

NWX-DOC-NTIA-OTIA

**Moderator: Scott Woods
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Coordinator: Welcome and thank you for standing by. All participants will be able to listen only for the duration of today's conference. If you should need assistance, press Star then 0 and a support person will assist you.

Today's conference is being recorded. If you have any objections you may disconnect at this time. I'd now like to turn the call over to your host for today, Scott Woods. Sir you may begin.

Scott Woods: Thank you very much. Thank you everyone for joining us today for Broadband USA's Monthly Webinar on Broadband topics of interest to policymakers, decision makers, practitioners and consumers. I'm Scott Woods and I manage Broadband USA's technical assistance program and I'll be moderating the webinar today.

This afternoon our topic is Electric Co-Ops Bringing Fiber to Rural America. Our presenters today are Brett Kilbourne, Vice President of Policy and General Counsel of the Utility Technology Council, Randy Klindt, Founder at Conexon and General Manager of OzarksGo LLC, and Paul Belk, the President and CEO, of the North Georgia Network Incorporated.

These presenters are experienced leaders in rural electrical cooperatives deployment, expansion and operation of broadband network infrastructure. I'd like to point out a few governing instructions before we begin.

First, we'll open up the webinar after the presentation to answer your questions. Please use the question box on the right hand side of the screen to submit any questions or comments you may have. Second, the presentation along with a transcript and recording will be available on the Broadband USA website within seven days of this webinar under the tab entitled Events/BB USA webinar archives.

Our website also provides you with information about our technical assistance program, guides, products, publications and other tools that can assist you with the planning, funding and implementation of your broadband project. As we begin our first speaker is Brett Kilbourne. Again he's the Vice President of Policy and General Counsel of the Utilities Technology Council. He's primarily responsible for UTC's advocacy activities before the Federal Communications Commission and other federal agencies on matter affecting the communication and information technology interest of UTC's member utility companies.

Utility broadband is one of UTC's key policy issues and UTC has been an active participant in various FCC proceedings including the Connect America Fund which supports broadband deployment to un-served areas of America. Please welcome Brett Kilbourne.

Brett Kilbourne: Thanks Scott for that kind introduction and thanks to Broadband USA for the opportunity for me and UTC to talk a little bit about utility broadband. A little bit about UTC, we were founded in 1948. We're a global trade association.

Our focus is on telecom and IT for all kinds of electric, gas and water utilities and other critical infrastructure industries.

Our members include large investor owned utilities as well as smaller rural electric cooperative and public power utility zones. We're based in Washington D.C. and we have affiliates in Europe, South America, Canada and Africa.

We created a rural broadband council in 2012 within UTC. The focus of the RBC was to promote opportunities for broadband funding for rural utilities. We also provide education and we inform members through newsletters, webinars and case studies. Then we also hold conferences where we enable networking with utilities on ways to provide broadband to rural America.

Recently we created a utilities broadband council and that's a reflection that there are all types of utilities that are providing broadband either on a wholesale or retail basis in urban and rural areas. The UBC continues the work started by the RBC in 2012 and expands efforts on advocacy, education and information for and about utility broadband.

Let's talk about the current state of broadband. There's a provision within the communications act that requires the FCC to regularly examine the availability of "advanced telecommunications capability" i.e. broadband. If it finds that it's not being made available to all Americans on a "reasonable and timely basis" the FCC is required to take "immediate action to remove barriers to broadband investment."

The most recent report that the FCC issued was a result of a Section 706 inquiry found that there are 34 million people nationwide that lack access to broadband speeds of 25 megabits per second down and 3 megabits per second

up. That represents 4% of people in urban areas. Then when you get to the rural areas you really start to see this digital divide that exists. There the number jumps to 39% which is 23 million people that lack access to 25/3 megabits per second.

And then we look at travel areas the number gets even worse. You get 41% or 1.6 million people in travel areas that lack 25/3 megabits per second access. When you talk about schools the number there is also troubling. You've got 59% of schools that have access to 100 megabits per second per 1000 thousand students and far fewer have access to a gig of service per 1000 students.

