID, more likely full-time, in software/IT support," Katie said.

SWIFT-CURRENT CONNECT IS COMING

"Many, including myself, cried tears of joy when Pierce Pepin Cooperative Services announced the start of SwiftCurrent Connect, its new broadband fiber internet service," Katie said. "It's my hope others in positions to help make changes will follow in PPCS' bold footsteps in whatever ways they can, to answer the bell and finally bring fiber internet, now more than ever an essential service, to all underserved areas."

Having reliable, dependable and affordable internet will reduce stress, allow for full family-based internet needs and reliable business functionality, she added.

"Not worrying if my broadband light is flashing red just before my webinar would be a game-changer," Katie said. "Greater, reliable, affordable highspeed internet has an economic impact and with impacts to home values that goes well beyond just us and our family/business needs. It's a collective community need, a community good that brings equity to families and businesses, value to our investment of living here, leveling the playing field."

Katie founded Western Wisconsin Needs Broadband in October 2020 and is a proud advocate and resource for broadband support.

"I'm aware many community members have had more stress and impacts to their family and business budgets related to lack of internet than I have, so while I share my saga and broadband story, it's far from what some have experienced in our area and I want to recognize that struggle," Katie said.

One reason she founded WWNB was to consolidate everyone's broadband stories in one, efficient place, where legislators could find testimonies and feedback as they work toward broadband solutions. The forum is open to the public.

"It's a place of refuge," Katie said.

While not a gripe group, it is a place where people can share their frustration and anger, find validation and

FIBER FACTS:



Fixed Wireless Broadband Access: The use of wireless devices/systems in connecting two fixed locations, such as offices or homes. The connections occur through the air, rather than through fiber, resulting in a less expensive alternative to a fiber connection. Bandwidth is limited compared to fiber and reliability is based on line of site and distance.



Katie and Carmen Pata live with their two sons in the town of River Falls. Katie's goal in forming Western Wisconsin Needs Broadband was to provide people a place to be heard, share resources and solutions, advocate for broadband regionally and locally, and educate. Photo courtesy of Katie Pata

share resources and solutions. Why is internet connectivity so important? Well, the pandemic brought those reasons to the forefront, Katie said.

"This is a hard concept to understand," Katie acknowledged. "It's hard to understand options, especially when you're worried about switching contracts or expensive start-up costs with hardware."

The pandemic shifted the pulse in the community, she said. From "haha, welcome to western Wisconsin where the internet is terrible" to a traumatic, desperate situation where people couldn't function in the stay-at-home situations they were thrown into.

The group is also a way to "move the needle" on the pipe dream of high-speed internet, Katie said. Much of her time has been spent educating residents and townships about Broadband Forward certification, which allows a municipality to pass an ordinance expressing their support for accessible, affordable broadband. This action could help grant applications rise to the top when seeking broadband funding.

"My hope is that this is an effort that will gain momentum," Katie said. "I'm in it for the larger picture. It's been fast and furious. I get goosebumps just thinking about it. People want to celebrate!"



Communication huts were installed at the Beldenville and El Paso substations. Foundations were poured at each site for the huts which were lifted onto the pads using cranes. Photo courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect

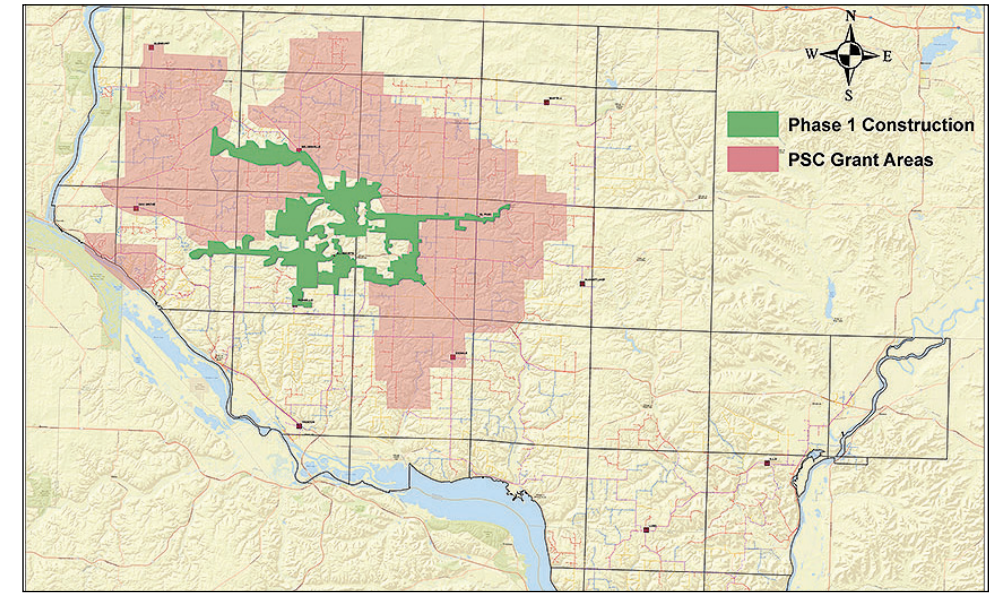
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Contractors arrived in mid-September and began construction of the underground fiber lines. Fiber optic cable will be pulled through the piping they have installed. Photo courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect

Wisconsin Public Service announces \$100 million in ARPA funding for broadband projects

Pierce Pepin Cooperative Services receives \$6.72 Million for Broadband



PPCS won grants from the Public Service Commission for broadband expansion in nine areas covering 460 miles and nearly 2,400 homes. Construction of Phase I began in September 2021. Photo courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect

On October 18, 2021, the Wisconsin Public Service Commission announced the winners of its 2022 Broadband Grant Funding Program awarding over \$100 million from the American Rescue Plan Act for 83 projects including all nine projects submitted by Pierce Pepin Cooperative Services (PPCS).

The nine projects PPCS submitted cover 460 miles of broadband reaching nearly 2,400 homes and businesses in Pierce and St. Croix counties. PPCS worked closely with the Pierce County Economic Development Corporation, the towns of River Falls, Oak Grove, Trimbelle, and Ellsworth to bring fiber to the premises in these areas. Each town is utilizing their local ARPA investments as part of the commitment to deliver fiber. These projects will begin in 2022 and are slated

to be completed by the spring of 2023.



