NEW BUSINESS

Kentucky Communications Network Authority
KentuckyWired (formerly Next Generation Kentucky Information Highway)

BUDGET HISTORY

Biennial Budget 2014-2016	
Federal funds	$20,000,000
Bond funds	30,000,000
Other funds (Private)	70,000,000
Total	$120,000,000
Interim Authorization-09/15*	
Federal funds	$3,500,000
Other funds (Private)	250,900,000
Total	$254,400,000
Total Funding	**$374,440,000**

**The request for a scope increase was presented to the Capital Projects and Bond Oversight Committee in September 2015. The committee cancelled its meeting, and the Secretary of the Finance and Administration Cabinet proceeded with the project pursuant to KRS 45.800(3). The amount of private funds available are approximate, due to uncertainty at the time of the budget request.*

BACKGROUND

KentuckyWired is an open-access broadband network that will, upon completion, consist of more than 3,000 miles of fiber infrastructure, referred to as the "middle mile". Construction started in 2015 in Eastern Kentucky, and work in this part of the state should be complete by fall 2018; concurrent construction will begin in other parts of the state with full completion of the network by winter 2020. To date, approximately 800 miles of fiber infrastructure has been laid, and $240 million has been spent. The project completion date was scheduled for August 2018, however, it is approximately 18 months behind schedule due to multiple delays and difficulties in obtaining pole attachment agreements, permits and easements.

A Public Private Partnership (P3) with Macquarie Capital has been established to design, build, operate, and maintain the network for 30 years. KentuckyWired is unique in that it will be an "open access" network. This means cities, partnerships, private companies or other groups may acquire access to these "middle-mile" lines, but the network will not be providing "last mile" services, or the lines that run to individual homes or businesses.

Kentucky Communications Network Authority (KCNA) is the public technology authority created in 2015 to manage and oversee the KentuckyWired network. KCNA is administratively attached to the Office of the Governor, and the governing board is made up of the Secretary of the Governor's Executive Cabinet, who serves as Chair; the State Budget Director; the Secretary of the Transportation Cabinet; the Secretary of the Economic Development Cabinet; the Secretary of the Justice and Public Safety Cabinet; the Commissioner of the Department for Local Government; and a representative from the Center for Rural Development.

Current legislation, 2018 General Assembly - Senate Bill 200 would allow KCNA to incur debt in an amount up to $110,000,000. With the approval of its board, the executive director may make, execute, and effectuate contracts, leveraging future revenues from provision of government-to-government services and sale or lease of excess capacity, to incur debt in the name of the authority and enter into financing agreements with the Commonwealth, its agencies, lending institutions, investors, or investing entities. House Resolution 337 urged the Program Review and Investigations Committee to investigate the KentuckyWired Project during the 2018 Interim Session to determine if public funds are being spent efficiently and appropriately. The committee met in June, and agreed to undertake the study. At the committee's July meeting, testimony was heard from representatives of KCNA regarding the project.

BOARD ACTION: Information only. No action is required.

A RESOLUTION urging the 2018 Program Review and Investigations Committee to investigate the KentuckyWired Project during the 2018 Interim Session.

WHEREAS, the Kentucky Communications Network Authority (KCNA) was created by former Governor Steven L. Beshear in 2015 by Executive Order 2015-574 to create a fiber optic highway across the state that included 3,400 miles of fiber by 2018, known as the KentuckyWired Project; and

WHEREAS, the circumstances and structure of the award of the contract and issuance of bonds raise questions of potential improprieties; and

WHEREAS, the project appears to have been in default of contractual obligations from near its inception and has continued to face ongoing contractual penalties, specifically related to KCNA's difficulty in obtaining pole attachment agreements, permits, and easements which were required within an apparently unreasonable brief contractual period; and

WHEREAS, the initial project budget was $324 million, but the penalties and delays arising from the imprudent contractual obligations are adding tens of millions of dollars to the projected cost of the project; and

WHEREAS, the revenues from the completed project were intended to cover the $30 million annual bond issuances by the Commonwealth; however, the project remains woefully incomplete and produces no revenue, but the bond payments are still due; and

WHEREAS, the General Assembly inherited this failed project from the Beshear administration; and