I've got a couple of maps here that illustrate what we're talking about. The first slide shows that part of the country – in the western half of the country that has access to 10/1 megabits per second speed. What you're focusing on here is the lightly shaded green areas of the country. Those are the areas that represent service territories that are covered with 10/1 megabits per second. Let's go to the next slide and then all of a sudden you see just how few parts of the country actually have 25/3 megabits per second which is the current benchmark for broadband.

That was established by the FCC. That gives you a real sense of the gap that exists in terms of the opportunities to provide broadband. And then when you talk about competition in these areas where there's 25/3 megabits per second most of these areas really only have one provider, if any. There's only a few places that have two. Those are the orange areas and there's only a very small, small number of places that have three or more and those are the red shaded areas.

So a couple of slides here to illustrate what we're talking about in terms of takeaways. One of the things that's key point is that the increasing bandwidth that's going to be required from stream to video and audio is going to, you know, drive up the demand for higher speed services. Your typical video and audio which comprise of 63% of downstream traffic typically requires 5 to 25 megabits per second for each video stream.

Then when you stop to consider the average American household of children has more than 4 people living it and they're using seven Internet connected devices on a shared broadband network that's also going to drive up your bandwidth requirements. You need to anticipate that if you're thinking about providing broadband in these rural areas, next slide.

The other question is, you know, is there really demand in rural areas for broadband. Is the adoption rate in rural areas going to be strong? And what we're seeing is that where there's 25/3 megabits per second speeds available the take rate is roughly the same whether you're talking about urban areas or rural. These are the FCC numbers, right? They're showing it's 30% in urban areas, 28% rural, roughly equivalent where there's 25/3 megabits per second available.

And then last bullet point there's a group called Broadband Opportunity Council (BOC) and actually now it's being renamed the Broadband Interagency Working Group. The report that was issued by the BOC a couple years ago does find that broadband has steadily shifted from an optional amenity to a core utility for households, business and community institutions. Today broadband is taking its place alongside water, sewer and electricity as essential infrastructure for communities, the next slide.

Let's talk about electric cost and broadband picking up from that last point from the broadband opportunity can also report. Electric cooperatives also are seeing broadband today is much like electricity in the 1930s. The electric cooperatives were generally established back in the 1930s in the Depression Era to actually bring electricity into those areas that didn't have it.

Today they're seeing that those areas need broadband in order to drive economic opportunity as well. That's one of the main reasons the electric cooperatives are getting into broadband space. The other interesting point about it from a cooperative standpoint is they're committed to serving all their customers, members in their service areas. One hundred percent of their customers will be getting broadband.

They may get it in phased deployments but they're definitely going to get it. Actually what we're seeing is the cooperatives will actually deploy the neighboring towns to the extent that they're deploying broadband in their service territory. There's an opportunity there as well. With respect to smart grid a key driver for utilities is the benefits that go along with having broadband access. You know, that can improve the quality of electric service by improving electric reliability and actually efficiency as well.

The last point about cooperatives is that they're positioned in these rural areas. They were created by their communities. They're committed to those rural communities. There are approximately 900 cooperatives in 47 states and they provide electric service to 37 million people in almost three-quarters of the nation in land mass.

I put together a slide that illustrates where we've seen some electric cooperatives deploying broadband. I won't go through these in the interest of time. I just want to make you aware that these deployments are out there.

The other takeaway is that a lot of these deployments are, you know, fiber owned deployments, which really is remarkable in the sense that, you know, there's a challenge or at least the mindset is that there's a challenge in deploying fiber in these rural areas. The cooperatives have been able to do that, next slide.

Let's talk a little bit about the Connect America Fund. As I said previous slides UTC's focus has been to try and create opportunities for the cooperatives to be able to tap into the Connect America Fund at the OCC. A quick status update on that, there's \$1.8 billion that's budgeted annually for high cost services.