Nate Boettcher, president and CEO. Photo courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect

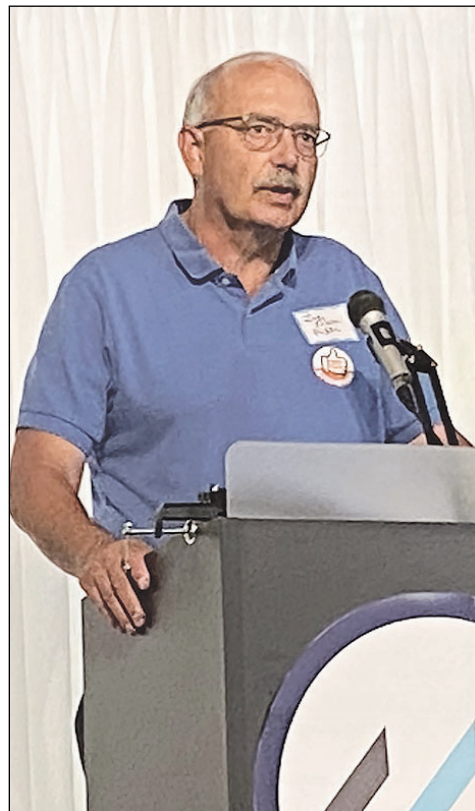
“We are excited and ready for the challenge to deliver fiber to our communities. This is a transformational opportunity for residents and the partnerships we have formed with local townships and community members speaks volumes about the importance of connecting residents with reliable, high-speed internet” stated Nate Boettcher, PPCS president and CEO.

PPCS through its broadband subsidiary SwiftCurrent Connect is currently

working on phase one of its broadband buildout by delivering fiber to 1,500 homes and businesses along a 175-mile stretch. Contractors have been working over the past several weeks and will continue to the end of the year. Over the next several years, PPCS is looking to build 800 miles of fiber and connect 5,500 locations who have largely been underserved by current providers.

“Our goal is to make sure every one of our community members has access to high-speed fiber service. It’s an important part of helping our members Live Better. We believe connectivity in our service area is as important as electricity was in the 1930’s. Being connected allows our community to stay relevant and ensures that we have long-term stability and opportunities for future generations.” Future information will be released around project timelines in early 2022. Customers can sign up and express interest by going to www.swiftcurrent.coop and clicking on the Check Now button on the main page.

Exploring the benefits of high-speed broadband for Pierce County



JOE FOLSOM



Perhaps no one has worked harder in Pierce County for expanded broadband than Joe Folsom.

Folsom, executive director of the Pierce County Economic Development Committee has worked with municipalities and businesses for solutions to the local internet crisis. He is a firm believer that government needs to be a partner in solving the problem. And he's pleased that SwiftCurrent Connect will solve a lot of problems for county businesses and residents.

"Two years ago, Pierce County Economic Development decided to take on the issue of broadband and work with it. I am really excited now. It seems like every time we start talking about broadband, the first thing you want to do is study it and study it. What's exciting with this is we're executing, thanks to the hard work and leadership of Pierce Pepin Cooperative Services."

Folsom has heard tales of woe from business owners faced with moving because of lack of high-speed internet. One business was forced to use satellite internet service and was having a hard time communicating with customers.

"He was frank with me, and he said, 'Joe, if I can't get high-speed internet, I may have to pack up and leave.' As an economic development person, the last thing we want to happen is to have businesses leave because we can't service them and help them meet their needs," said Folsom. "It's really critical that we have this service in order to be able to be competitive in our business environment and be able to work in an international environment. Pierce Pepin has stepped forward and completed the key feasibility study and is taking the step to serve the underserved and unserved members of their service territory. If you take a look at it, their service territory constitutes virtually all of

the underserved and unserved territory within Pierce County. To that end, the best option to do that for a long term investment is fiber.

"Fortunately, with the help of Pierce Pepin Cooperative Services, this is coming together."

Here's an excerpt of the analysis of the need for broadband Folsom authored.

BY JOE FOLSOM
EXECUTIVE DIRECTOR
PIERCE COUNTY EDC

In looking at high speed internet, the value of a connected county brings educational, telemedicine, and agricultural benefits that will far exceed a simple financial return. This article explores the value created by reliable, high-speed broadband for Pierce County.

Value of reliable high-speed Synchronous Broadband for Pierce County

The essential nature of quality synchronous high-speed broadband has been driven home during the COVID-19 environment. A service that was "nice" to have for social media, movie watching, and occasional e-mail became a critical piece of community infrastructure and to everyone's lives. The lack of broadband made it difficult to perform essential functions such as working from home, educating children, and conducting business. The sheer volume of internet traffic affected the quality of services that otherwise seemed acceptable. No longer could those functions be performed because the infrastructure was inadequate. It became impossible for one person to watch a movie, another to conduct a Zoom meeting while others were trying to do homework.

The inability to have access to quality and reliable service still impacts the lives of many in our community today. Those impacts carry costs. Having adequate broadband service is a value to Pierce County and its residents.

A 2018 study by Purdue University analyzed potential costs and benefits associated with broadband installation within the service territory of seven electric cooperatives in Indiana. It was found that every dollar invested in broadband returns nearly \$4 to the economy.

A research review by Brian Whitacre, Oklahoma State University concludes broadband does matter across an array of economic outcome measures. Here are the key findings:

Broadband Research Key Findings

- Rural areas with high broadband adoption had higher income growth.
- Broadband is associated with a two percent increase in the employment rate and lower unemployment rates. Positive correlation between broadband expansion and local employment growth.
- Broadband access has a positive effect on firm relocation decisions.
- Broadband speed has impacts on rural entrepreneurship.
- Farmers without broadband access are willing to pay more in property taxes to support broadband investments.

FIBER FACTS:



DSL (Digital Subscriber Line):

A form of technology that utilizes a two-wire copper telephone line to allow users to simultaneously connect to and operate the Internet and the telephone network without disrupting either connection.



FIBER FACTS:



Cable: Uses a cable network to deliver services. Speeds vary from 6-30 Mbps download and 1-3 Mbps upload. Cable networks are shared, meaning you may not achieve the advertised speeds during periods of peak usage due to congestion from your neighbors.