WHEREAS, the General Assembly is constitutionally required to pay the debts of the Commonwealth and be good stewards of tax payer dollars; and

WHEREAS, the current Attorney General is conflicted by a familial relationship with the prior Governor and is therefore compromised as an appropriate investigative option; and

WHEREAS, the Program Review and Investigations Committee is authorized to

review the operations of state agencies and programs to determine if public funds are being spent efficiently and appropriately and make findings and recommendations to the affected agency, the Governor, and the General Assembly;

NOW, THEREFORE,

Be it resolved by the House of Representatives of the General Assembly of the Commonwealth of Kentucky:

➔Section 1. The members of the House of Representatives hereby urge the 2018 Program Review and Investigations Committee to investigate the KentuckyWired Project, including but not limited to the manner by which it was evaluated for feasibility, authorized, contracted, and implemented.

➔Section 2. The Clerk of the House of Representatives is directed to transmit a copy of this Resolution to the members of the Program Review and Investigations Committee and Governor Matt G. Bevin.

KentuckyWired FAQs

Q: What is KentuckyWired (formerly known as Next Generation Kentucky Information Highway)?
A: KentuckyWired will be a physical system of fiber optic cable, also referred to as the middle mile or backbone, infrastructure that will allow broadband service to be brought closer to communities throughout Kentucky. What's unique about KentuckyWired is that it will be an open access network. This means local public or private Internet service providers (ISPs) can connect to the network and extend services locally.

Q: Why is KentuckyWired called a "middle mile" network?
A: Think of it as an interstate highway system, or middle mile, that will connect the worldwide Internet to "exit ramps" closer to a community. Internet Service Providers (ISPs), such as the cable or phone company, can then connect their equipment and fiber system to the KentuckyWired network to create a high speed link between the global Internet and local communities. ISPs will be the ones to actually extend fiber to a home or business.

Q: Why is the infrastructure called "dark fiber?" What do you mean by "high-speed, high-capacity" and "lit" fiber?
A: The fiber cable itself is a bundle of tiny glass strands and is only a conduit for transmitting data. The actual ability to transmit information over the fiber optic cable depends on the hardware (or equipment) on either end of a section of cable. The hardware, like a light switch, controls the beam of light on which information travels. If no equipment is lit on the ends, then the fiber is not in use and is called "dark fiber." Actively engaged hardware means fiber is "lit." Lit fiber is capable of sending very high volumes of data, voice, and images over the network at extremely high speeds.

Q: Is the state getting into the Internet business with KentuckyWired?
A: No, the project involves laying or stringing fiber-optic cable for the middle mile. Internet Service Providers (ISPs) will still need to connect the KentuckyWired middle mile network to business and residential users over the "last mile" in every community.

Q: Why do we need the KentuckyWired network?
A: Unfortunately, In 2017, Kentucky ranked 47th in the country in broadband speeds and capacity. This puts Kentucky at a major disadvantage for attracting and growing new job and education opportunities for an improved way of life. Broadband, like electricity, water and sewer, is now an essential utility service. However, it has been too expensive for private carriers to build out a high-speed, high-capacity network across the entire state. With KentuckyWired, the state will be responsible for building out the middle portion of a fiber network. Since ISPs can connect to KentuckyWired, they can now invest in extending their local fiber networks that will connect broadband services throughout communities.

Q: How will KentuckyWired benefit my community or me?
A: There will be opportunities for local internet service providers (ISPs) to invest and build out more fiber to homes and businesses. It also opens the market for new ISPs, which will promote competition for potential lower broadband costs for businesses, communities and citizens. More and better connectivity enhance economic development and job growth, support collaborative opportunities for research, education, health care and public safety.

Q: My home/business is in a very rural, isolated area of my county, and I have been told that bringing Internet service to my location is too expensive and won't happen. Will KentuckyWired change that?
A: Because this will be an open access middle-mile network, many entities can link onto KentuckyWired. Since ISPs, which could include private companies, municipalities or partnerships, will have access to the middle-mile, this allows them to invest in bringing fiber directly to communities, houses and businesses that have not had service before. Also, there is potential for more providers to enter the market, which can create competition and help lower prices.

Q: Will KentuckyWired improve Internet speeds in my home?
A: KentuckyWired does not directly impact home usage speeds, but allows ISPs the potential capacity to increase speeds in your home.