The price cap carriers were able to accept 1.5 billion of that in model based support and that represents 9 billion over the next six years. There they're only required to provide speeds of 10/1 megabits per second as part of that right at first refusal. The remainder that's available, \$215,000 annually or \$2.1 billion over the next ten years is going to be subject to a competitive bidding over first auction.

We're positioning the utility companies, educating them on that opportunity. The areas they can bid on areas that are un-served currently with 25/3 megabits per second from an unsubsidized provider. There are areas where price cap carriers have declined the right of first refusal and there are areas where utilities were "rural broadband experiment applicants" to provide Category 1, i.e. 25/3 megabits per second services.

In those areas there represents a pretty significant opportunity for the electric cooperatives to be able to access some of the Connect America Fund money that's available so in some of the states we're talking about include Missouri, Nevada, Oklahoma. That's where AT&T declined the offers. California,

Mississippi, Oklahoma and Wyoming and then Fairpoint has declined the offer of first refusal in Colorado and Kansas and then finally Windstream declined in New Mexico.

For interested entities that want to try and bid, UTC does provide a link that shows you precisely which census blocks are available but that's subject to revision as more FCC 477 data gets filed from year to year.

The FCC has established performance tiers and weighting criteria for the CAF 2 auction. The idea behind that is that this will promote funding for high speed, low latency networks. I won't go into the specific performance tiers but they do range from 1 gigabit per second down to 10/1 megabits per second speeds. And then also there are weighting factors that kick in depending on whether you're offering high latency or low latency services.

Right now the FCC has issued a public notice inviting comment on specific rules for the reverse auction. The comments have been filed on that and are now in the final stage I guess before the FCC actually implements the rules for the reversal auction which we expect is going to take place in early 2018.
Next slide.

In addition to FCC's Connect America Fund there's also the USDA RUS electric program which provides loans for electric infrastructure. The RUS has actually clarified that they recognize that broadband can actually support electric smart grid initiatives. That's the stated policy and go to next slide.

This says these electric program funds are available for loans to borrowers for fully integrated smart grid purposes, including fiber connections directly to the meters of electric service consumers. Further is the policy that RUS to promote smart grid deployment among all electric utilities serving rural

customers and smart group can prove reliability, promote energy efficiency, enhance grid security, advance safety, provide security, reduce pollution and restrain consumer electric cost, all benefits that are brought to you by this program, next slide. That's it. Scott you want to take it away?

Scott Woods: Yes, thank you Brett. As a reminder we will have time for questions at the end of today's session. Please use the question box on the right hand side of your screen to submit questions and/or comments. In addition the presentation from today's webinar will be available on our website within seven days.

Our next speaker is Randy Klindt. Mr. Klindt is the General Manager of OzarksGo LLC, a subsidiary of Ozarks Electric Cooperative in Fayetteville, Arkansas. Ozarks is in the process of building a six phase, 7000 mile fiber to the home broadband network in northwest Arkansas and northeast Oklahoma.

Mr. Klindt is also the founder and partner at Conexon which assists electric cooperatives in evaluating and deploying fiber to the home networks to co-op members and communities. Please welcome Randy Klindt.

Randy Klindt: Thank you and thank you NTIA for hosting this webinar. Thanks Brett for your comments and one note as Ozarks Electric is a proud member of UTC. Go on to the next slide please.

Ozarks Electric Cooperatives was formed in the 30s and it's been around right at 80 years. We have 7000 miles of electric distribution line serving 75,000 meters in northwest Arkansas and northeast Oklahoma. Ozarks is one of the most reliable electric utilities in the state of Arkansas, has some of the lowest rates in the state of Arkansas and has very high customer satisfaction scores.

The reason I mentioned that is that has created a great foundation for us to build upon what the electric cooperatives have accomplished in the last eighty years to build a fiber to the home broadband network. We're also fortunate to be in one of the fastest growing regions in the country driven by several Fortune 100 companies and the University of Arkansas inside of our region. Ozarks Electric Cooperative also has significant need for communication for its electric devices in substations. It's down line data devices and eventually all the way to the electric meter.