Did you know?

Better Broadband Boosts Home Value!

The Fiber Broadband Association released a study showing the **POSITIVE CORRELATION BETWEEN HOME PRICES** and **FIBER-DELIVERED INTERNET**, adding increased property value to the already long list of fiber's benefits.

Access to fiber in your neighborhood raises the value of your home by **1.3%**

Being able to get speeds up to 1 GIG boosts the value of your home by **1.8%**

THE GIGABIT EFFECT:

Homes where Gbps is available have a transaction price over **7% MORE** than similar homes where only 25 Mbps or less is available.



Access to fiber adds **3.1%** to the value of a home.



Source: Molnar, G. Savage, S. & Sickler, D. (2015). Reevaluating the Broadband Bonus: Evidence from Neighborhood Access to Fiber and United States Housing Prices.



Carolina Young, now a fourth grader at Ellsworth Elementary School, had to attend school online in 2020, along with her three brothers, while her parents worked from home. Their internet service was far from adequate to meet the family's needs in their new circumstances. Photo by Sarah Nigbor

- Broadband increases civic engagement and enhances gathering of civic information. It is a significant benefit for disadvantaged residents in communicating with friends and family.
- Broadband increases urban housing values by three percent.

Gabor, Savage and Sicker in their report "High-Speed Internet Access and Housing Values" found single-family homes with access to a 25 Mbps broadband connection have a price that is about \$5,977, or three percent, more than similar homes in neighborhoods with 1 Mbps. The estimated underserved area of Pierce County lacking high speed broadband has a Total Assessed Value of \$177,044,350. Improved access to broadband could translate into a \$2.48 million to \$3.72 million increase in property values.

The COVID-19 pandemic brought a necessary spotlight to an issue that exists throughout Pierce County. High-speed broadband is no longer a nicety, it's an essential service, a necessity. People who are looking to build new homes, buy homes, or looking to locate their businesses first and foremost evaluate their opportunity to have a connection to high-speed broadband. There is tangible evidence that real benefits will be recognized by the county, both in the short and long term.



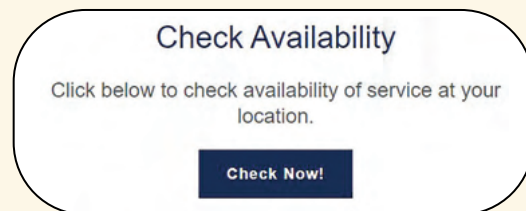
FIBER FACTS:

FTTH or FTTP (Fiber to the Home or Fiber to the Premises): The delivery and connection of fiber optics directly to a home or building.

5 Easy steps to getting high-speed, fiber optic service



1 Interest phase: Anyone can show their interest in fiber optic service. The process is simple and starts by visiting www.swiftcurrent.coop. Look for "Check Availability" and click the "Check Now!" blue box. You'll be taken to the interest page where you can simply fill in the blanks with your street address, street name and zip code, and then click on "Go." You will be asked to place the blue marker over your house from a map. Fill out the "interest form" with your name, telephone number, and email address. There will be a short optional questionnaire. Click "submit" to be sure the form is saved.



2 Pre-construction: SwiftCurrent Connect determines how the fiber will be deployed through a neighborhood, overhead or underground. Generally, the fiber follows electrical distribution. Underground work is done in the spring, summer or fall. SwiftCurrent determines the timeline and investment, orders materials and obtains necessary permits.



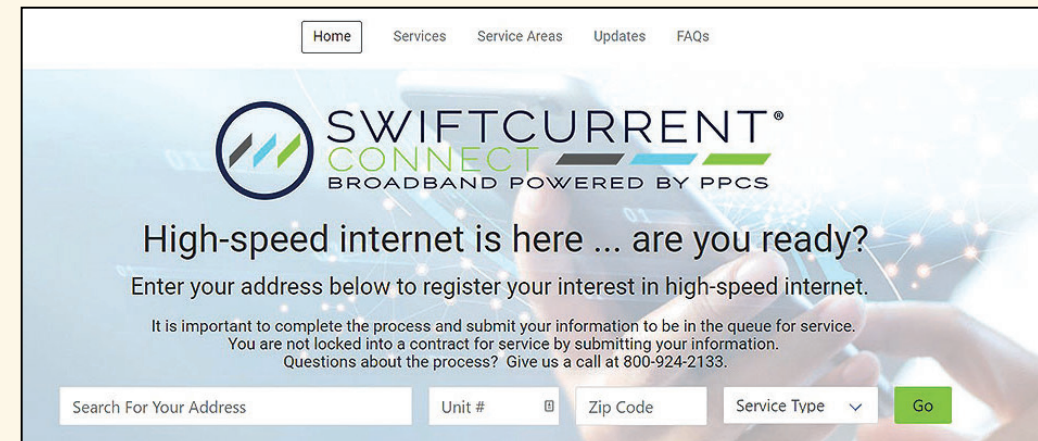
3 Construction phase: The Fiber system is built out in waves. Crews string the rope and then pull the fiber through. Splice cases are placed on poles. Fiber is readied and will be taken to a home or business and then connected to a box typically located within two to three feet of the power meter.