Q: Why are only government and higher education buildings being connected?
A: Every project must start somewhere. Since the state already owns university and government sites, the logical and feasible way to begin KentuckyWired is to connect those nodes. These nodes become the "exit ramps" into the community. Because KentuckyWired is open access, local ISPs can connect on a wholesale basis. In turn those ISPs can provide or build-out last mile service to individual customers. These providers could be private companies, communities, partnerships, or other entities.

Q: When and where is KentuckyWired starting?
A: Construction started in 2015 in Eastern Kentucky because improved broadband service is one of the priorities of the SOAR, Shaping Our Appalachian Region, initiative. It is aimed at diversifying and improving the economy in Eastern Kentucky. The schedule calls for finishing the network in Eastern Kentucky and the segments along I-75 by Fall 2018; then, concurrent construction will begin in other parts of the state with full completion of the network by Winter 2020.

Q: Is Morehead included in the Eastern Kentucky build out? When do you estimate the network will reach Western Kentucky?
A: Morehead is in the northern ring that is planned to go from Lexington to Morehead to Ashland and south through Prestonsburg. Additional details about timing and locations will be available when the final engineering and design work is complete.

Q: In my county, the library has fiber that comes from a provider in Tennessee. Will KentuckyWired cross state lines?
A: Kentucky is well-situated in the central part of the nation, and as we build along highways, we'll build connection points into Tennessee, Ohio, West Virginia, and other surrounding states. This regional connectivity will allow consumers such as research universities to successfully collaborate with other research universities, both in-state and out-of-state.

Q: When the new network comes into place, will physical connections to new technologies be included in the plan, or will we need to pay for that ourselves?
A: The infrastructure will provide pipe or fiber access only. Applications can ride on the network, for example, Voice Over IP (VOIP phone service), but they are not part of the service KentuckyWired provides. Other service providers will have to be engaged.

Q: What speeds will be available when the project is complete? Will there be a difference in speeds between urban and rural areas?
A: KentuckyWired will provide the same speeds universally across the whole network. The envisioned service rate platform will extend from 100 megabits per second (Mbps) to 400 gigabits per second (Gbps), and will have multiple tiers within that range. Speeds will not differ from urban to rural areas.

Q: The FCC recommends 25 Mbps for distance learning, and I assume that was for a home connection. A library would need many times that speed to support multiple people doing distance learning activities at the same time, right?
A: More capacity through KentuckyWired will allow more high-speed services, such as distance learning.

Q: What about locations where the middle mile exists, but there is no service provider interested in building the last mile?
A: The KentuckyWired build out should stimulate Internet Service Provider growth in unserved or underserved locations.

Q: Some communities, businesses, libraries, and citizens are in monopoly situations with their last mile providers. Will improving the middle mile improve this issue?
A: In April 2015, the Commonwealth released a request for proposal (RFP) for last mile providers. This RFP will make regional awards for last mile providers, and the contracts can be used by local governments, libraries, and others to build out last mile services. While competition cannot be forced, lowering some of the economic hurdles of the middle mile could allow other providers to come into a market and stimulate competition downstream.

Q: Can a community library build its own last mile?
A: Yes, the December 2014 E-rate Modernization Order supports building private fiber to those locations where it did not exist before. The Commonwealth's contracts for last mile providers are only one resource for building fiber to libraries and other end users.

Q: What makes this project different from the original Kentucky Information Highway (KIH)?
A: The Commonwealth will own the infrastructure and it will be open access. The original KIH was and still is carrier-based, through one provider that sets the rates. Those service-based contracts were for shorter terms, and didn't have requirements to refresh the network and implement the newest technologies as they become available.

Q: Why did the state decide to use Macquarie Capital, a private company, to do the KentuckyWired project?
A: Following the Commonwealth procurement process, an Australian company called Macquarie Capital was selected for this public-private partnership (P3). Macquarie will operate the system over a 30-year contract, but the state will own it.

