How Russellville, Kentucky (Population: 7000), Became One Of America’s First Gigabit Cities, Developed An Advanced Metering Initiative, Switched To All-IP Products, Ran Fiber To Its Businesses And Schools, And Poked Its Incumbent Provider In The Eye

An Interview With Russellville Electric Plant Board General Manager, Robert White
There are only a couple of dozen gigabit areas in the U.S. right now, and odds are good you’re not in one of them. But, for the residents of a little town in Logan County, KY, data speeds that defy imagination are a part of life, thanks to their municipal provider, Russellville Electric Plant Board. Here’s how they did it.

FINANCE

The FCC is promoting “gigabit cities,” but why did Russellville find it so alluring?

During a strategic planning session as the new General Manager, I started to ask very pointed questions about why we decided on FTTH and if we were leveraging the inherent advantages of our fiber network and Calix equipment. I point blank asked if we were capable of becoming a gigabit city. Our answer was an emphatic “YES, we are ready.”

Being a gigabit city just adds another weapon in our Logan County economic development agency’s arsenal as they try to attract new industry and encourage growth and expansion for existing industry. It also serves as a quality-of-life advantage for the Russellville community. Being the first and currently the only gigabit city in the Commonwealth of Kentucky brings such a huge sense of pride to the various stakeholders of Russellville. It is amazing how many times the citizens of Russellville approach Electric Plant Board employees, and tell them how proud they are of this distinction. We started offering gigabit business services in November 2013, and residential gigabit services in September 2014.

What financing hurdles do you think REPB faced as a municipal provider when it set out to turn itself into a gigabit city? Were there any advantages to being a municipality?

The driving force behind the original decision to go into the broadband business was to provide premium cable services. The incumbent provider at the time made it very clear that they were not committed to offering high definition television programming to the Russellville area. So, the challenge the Russellville Electric Plant Board faced entering the broadband business was making the correct strategic decisions on the type of broadband system to deploy. A 2002 feasibility study recommended deploying a hybrid fiber coaxial (HFC) network. The board of directors approved the plan but the system was never built.

The next step in the Russellville Electric Plant Board journey towards becoming a broadband service provider came in 2006 when they decided to become a wireless Internet service provider (ISP). By this time, not only did the incumbent video provider continue to deny high definition programming to the community, but there were no true high-speed Internet options available, either. Utilizing 2.4 Ghz Navini (Cisco) radios and 900 MHz Motorola (Cambium Networks) radios, the Electric Plant Board starting offering data speeds up to 2 Mbs (download). By today’s standard that may not sound like very high speeds, but in 2006 it was the best speed offerings for the Russellville area.

By 2009, the Russellville Electric Plant Board started to reconsider the decision to offer triple-play broadband services (voice, video, and high-speed Internet). A 2009 feasibility study again showed that the Russellville community lacked adequate broadband services. In addition, the study also recommended deploying an HFC network. However, that is when another major hurdle was addressed. There was a lot of discussion and debate about whether to deploy an HFC network as recommended in the feasibility study or to deploy a fiber-to-the-home (FTTH) network that would be more expensive to deploy, but was a more visionary solution that would allow us to be more flexible regarding the products we could offer in the future. The decision was made to deploy a FTTH network, and in 2010, the Tennessee Valley Authority (TVA), the Russellville Electric Plant Board Directors...
Russellville, Kentucky

County: Logan
Population (2010): 6,947
Households (2000): 3,064
Housing Density: 325.1/sq mi
Median HHI (2000): $25,647
Median Family HHI (2000): $31,448
Age Below 18: 23.7%
Age 18-24: 9%
Age 25-44: 25.1%
Age 45-64: 24.3%
Age 65+: 18%

Russellville Electric Plant Board’s build-out was so successful, that there’s been interest from its much larger neighbors in Bowling Green. Sadly for Bowling Green residents, they’re served by municipal providers who haven’t reached Russellville’s level of development.

and the City of Russellville City Council approved the business plan and debt service for a FTTH network to support triple play and broadband services, as well as an advanced metering infrastructure. The decision to deploy FTTH vs. HFC has turned out to be a great decision for REPB.