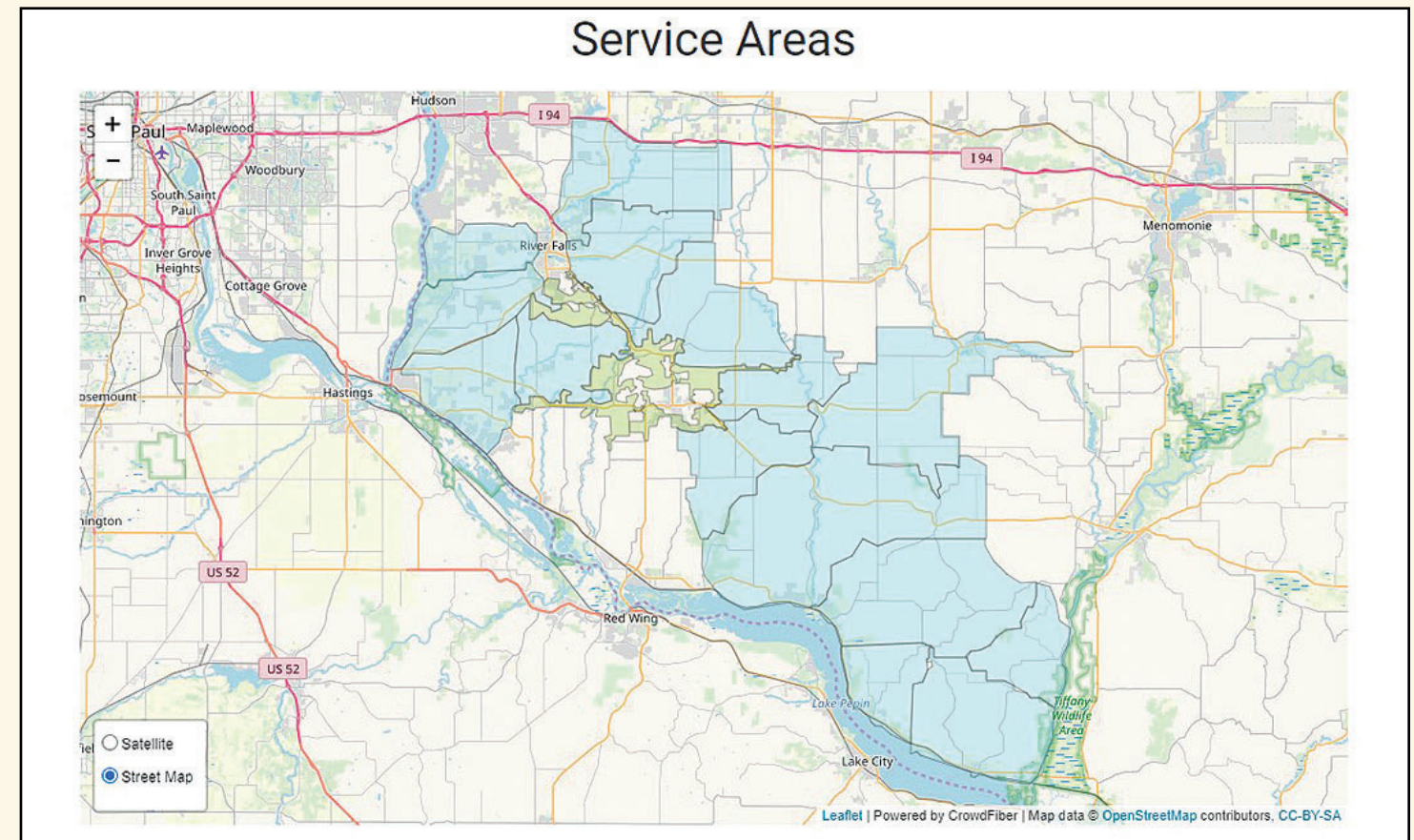
4 Schedule installation: SwiftCurrent Connect makes calls to take service orders and schedule appointments.



5 Fiber Install: After consulting with homeowner, a technician runs a tough flexible fiber line into the house and attaches the fiber line to a router. A pre-existing access into the house is best. The technician will make sure all devices are working with the router. There is a discounted installation charge while crews are currently working in your area.



1. Interest Phase
2. Pre-construction
3. Construction Phase
4. Schedule Installation
5. Fiber Install



Building a new company starts with a firm foundation

Creating a new high-speed, fiber internet company takes a lot more effort than just plowing in cable or hanging equipment on poles. There is a whole host of things that need to be done to prepare for accepting customers and managing accounts.

Since SwiftCurrent Connect launched in July 2021, there has been constant activity in the field and in the back office to prepare for connecting customers. PPCS has worked with multiple vendors to put the right technology in place to manage the broadband company: Connexion to assist with designing the broadband network; NISC for customer information, billing, and order management software; NRTC for telecommunications support; ITG for physical construction of the fiber network; and Momentum for voice products.

Employees have participated in training to learn about fiber optic hardware. They have also been involved in creating purchase orders, receiving, and warehousing plant materials for the fiber optic network. Planning the fiber optic network has required extensive work with creating maps of the build-out areas to define the most cost effective and efficient routes. Maps have also been an integral part of broadband grant applications.

Marketing and advertising has played a big part in the company's launch. From social media to knocking on doors, employees are working hard to make sure everyone who is within the Phase I construction zone knows they will have access to high-speed, fiber optic internet.

"For our team, it's been a lot of really hard work," said Charity Lubich, PPCS vice president, member relations and human resources. "We share the excitement of our members that broadband is coming and now with the additional grants we've been awarded we'll be looking at where that takes us next. I can't wait to see it."



Ryan Meyer (right), PPCS master electrician, is responsible for connecting the communication huts at the Beldenville and El Paso substations with the help of seasonal worker Tyler Bee. Photo courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect



PPCS lineworkers and staff received training in splicing fiber optic cable. Photos courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect

Physical construction of the fiber optic network began in mid-September. There are five sub-contractors working on plowing in the pipe that will hold the fiber optic cable. Sub-contractors began hanging cable on overhead power lines the week of October 25. When construction of Phase I is complete, there will be approximately 175 miles of fiber optic cable installed.

There have been some delays in the project due to materials being on back order. It is anticipated fiber connections to homes will begin in the December/January timeframe. The cooperative was recently awarded broadband grants from the Wisconsin Public Service Commission for \$6.72 million. These grants cover nine additional areas beyond the Phase I area.

"This project is extremely exciting," said Brad Ristow, PPCS vice president, electric operations. "I've worked for the cooperative for many years and the number of things I've learned in the last two years, which has been incredibly accelerated in the last six months, is awesome. I'm very excited for what this new service means for our community."

The entire fiber optic network has been fully designed which will allow SwiftCurrent Connect to continue expanding as funds become available. Construction plans will be made based on interest expressed by residents in the potential construction zones. Residents interested in learning more or registering for broadband service should go to www.swiftcurrent.coop.



Fiber: A flexible hair-thin glass or plastic strand that is capable of transmitting large amounts of data at high transfer rates as pulses or waves of light.

Dependability and speed are essential for designer

BY SARAH NIGBOR



When business owner Ivan Trushin describes his current internet service, it's "tolerable with a lot of challenges that require patience and workarounds." That's the most honest answer, he said.