Q: What companies are currently under contract to construct, implement and operate KentuckyWired?
A: Macquarie's consortium partners include First Solutions, Ledcor, Fujitsu Network Communications Inc., and Black & Veatch. Macquarie provides equity investment and is the overall project lead. First Solutions also provides equity investment and is responsible for commercial business development. Ledcor and Black & Veatch are the Design/Build partners. Fujitsu is in charge of operations and maintenance of the network. This consortium includes companies with a Kentucky presence, and the consortium partners have committed to hiring Kentucky companies and workers to positively impact local economies.

Q: How will the investment group make back their money?
A: Commonwealth service fees will move from the carriers that hold current service contracts to KentuckyWired, a Commonwealth-owned network. The Commonwealth and the Macquarie consortium may share revenues from the sale of dark fiber.

Q: As a vendor, will there be a future opportunity for me to get involved in this initiative and how can I track future business opportunities related to KentuckyWired?
A: Information about current and future opportunities is located on the Finance and Administration Cabinet's eProcurement page: eProcurement.ky.gov. Click on Vendor Self Service, and you may register as a vendor and login. If you prefer, a login is not required to select Public Access to review all solicitations.

Q: How do I sign-up for KentuckyWired?
A: Local businesses and citizens will still receive services from local Internet Service Providers.

Q: How can a private ISP be involved with KentuckyWired?
A: The network will be open access, so ISPs can connect to it and handle the job of providing "last mile" service to communities, businesses and citizens.

Q: Will KentuckyWired use existing infrastructure? Can a municipal utility provider be a part of the KentuckyWired project?
A: Partnerships involving the use of current fiber infrastructure are being explored. Partnering with local telecommunications companies, municipalities and major carriers may allow us to deliver faster and may reduce construction costs.

Q: If dark fiber is already in place, will it become part of the network?
A: A vendor conference was held in early 2015 and representatives of 51 companies attended. Those companies represented electric power co-ops, local telephone companies, national carriers (Windstream, AT&T, Verizon), locally-owned municipalities (Russellville, Frankfort, Owensboro, etc.), and investor-owned electric companies. All have shown interest in this project for various reasons. To leverage existing dark fiber, it must meet specific standards.

Q: Is there a plan for educating the public on the benefits of this network?
A: Press announcements have come from both the governor's office and the SOAR initiative. The project has been written up in several major publications while the team has also been busy presenting updates to many groups throughout Kentucky. These activities will continue, and future plans include broader awareness campaigns.

Q: How can I get the latest information?
A: The latest information is found on the project website, KentuckyWired.ky.gov. The email address is KentuckyWired@ky.gov, and the telephone number is (502) 782-9549.

www.citylab.com
February 1, 2018

The Hitch in Kentucky's Plan to Build High-Speed Internet for All

The commonwealth has an ambitious plan to expand broadband access, even to rural areas. There's one problem: Kentucky doesn't own a key component of the infrastructure.

By Kriston Capps

Once the fiber is finished, Kentucky leaders say, it will connect the commonwealth to the world. That's the thinking behind KentuckyWired, an ambitious public–private partnership to bring high-speed internet capacity to every corner of the state. The project showcases the promise and the risk in public–private partnerships. Some critics are calling it wishful thinking.

Highways were hard to build in Appalachia. Information highways are no less difficult to realize today. Abundant limestone and dolomite resources make burying fiber-optic cable nearly impossible in parts of Kentucky, especially in the eastern part of the state. Even stringing up broadband from poles is tough to do over mountains. And considering the sparse populations in some Kentucky regions—especially in East Kentucky—there's no practical incentive to lure companies to make an intensive investment in infrastructure.

"I've had some of the major carriers sit in my office and say that they can't make a business case for building in East Kentucky," says Lonnie Lawson, president and CEO of the Center for Rural Development. "When the existing last-mile providers say they're not going to do it, then you have to find a different avenue of doing it."

The need is dire. Areas in East Kentucky have little-to-no broadband internet access, and the regional economy, already distressed by the demise of the coal industry, has found itself on the wrong side of the digital divide. Residents may be able to access Facebook or stream video, but to attract companies such as call centers, or build on successful e-commerce models, East Kentucky needs capacity.

"A lot of these jobs that you can create in other parts of the world, you couldn't do in our region, just because you don't have the infrastructure," Lawson says.