The driving force behind the major stakeholder approvals were economic development and quality-of-life issues. It was all supported by the excellent customer service advantage the Electric Plant Board has on any service providers in the Russellville community.

The Russellville Electric Plant Board officially started selling its broadband services under the name EPBsmaartnet™ in November, 2011. One key differentiator in EPBsmaartnet’s services was that all of them are IP- or data-based services. The voice services are voice over Internet protocol (VoIP) and the video services are Internet protocol television (IPTV). As of the beginning of 2015, EPBsmaartnet is one of only two FTTH providers in the Commonwealth of Kentucky, and the only FTTH provider currently selling all IP-based broadband products.

What were the total infrastructure costs?
The total cost of the fiber backbone infrastructure to be used to support Smart Grid initiatives and the advanced metering initiative (AMI) deployment for the Electric Department and the FTTH Network for the Fiber Services Department was $10.68 million dollars.

What was the mix of private and public borrowing?
On August 31, 2010 the Russellville Electric Plant Board issued Taxable Electric Revenue Bonds (Build America Bonds-Direct Pay) Series 2010A in the amount of $7.245 million dollars and Taxable Cable/Broadband System Revenue Bonds (Build America Bonds-Direct Pay) Series 2010A in the amount of $3.435 million dollars. We also have a line of credit (LOC) set up between the Electric Department and the Fiber Services Department.

What is the relationship between TVA and REPB?
The TVA serves as the regulatory authority for REPB. We have an all-requirements contract with TVA to supply all of our electric supply that we distribute to our 4000 electric metered customers. The TVA performs an annual audit to ensure that the REPB is operating according to the requirements of the TVA contract with REPB. One very specific regulatory function relating to EPBsmaartnet broadband services is to make sure that the Electric Department is not subsidizing the Fiber Services Department with electric ratepayers’ revenues. TVA requires a Joint Use Cost Study to be completed and approved by TVA, REPB directors, and the city council as well as a detailed payback schedule for any dollars borrowed from the LOC from the Electric Department.

One of your biggest vendors, Calix, insists on pilot projects, even for relatively small buildouts. What did you learn from your pilot?
We launched our pilot project in the summer of 2011 with 75 customers. We learned not to launch a pilot if you don’t already have the overwhelming majority of your programing contracts in place with your video offering. We also learned to have a good sample of business voice customers.

Did you need to expand your permanent workforce? Where?
Strange enough, there were only a couple of new hires to our workforce. Since the REPB already made a couple of new hires in 2006 when we started selling wireless Internet, we only added a one new hire for installs and one new customer service representative who provided phone support in the Fiber Services Department. The REPB decided to use a third party contractor to do the majority of the initial customer installs.
THE LEGACY WIRELESS NETWORK

As you mentioned, Russellville Electric Plant Board conducted a hybrid fiber coaxial network feasibility study in 2002. Why did EPB decide not to roll with it? Do you consider that a fortuitous decision?

The 2002 HFC Feasibility Study showed that Russellville needed to consider taking its broadband needs into their own hands. The incumbents were not going to invest in the community because they did not see the appropriate return on investment. The EPB did not roll with it because a totally unrelated political issue derailed the project. That issue monopolized the resources both human and capital for at least two years. As painful as that issue was for the EPB, it was a blessing in disguise. The delay gave the EPB a chance to see the advent of FTTH as a deployment of choice by other municipal providers. The technology changed so much between 2002 and 2009 when the decision was made to go with FTTH vs. HFC.

“Do I think our customers fully understand the potential of gigabit? No I don’t, but that is EPBsmartnet’s charge to help them understand the potential.”

How much, roughly, did it cost to deploy the wireless service?
I don’t have the exact figures, but I would say roughly $500,000.

Roughly speaking, what is the wireless service delivering?
The wireless customers are currently getting around 1.5 Mps download speeds and 256 Bps upload speeds.