Trushin owns and operates Trushin Studios, a service-based graphic design business specializing in company and product branding. Established in 2012, he has run the business since 2015.

"I service companies from startup to small business to large existing companies," Trushin said. "As of now I run a studio out of my home."

As one can imagine, a graphic design business needs reliable, fast internet to succeed. Especially since 95 percent of Trushin's business is conducted online. He occasionally meets people in person or makes presentations, but rarely at this time.

When Trushin relocated to rural River Falls from Minneapolis, he was in for a rude awakening as far as internet availability and speed. At one point, he seriously considered renting an office in the city after a less than adequate experience with HughesNet when he first moved here. HughesNet, headquartered in Germantown, Md., bills itself as "America's #1 choice" for high-speed satellite internet service.

"HughesNet deceptively sold us internet at \$100 a month, stating that it could do anything," Trushin said. "This was specifically after me stating that I need this for business reasons and that I need it for video conferencing. I was assured it would all work. It didn't. Not even close."

Trushin couldn't make a phone call with HughesNet without a one-to-two second delay. He's dealt with extended lead times, delays, technical difficulties, missed deadlines and reviews, all of which has made doing his job difficult. He works with contractors and collaborators who are all over the United States, not to mention clients.

"Unfortunately, in 2021 you cannot really function as a design business without fast, reliable internet," Trushin said. "Project deadlines, like with all jobs, are tight and presenting or reviewing work now, especially in the last year, largely happens online."

"Without a reliable connection you cannot present over Google Meet or Skype (this is what happened with HughesNet). It's just not realistic."

Without a fast internet connection, Trushin can't share large files quickly. Some files he needs to share are 1-3TB that sometimes take days to upload. That is by far his biggest obstacle, which has resulted in added stress.

"That's crazy and a night and day difference from my previous CenturyLink fiber connection that I had in Minneapolis before relocating to River Falls," Trushin said. "With fiber even files that are TB large upload in minutes and at worst an hour or so, not days. Because of speeds I had to work around on how I upload large files, sometimes restructuring my whole day so that I can leave my computer up all night while it uploads. I have also disrupted my day to go into town to use another busi-

ness's internet. I have had to miss meetings or postpone them because the internet is so unreliable that you cannot have a Facetime meeting."

These obstacles brought him to the "shocking realization" that he may have to rent a studio in the city just for internet, a cost and lifestyle change he didn't expect nor want. Disappointed with HughesNet's performance, he began researching other services. After calling close to 10, he settled on T-Mobile. Though not ideal, it's cheaper than HughesNet.

"Baldwin just ran fiber two miles away, but had no plans to bring it closer," Trushin said. "They were nice enough to quote me \$110,000 to make up the two miles and get me service. Yikes!"

Although cliché, the old adage "time is money" is true, Trushin admitted. Dependability is also a priority.

"Speed gives you back time. With faster computers we work faster and can do more," Trushin said. "With faster/better internet we can create better and faster. With faster internet we can attain, share and move information faster. For me it would optimize my business where I can feel (again) more in control of getting my work to the right place fast! I wouldn't have to worry about if my files are going to upload or if this meeting will work or crash due to an unreliable connection."

Pierce Pepin Cooperative Services' SwiftCurrent Connect is going to revolutionize residents' digital lives, Trushin said.

"With HughesNet I could not even stream movies dependably," he said. "So in a lot of ways, fiber would bring a modern internet experience to people that have had to make do with 1-3MB internet."



Graphic Designer Ivan Trushin relocated to rural River Falls from Minneapolis and operates his service-based graphic design business from home. Internet dependability and speed have presented significant challenges. Photo courtesy of Ivan Trushin

"Pierce Pepin Cooperative Services' SwiftCurrent Connect is going to revolutionize residents' digital lives"

~ Ivan Trushin

Fiber fixes everything

BY JOHN McLOONE

Pierce-Pepin Cooperative Services launched its SwiftCurrent Connect Broadband in a ceremony at its headquarters on July 14.

The event gave local business and government leaders the chance to view the Phase 1 rollout. The effect the service will have on local communities will be dramatic.

During the COVID-19 pandemic, local government bodies, schools, businesses and families were impacted because of poor internet. Schools were forced into an online model. Local governments had to scramble to set up meetings over virtual platforms. Businesses had to adapt.

It's no secret that there are areas drastically underserved by internet. SwiftCurrent is going to change that.

"This is a game-changer," commented Ellsworth School District Superintendent Barry Cain. "This is going to help families significantly. It can't come soon enough."

Schools and libraries throughout the area worked to connect families in need. Hot spots were made available. Families parked near public buildings so their kids could virtually "attend" class.

"People who have good internet service take it for granted," said Cain. "This is such tremendous news."

PPCS had families in mind when they decided to make this investment.

"It's been far too long that our communities gave lip service to the fact that a lot of our service area has lousy or non-existent internet service," said Roger Wiff, who owns a trucking company, RTW Enterpris-

es in rural Spring Valley. "Several things have lined up to let us go forward with a plan to remedy this. I think back to the brave group of souls who in the late 1930s decided that they would never get electricity if they didn't do it themselves. They decided to organize the cooperatives so that they can control their own destiny. They went forward with a plan to electrify the rural areas of Pierce and Pepin counties. I'm sure some of you have seen some of the pictures where farmers are digging the holes and putting in their own poles themselves so that when the lines came to their farms, they were ready. If you think about it, most of us are only one generation removed from the time when the lights came on.

"If you think back maybe 40 years ago when you watched Star Trek, and you saw that the doors open by themselves, and they were talking on flip phones. All that stuff came true. Just think what electricity did for the quality of life for the people that lived here and what it continues to do today. One of our tag lines is 'Live Better,' and that encompasses a lot of

our goal. No matter what we do here, our goal is to help our members live better, whether it be through advice, how to build a better solar farm or how to use electricity, we're here for that."

Wiff was seen as a big impetus behind PPCS implementation of its broadband division.