The solution, KentuckyWired, is a public–private partnership that seeks to build more than 3,000 miles of fiber-optic cable. The goal is a statewide "middle mile" network of dark fiber that reaches every county. KentuckyWired will provide broadband access directly to public schools and universities, state agencies, and other public institutions, while leasing the other half of its fiber to commercial providers.

Think of the middle mile network as a highway system, with exit ramps offering last-mile service—meaning access to broadband wherever Internet service providers link up subscribers.

KentuckyWired could transform deeply impoverished rural regions economically, such as East Kentucky, where U.S. Rep. Hal Rogers is one of the plan's leading champions. The project would also streamline service in a state where broadband often doesn't live up to federal standards, according to supporters. But the $327 million plan has hit a roadblock: Stakeholders don't own the poles where the fiber is supposed to be installed.

By the terms set forth in the public–private partnership back in 2014, delays mean mounting costs for Kentucky taxpayers—a challenge that could undermine support for the network.

"Kentucky is committed to completing this project," says Phillip Brown, executive director of the Kentucky Communications Network Authority, the state agency launched in 2014 to oversee KentuckyWired. "We've had a lot of scrutiny, which is understandable, over the last couple of years."

To date, KentuckyWired has built a bit more than 600 miles of fiber. However, the original plan, signed in late 2015 toward the end of former Kentucky Governor Steve Beshear's administration, called for the whole network to be completed within a year. That schedule didn't account for the time it would take to strike pole-attachment agreements with various municipal utilities, electric companies, and telecoms—about 70 in all. So far, the planners have secured agreements to use about 50,000 of the 59,000 poles they need.

Kentucky taxpayers have already paid at least $7 million in penalties to the private partner in the KentuckyWired partnership as a result of those delays. While the commonwealth is down to three final negotiations, which could be completed before the end of February, conservative organizations like the Center for Individual Freedom have KentuckyWired in their crosshairs.

"The simple fact of the matter is that to terminate the project now would cost more than it will to finish the project," Brown says.

The Kentucky hold-up exposes some of the problems with public–private partnerships, an increasingly important tool for local and state governments in building and financing infrastructure. There are two big categories of public–private partnerships: demand–risk partnerships and availability–payment partnerships. The difference is where the incentive falls.

In demand–risk partnerships, the private partner accepts all the risk that project revenues may not work out as planned. These are good for taxpayers, says Randal O'Toole, a senior fellow at the Cato Institute. With availability–payment partnerships, on the other hand, so long as the work is completed, the public partner is on the line for payments for the duration of the contract, whether the infrastructure is useful or not.

"Once the contract is signed, you're stuck with it, and if you as a public agency run into problems, you're going to pay through the nose," O'Toole says. "That's really where a lot of cost overruns come in."

So when officials in Glasgow, Kentucky, need a hard sell to convince them to allow KentuckyWired to attach to their poles, the entire project stalls. Late in January, the Glasgow Common Council voted to approve the initiative, meaning that planning, engineering, and construction can proceed. The decision followed months of deliberation and presentations before the Glasgow Electric Plant Board and City of Glasgow (pop. 14,594).

In another case, a pole-attachment agreement with AT&T was delayed by 212 days, according to Brown. All the while, the state still had to pay idle workers. Bringing broadband to all 120 counties in Kentucky means a lot of opportunities for bottlenecks. Throughout dozens of supervening events like these, the Kentucky public has been

responsible for paying penalties to its private partner, in this case, a consortium led by Macquarie.

"Candidly, part of the challenge for Kentucky with the contract that was negotiated, the Commonwealth assumed a lot of the risk for the project," says Brown, who joined the agency in April 2017. "If the Commonwealth had wanted its contractors to hold the risk for dangers to the schedule, the Commonwealth could have said, 'We don't want this risk.'" He adds, "In a lot of ways, we allowed the price to drive the schedule."

There are other reasons why local governments might accept more than their share of risk. Availability–payment partnerships allow local governments to circumvent statutory debt limits. The practice grew popular in eurozone nations, where membership restricts national debts to a fixed percentage of GDP. As O'Toole explains, Italy built high-speed rail and other infrastructure projects via public–private partnerships, which put the debt on the books of private companies.

Denver pulled off the same trick with its $2 billion Eagle P3 to build new transit infrastructure, including the East Line that connects the city to the airport. City leaders in Washington, D.C., where public debt is limited by a 12 percent statutory cap, is looking at an availability–payment P3 to renovate its police headquarters, an expensive undertaking.