Now that you’re a gigabit city, what does the future hold for REPB’s wireless infrastructure?
The wireless Internet product is being phased out. Unfortunately, when Cisco purchased Navini they discontinued manufacturing the radios and therefore when all of our radios were no longer usable we could no longer serve most of our remaining wireless customers. We now have less than 100 wireless customers who are using the Motorola radios. We have informed the remaining customers that we will not be offering the current wireless services beyond the life of the remaining radios. Most of the remaining wireless customers live beyond our FTTH service territory.

SMART GRID & DARK FIBER

Is the smart grid initiative proceeding as planned? Are there any particular hurdles you can speak to?
The smart grid initiatives are proceeding as planned. Phase one, deploying the fiber backbone, has been completed. We are 97% deployed with our new advanced meters. The third phase will be to provide customers access to the new data the AMI and Meter Data Management System (MDMS) will produce. The fourth phase will be to utilize statistical analysis to assist in considering new retail rate options for our customers. And the final phase will be to use the fiber, AMI, and MDMS to offer some opportunities for distribution automation of our electric infrastructure going forward.

An important goal of the initiative was to supply broadband for public resources. How are the dark fiber projects coming along?
The Logan County Schools dark fiber project was completed by October 1, 2014. We now offer lit and dark fiber services to every anchor institution in Logan County, including Russellville Independent Schools, the Logan County Public Library, and City Hall. We provide broadband services to all of the major industries in Russellville. We also provide dark and lit fiber services to Logan County’s largest employer, Logan Aluminum.

Are there any other organizations, including data centers, looking at your combination of gigabit broadband and power access? Was that kind of economic development part of the plan?
The idea of selling our quad-play services (electric, voice, video, and data) to potential industry is definitely a part of our economic development plan for sites located in the REPB service territory. And since we don’t have territorial constraints in the state of Kentucky, we can offer our broadband services and economic development incentive for any site in Logan County.

Is there demand from neighboring communities, like Bowling Green and Hopkinsville?
There is demand in those areas, as well. However, both Bowling Green and Hopkinsville are served by munis who currently offer services, though the EPB is the only muni provider offering triple play services between the three cities.

MARKETING

How are you marketing EPB’s services?
Marketing of the broadband services has ramped up over the last 12 months. The low-hanging fruit is gone and now the hard work of competing for that marginal customer begins. We are now working with a firm who specializes in working with municipalities that sell broadband services, and are not used to selling services in a competitive environment.

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Is adoption meeting expectations? If not, where do you think it’s falling short? Do you believe that folks in your community fully understand the potential of gigabit?

Our take rates are really good and are mostly in-line with the business plan predictions. The Russellville community has taken such great ownership of these premium broadband services.

At a recent meeting of the American Cable Association, the experts in the industry told us conference attendees that we need to prepare for a day when our Internet customers will outnumber our video customers and that providers offering IPTV will be in a better position for the future than traditional RF providers. That day is already here for EPBsmartnet because our high speed Internet product is our best selling product and we already sell IPTV video services.

Do I think our customers fully understand the potential of gigabit? No I don’t, but that is EPBsmartnet’s charge to help them understand the potential. We have started scheduling workshops to help our customers understand the amazing things they can do with our products. We like to use the growth of the electric utility industry as an example of how to educate our customers to what advanced broadband networks can do for them in the future. During the 1960s, ’70s, and early ’80s, local power companies like the EPB would hire home economists to come in and teach customers how to make use of the flexibility of electricity. They showed how you could use new “all electric” appliances to make your life so much easier. I am sure when electric infrastructure was being deployed in the 1930s and ’40s customers were happy to have light in their homes and could not imagine that one day they would be able to use that same electricity to energize ovens, and then one day, microwave ovens. That is the same place we are at with these gigabit networks. We are going to expose our customers to this exciting new frontier right here in Russellville, Kentucky and who knows, one of these days someone will be saying “do you remember back in the day when the only use for that gigabit network was to watch Netflix?”