"We're launching our SwiftCurrent Connect Broadband Service in the hopes that we can help our mem-

bers live better, by being able to telecommute and connect remotely or have access to telemedicine and countless other activities possible with fast, reliable internet. The last 16 months have shown us what happens when students don't have access to learning efficiently because of poor internet," said Wiff. "I'm confident with the plan that we've put together while aggressively meeting the wants and needs of our members, who are our owners. It will indeed help them live better."

Fiber Fixes Everything!

Paul Bauer, CEO of the Ellsworth Cooperative Creamery and president of the Ellsworth Area Chamber of Commerce, said broadband is a key component to making local communities better places to live and work. Bauer noted that more than a decade ago, he had Limelight Social Media develop buttons and materials with the tagline "Fiber Fixes Everything" emblazoned on them.

"Fiber fixes everything," he said. "We started with the chamber almost 14 years ago when I got here. We couldn't get fiber access to our businesses in town, and it was of vital importance. Fiber fixes everything. Why? It's permanent. It's scalable. It's here for the duration," he said. "We need good access for rural communities and for businesses to succeed."

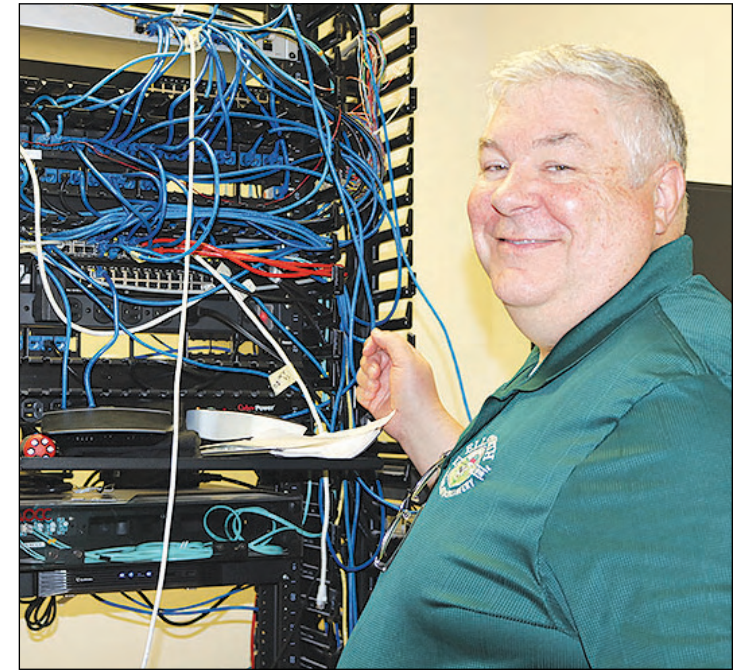
Bauer recounted one local property owner whose home was undervalued when he sold it because there was no broadband service.

"Every citizen of our county pays for lack of broadband service, because our tax valuation is lower," said Bauer. "I'm proud to say we're going fix that. Pierce Pepin is working on that for us. Thank you."

He noted how everyday life and business activities occur now in an online world.

"Everything has to be done online now. The government has switched, but they seem to forget that the rest of rural America has not followed suit," he said, noting that interactions with the Department of Natural Resources, business registration and tax filing all lives in an online world.

"And education, it's really important for our local schools and families to have access to get assignments and get information, so our children are not



Paul Bauer, CEO of the Ellsworth Cooperative Creamery, proclaimed that "Fiber fixes everything." Bauer is also board president of the Chippewa Valley Technical College and president of the Ellsworth Area Chamber of Commerce. Photo courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect

behind when they go and compete with the rest of the world," said Bauer. "Look at secondary education and how important it is for those classes and how we continue to grow our educational skill sets in order to have a great employee base to grow all our companies."

"With broadband, we're only limited by our imagination. We get better access to the expertise we need, which provides a better economy that provides a better living for all of us. So guess what? Fiber Fixes everything. I'm so glad we're moving forward on this, and I can't wait to be one of their first customers."

"With broadband, we're only limited by our imagination."



Pierce-Pepin Cooperative Services Board Chairman Roger Wiff was a big impetus to the launch of SwiftCurrent Connect. Photo courtesy of Pierce Pepin Cooperative Services/SwiftCurrent Connect



WiFi (Wireless Fidelity): A technology that uses radio transmissions to enable electronic devices to connect to a wireless local area network (LAN).

'Year of Broadband' declared in Wisconsin

STAFF REPORT

Wisconsin Gov. Tony Evers declared 2021 as the 'Year of Broadband Access' in his State of the State address. To that end, a task force worked to develop strategies for successfully expanding high-speed internet access to every residence, business and institutions in the state by 2025.

The report also details solutions to make broadband affordable for all communities.

The Governor's Task Force on Broadband Access was directed to:

• Research and recommend forward-looking broadband policies and initiatives that address state broadband goals and needs;

• Promote the efficient, strategic expansion of the broadband facilities and adoption across the state;

• Explore strategic expansion opportunities in partnership with stakeholders across the state; work collaboratively with the Public Service Commission of Wisconsin (PSC), State Broadband Office to promote and identify reliable and unique broadband goals and solutions; and

"I declared 2021 as the 'Year of Broadband Access' because getting Wisconsinites access to high-speed internet is critical for our state's continued economic recovery," said Gov. Evers. "It's why I proposed nearly \$200 million for broadband in our Badger Bounceback agenda and am putting \$100 million in federal recovery dollars for expansion, and the recommendations included



Wisconsin Gov. Tony Evers

in this report will help us take the next steps toward getting folks connected."

The Task Force, created during the COVID-19 pandemic, consisted of experts, stakeholders, and public officials who met virtually between August 2020 and June 2021. Brittany Beyer, Executive Director of Grow North Regional Economic Development Corporation, served as chairperson of the Task Force. Throughout the process, the Task Force received presentations from outside experts and comments from the public, which helped identify forward-looking broadband policies and initiatives that aim to close the digital divide in the state.

"The COVID-19 pandemic has

amplified the evidence that, without broadband, our families, businesses, and schools in both rural and urban communities cannot reach their full potential," said Brittany Beyer, Chairperson of the Governor's Task Force on Broadband Access. "I want to thank the Governor for the opportunity to serve and my fellow Task Force members for their hard work and commitment. The Task Force has done a phenomenal job researching opportunities to get as many people connected to broadband as quickly as possible."