Questions about oversight and community consent abound with public–private partnerships, especially as newly formed agencies, like the Office of Public–Private Partnerships (or OP3) in D.C., add a new factor to municipal procurements. But oversight is hardly a problem for KentuckyWired. Rather, it's the opposite: The state has had to get buy-in from cities, counties, and utilities across the board.

KentuckyWired was born as a concept in East Kentucky, where Rogers, Lawson, and other leaders saw high-speed internet access as a gateway for a region that is suffering from a dying coal industry. Planners soon realized that they could build a backbone of middle mile broadband fiber for the entire commonwealth for not much more. The gains would be great—but so would be the delays, and the public–private partnership did not leave room for flexibility.

While the calendar and costs for KentuckyWired have changed as a result, the need for better internet access to fuel the economy hasn't. "The coal jobs have been drastically, drastically reduced," Lawson says. "Even if there's some level of coal jobs that remain, it will never be what it once was. You have to find other ways of putting people to work, or your best and brightest leave, and they never come back."

December 17, 2017

AT&T Launches Project AirGig Trials to Bring Ultra-Fast Internet Over Power Lines Closer to Reality

AT&T* launched an international trial of its unique Project AirGig technology and has also just launched a second trial in the U.S. in Georgia. AirGig is a first-of-its-kind system. It could one day deliver internet speeds well over 1 gigabit per second via a millimeter wave (mmWave) signal guided by power lines. We hope that one day there will be no need to build new towers or bury new cables in locations close to aerial power lines. Instead, using AirGig patented technology, we would install devices to provide high speed broadband which can be clamped on by trained electrical workers in just a few minutes.

AirGig technology embodies over a decade of research by AT&T Labs and more than 300 patents and patent applications. It also represents a potential new era in connectivity where turbocharged data speeds can be available almost everywhere in the world. "Project AirGig is part of our ongoing effort to accelerate internet connections to a gig or more through both wired and wireless solutions," said Andre Fuetsch, president, AT&T Labs and Chief Technology Officer. "But it also stands alone as a radically innovative solution to bridge the global digital divide. If these trials and our continued research and development turn out the way we intend, we'll take a big step toward bringing hyper-fast connectivity to people everywhere."

There are 2 trials in the current phase of the project. The first trial started earlier this fall and is with an electricity provider outside the U.S. The second trial recently kicked off in Georgia with Georgia Power. While this trial is located in a rural area, AirGig could be deployed in many areas not served by high speed broadband today – rural, suburban, or urban. "In October, for a remarkable fifth time in a row, Georgia was named the best state in the nation in which to do business, highlighting an environment that helps ensure companies continue to invest and innovate in our great state. AT&T's decision to trial Project AirGig in Georgia with Georgia Power is a tribute to that," said Georgia Governor Nathan Deal. "Project AirGig offers transformational possibilities to bring gigabit internet connections to residents and businesses everywhere. It's exciting that the first trial in the nation is being conducted in Georgia, with AT&T's innovation helping keep us at the forefront of the technology sector."

"Georgia Power continuously utilizes technology research and collaborates with companies like AT&T in order to introduce new products and services that help meet the changing needs of our customers," said Paul Bowers, chairman, president and CEO of Georgia Power. "Expanding access to high speed internet is an important initiative that provides value for our all of our customers and helps us remain a competitive state in which to do business."

"AT&T has a long-history of connecting people with their world and is proud to be on the cutting-edge of innovation, now with Project AirGig trials," said Bill Leahy, president of AT&T Georgia. "Governor Deal and legislative leadership have worked hard to create an environment that welcomes private investment and innovation, and the significant decision to conduct our national AirGig trial in Georgia is evidence of that. We

appreciate our collaboration with Georgia Power and look forward to yet another way to deliver gigabit internet connections to consumers."

As we learn from these trials and continue to develop this technology, we'll look at expanding more advanced technology trials in other locations.

While there's no timeline yet for commercial deployment, we're encouraged and excited by what we've seen so far. Innovation is never a straight path. But, these trials point the way forward to a potential future where the benefits of ultra-fast internet are available to almost everyone.