We have a significant investment we spend every year on communication needs which is also one more driving purpose of us deploying a fiber to the home network. OzarksGo as mentioned earlier is a wholly owned subsidiary of Ozarks Electric.

One note I want to mention prior to joining OzarksGo I was general manager of Co-Mo Connect, subsidiary of Co-Mo Electric Cooperative in central Missouri where we deployed a 4000 mile fiber to the home network that now has over 16,000 active fiber to the home subscribers. Co-Mo is the first electric cooperative to deploy fiber to the home and make it available to 100% of its members and it did it without any government grants or government subsidies. We're trying to replicate the success of that project here at Ozarks, next slide please.

Prior to starting the broadband project at Ozarks this map the black outline indicates are service territory in Arkansas and Oklahoma. The red colored census blocks indicate where 25 megabit service is available. Twenty-five megabits is currently the FCC's definition of broadband service. Right around half of Ozark's electric members don't have access to broadband today primarily in our Oklahoma portion of our service territory and the eastern rural portion of our territory do not have access to broadband, next slide.

We're not just trying to get our members connected to what's considered broadband today. We're focused on delivering fiber to the home in gigabit speeds and we're trying to bring our region up to what you can find in most urban areas in the country. We believe that that is a minimum of 100 megabit service.

When we look at only the census blocks in Ozark's territory that has 100 megabit service, you can see a much smaller portion of our members have access to that level of service that you can find in major cities across the country, next slide.

Our project started back in March of 2016 with a Board of Directors approval to launch a six phase project over six years to deploy fiber to the home on all 7000 miles of our electric distribution line and to serve all 75,000 of our member locations. We started official construction in October in 2016. By December 2016 we had completed our large data center which houses our core routers and network infrastructure and IP television head-end. By December 31 on 2016, we met our goal of having at least one subscriber online in the network just nine months after project approval.

By June of 2017 we had launched IP television service and by October 2017 we had our 1000 subscriber connected and by the end of this year our phase 1 of our six phase project will be complete. It will have over 2000 fiber to the home subscribers connected.

Looking at this map this is a map of fully deployed gigabit networks. By fully deployed I mean the entire community has access to gigabit or an entire service area from a provider has access to gigabit. As you can see it's rare for an entire community to have access to gigabit. As Brett mentioned, electric

cooperatives, when they make service available, typically they make the same level of service available to their entire service area and typically do it for the same price. I think that makes us unique in the market, next slide.

Not only are we trying to solve the problem of getting broadband service where it's not available today but it also has to be affordable. This is the pricing that we're offering at Ozarks, \$49.95 100 megabit service, \$79.95 gigabit. Both of them are symmetrical so the same upload and download speeds. IP TV television service, \$69.95 and up to \$129.95 for all the channels that you could ask for and telephone service at \$24.95 with unlimited and local long distance.

We also offer bundle discounts so you take two services it's a \$10 discount. If you take three it's a \$20 discount. As you can see, I think these rates are not just affordable for rural but probably very affordable for most major cities in the country. Next slide.

As electric cooperatives have done before you can now make development as we embarked on this project that was our goals to bring economic development and to benefit our community. Some of those community benefits include while we're constructing the fiber, we've created over 300 jobs by either direct employees of the co-op and the subsidiary or employed by contractors over the next six years of construction.

Obviously there's lots of studies to show the benefits to a community when they have access to fiber to the home and gigabit type speeds. And then not just are we delivering service to where areas do not have service today. We're delivering an affordable very competitive service in areas where broadband is available and we're saving our members money. We calculated that we're going to put about \$13 million per year in discretionary income back into our

members' pocket to spend on other things other than their telecommunication needs. Next slide. That wraps up my presentation. Thank you.

Scott Woods: All right thank you Randy. Last but certainly not least, our final speaker is Paul Belk. Mr. Belk is the President and Chief Executive Officer of the North Georgia Network Incorporated, a fiber optic network that spans over 1700 miles through northeast Georgia and western North Carolina.