Among others, the Task Force report included recommendations to:

- Increase funding for the Broadband Expansion Grant Program to help offset the costs for internet service providers and other applicants to serve difficult to reach areas;
- Establish a State Internet Assistance Program to lower the cost to obtain service and aid low-income families in sustaining internet service;
- Create a Planning and Implementation Grants Program to help regions and communities plan for broadband expansion;
- Increase construction and permitting coordination to streamline the process for providers to expand in a community;
- Collect internet access data from all ISPs at a household and business level of granularity to clarify who has reliable, high-speed access;
- Increase broadband consumer protections and pricing transparency so that people know what service they should expect and get what

"I declared 2021 as the 'Year of Broadband Access' because getting Wisconsinites access to high-speed internet is critical for our state's continued economic recovery,"

~ Wisconsin Governor Tony Evers

they are paying for;

• and Develop and fund a Statewide Digital Navigator program to assist people who are underserved due to inadequate service and solve a wide range of internet adoption issues.

"Since 2019, our state has allocated nearly \$60 million for broadband expansion, which, once built will connect or improve service to tens of thousands of families and businesses," said Rebecca Cameron Valcq, Chairperson of the Public Service Commission. "Over the next few years, we stand to more than quadruple that number.



Our state's continued investments, along with the recommendations in this report, will help make sure Wisconsinites get connected and reach our full potential."

According to the 2021 Broadband Deployment Report by the Federal Communications Commission (FCC), roughly 394,900 people in Wisconsin lack access to quality broadband service. Wisconsin ranks 36th nationwide for broadband access in rural areas with 21.8% being unserved or underserved.

The Governor has a strong commitment to the continued equitable expansion and use of broadband services to meet the needs of all Wisconsin communities and residents. In the Governor's first budget, signed in 2019, \$48 million was included for expansion grants. While the Governor's original budget proposal included over \$78 million in broadband funding, \$48 million remained an historic investment. In the most recent budget, the Governor's Badger Bounceback Agenda included roughly \$200 million for broadband expansion and adoption.

Through the Coronavirus, Aid, Relief and Economic Security (CARES) Act the Governor provided \$5.3 million for broadband expansion projects, which connected more than 20,000 locations to high-speed internet by the end of 2020. Recently, the Governor provided \$100 million through the Federal American Rescue Plan (ARPA) Act Funds for Broadband Expansion Grants.

FIBER FACTS:



Broadband: High-speed Internet access that is always on and faster than traditional dial-up access. Broadband includes fiber, wireless, satellite, digital subscriber line and cable. For the Federal Communications Commission (FCC), broadband capability requires consumers to have access to actual download speeds of at least 25 Mbps and actual upload speeds of at least 3 Mbps.

What is Broadband?

BY HARRY GUINNESS

Internet and technology companies have a well-earned reputation for throwing around fancy buzzwords that, when it comes down to it, mean very little for real people. Occasionally, though, something that sounds like it might just be the latest idea from the marketing department really delivers. This is the case with fiber-optic internet. It's high-speed broadband service straight from the minds of the engineers and scientists.

Fiber, or fiber-optic, internet is the fastest broadband service widely available. Data is transmitted as beams of light sent (by lasers!) through fiber-optic cables. It's a much better system for transferring information quickly than the old copper telephone wires that are used in the DSL internet connection most people currently have.

Fiber internet is so much faster than DSL because of what's inside the cables. Fiber optic cable, also called optical fiber, is made up of three parts: a thin inner 'core,' surrounded by a slightly thicker 'cladding,' both shielded by a 'buffer' layer that protects the fiber layers from being degraded or destroyed by weather.

The core, which is just thicker than a strand of human hair, and the cladding of a fiber-optic cable are normally made from different types of ultra-pure glass. The two work together to transmit light at, well, the speed of light, using a technique called 'total internal reflection.' You might have covered it

in high school science class, but here's a refresher.

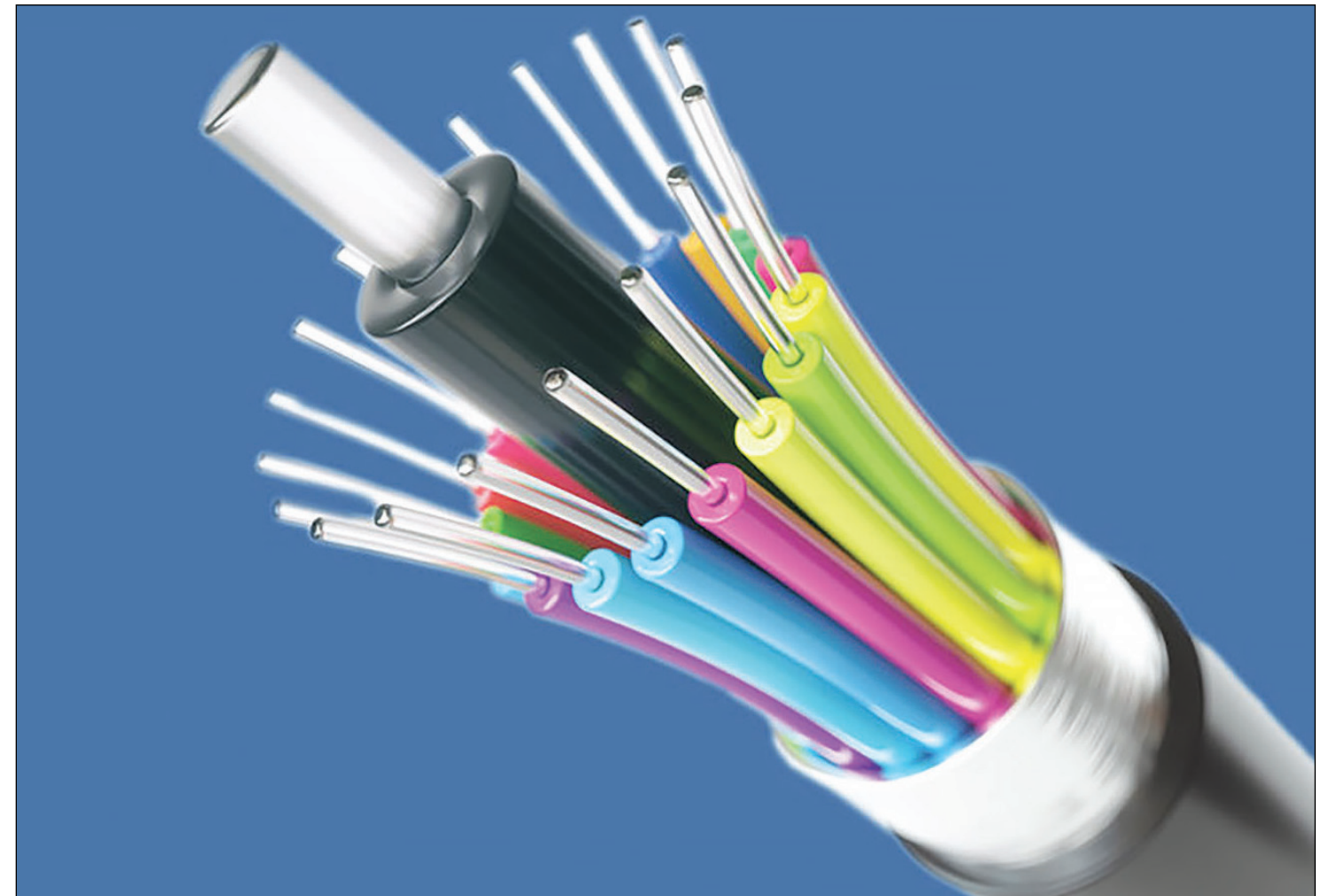
The glass the core is made from has a higher 'refractive index' than the glass the cladding is made from. This means that light travels more slowly through the core than it does through the cladding. You know how when you put your arm into a swimming pool and it looks like it's bending? That's because water has a higher refractive index than air. It's the same scientific principle at play inside fiber-optic cable but, instead of bending and passing through the cladding like the light does in the swimming pool, the light beam is sent through the core at a shallow enough angle that it gets bounced back. This way, a single beam of light gets trapped inside the core, careening along, from cladding sidewall to cladding sidewall, carrying all that important data.

It's because of how well light is contained inside the core that fiber is so much better than traditional copper cables. With copper, the data signals are sent as electrical currents, which are far more susceptible to interference.

Other nearby cables, strong radio frequencies, temperature, distance from the source and lots of other factors

can all increase the attenuation, how much strength a signal loses in a copper wire. The longer the copper cable that data has to pass through, the slower and lower quality the internet connection at the other end will be. Fiber still suffers from attenuation, but at a much slower rate than copper cables. Light just can't be interfered with by its surroundings in the same way.

Modern fiber-optic cables have been around for 50 years, but it's taken a while for the technology to trickle out to regular customers' homes.



While optical fiber might sound like it would be fragile, it's anything but. The ultra-pure glass used in its construction is pretty flexible and the buffer does a good job of keeping away moisture, dirt and anything else that could damage the core and cladding. Multiple fiber-optic wires are bundled together into bigger fiber cables that are wrapped in even thicker protective layers and buried underground to keep them safe from floods, hurricanes and other disasters.

Plus, nobody is going to dig up your fiber-optic cable and sell it for scrap.

Internet at the speed of light

Modern fiber-optic cables have been around for 50 years, but it's taken a while for the technology to trickle out to regular customers' homes.

If you have a DSL internet connection, your Instagram Stories and favorite Netflix shows are still traveling along the fiber-optic internet just not for the last mile or two. The high-speed 'backbone' that connects your internet service provider to the internet at large is built of fiber-optic cables. And fiber-optic cables are even sending signals undersea across the Atlantic. It's only the last link in your connection, the section be-

tween your house and the nearest exchange, that's copper. And that's where all the slowdown happens.

If you're fortunate enough to live where you can get a fiber to the home connection, your internet speeds are sorted for the next few decades. You've got fiber from your computer to the rest of the internet, delivering nearly identical upload and download speeds.

The fiber future

As science fiction writer William Gibson said, "The future is already here, it's just not very evenly distributed." Well, fiber is here now and, over the next few years, it's going to get much more evenly distributed. This is good news for everyone who wants a fast, stable, weather-safe internet connection.

FIBER FACTS:



Router: A piece of network hardware which allows communication between your local home network (your personal computers and other connected devices) and the Internet. The router may also be called an Optical Network Terminal or ONT.



Electric co-ops were local before it was cool!

All co-ops exist to meet a community need. We're proud to be homegrown.

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800-924-2133

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FREQUENTLY ASKED QUESTIONS

What is SwiftCurrent Connect?

The telecommunications subsidiary of Pierce Pepin Cooperative Services; our mission is delivering high speed fiber internet service to rural residents in PPCS' service territory.

What makes SwiftCurrent Connect different from any other telecom company?

We're owned and operated by your friends and neighbors. We live in the community where we work and we're excited to bring this essential service to our community. We provide reliable, affordable high speed internet service to rural residents in the counties we serve.

Why fiber?

It's reliable, durable and it's future proof – this technology will be functional/operational today, tomorrow and beyond without additional investments to upgrade.

What internet speeds are offered?

SwiftCurrent Connect offers three packages: 100/100, 250/250 and 1000/1000 Mbps. Upload and download speeds are symmetrical, meaning you'll have the same speed in both directions. Packages are available for both residential and business; residential packages starting around \$69.95.

Why do upload speeds matter?

Upload speed affects things like Facetime calls with your grandkids, Zoom calls with your colleagues, and submitting assignments to your instructors, to name just a few. With SwiftCurrent's symmetrical speeds, your download and upload speeds will be equal. You'll have the same horsepower whether you're streaming a movie or submitting that final presentation to your boss.

How soon will this happen?

Construction of Phase I will begin September 2021. Some areas will receive service before others. Be sure to register at www.swiftcurrent.coop to be notified when fiber is available in your area.

How will the fiber get to me?

The fiber lines will follow PPCS' current electric distribution system: overhead lines will have overhead fiber; underground lines will have buried fiber.

ARE YOU READY? Go to www.swiftcurrent.coop to learn more.

ARE YOU THIS HUNGRY FOR *super-fast* INTERNET?



**YOU'LL DROOL OVER
OUR AMAZING SPEEDS.**
Register your interest today
at swiftcurrent.coop.