Mr. Belk is also the Vice President of the Fiber Network Owners Alliance, a strategic alliance of 42 organizations with over 108,000 combined network miles. Twenty years of experience in the telecommunications industry Mr. Belk has a history of helping organizations realize short and long term returns on fiber optic network investments. He specializes in the utility broadband sector and has operated several telecommunications companies throughout his career.

Mr. Belk is an expert in the areas of wireless back haul, long term evolution deployment and fiber to the premise solutions. Please welcome Mr. Paul Belk.

Paul Belk: Thank you Scott. I really appreciate that introduction. Brett it's nice to hear from you as well at UTC and Randy. Thank you for your contributions to model cooperatives that are trying to carve out a space for themselves across the country for broadband.

Again thank you for inviting us all on this call today. If you'll go to the next slide, I wanted to jump into what NGN is. We're designed as more of a generation in transmission organization, a fiber optic system that is fully redundant as far as a ring topography. We have a core that extends down into metropolitan areas of Atlanta and then comes into North Georgia into our

respective EMC areas to deliver services from anyone from enterprise to fiber to the home.

We have 1700 miles of fiber infrastructure and we do consider it next generation because we built it on a ten year focus. It is focused on community and economic development because as our owners being cooperatives their members are their owners. We always like to translate direct benefit back to them. Next slide.

This is just a look from a mapping standpoint. You can see Atlanta there to the southwest. The network extends on the western side. In a protect path we do not render services over on that side. You'll see that there's a span going into Chattanooga, Tennessee. That is where we purchase alternate IP so that we can bring internet traffic from an alternative rather than just the Atlanta network access points.

We have done that just because we have such density under the network now, anything from an E-911 center to critical EMS facilities throughout the region. We have to have that type of redundancy. We have three locations within this footprint, Young Harris where Blue Ridge Mountain EMC is. We have Clarkesville, Georgia where Habersham EMC is and then we have the Dawsonville location where it houses Georgia Communications Cooperative. Next Slide.

Just to illustrate an idea, cooperatives are doing broadband business. However it's interesting to see how cooperatives can then leverage, their resources to put together larger solutions. This you can see is really geared towards a mid-Atlantic focus. We are one of seven owners of lit networks which is a compilation of seven organizations that basically put fiber in together, the managing partner being Mid-Atlantic Broadband put the DWM

network together. Now we all share in the revenues for these long transport routes. It gives additional verticals to sell into our communities. Next Slide.

Just some facts about the network, we're probably creeping onto 10,000 subscribers now into the network. Again you saw that 1700 miles of operating fiber. Gig is our – as Randy said we have a gig-enabled community. Our primary focus is to provide gigabit connectivity on every media gateway that we put onto a premise.

We do deploy some wireless infrastructure. It is really a stop gap measure in order for us to eventually bring fiber. And again the focus on uptime on 5/9s (99.999), we really want to differentiate ourselves from the competition and reliability is one of the big ways we do. Next Slide.

How did it start? NGN was very fortunate to receive a grant during the – in 2009 to the Department of Commerce. Actually through the NTIA who's actually putting on this call today and we were very grateful Scott Woods was our program manager. We have really benefited from the Department's involvement in our ability to take our fate into our own hands.

We had closures of businesses. We had organizations that would not locate here because we had no broadband. It was really a great case scenario for us to bring towards those that were holding those funds and then make a case for us to distribute and build a network. The next slide.

Again there was – this was a regional effort. There were economic development professionals from many regions that created joint development authorities that partnered with EMC as these that you see here, Blue Ridge Mountain EMC and Habersham EMC. They combined their utility resources

and knowledge of the region and we created a corporation to serve the entire fabric across our communities.

It's really a joint effort of many different priorities that had to come together and it's really cooperative. In the spirit of it is indeed – it became – it was convenient for us to organize a cooperative considering what we were trying to accomplish. Again around 10,000 of the EMC's customers have received broadband services to date. Next Slide.

Our story is that because we have – we wanted to create flexibility within our corporate structure, NGN being a generation and transmission type entity to provide services, engineering services, NOCC services, bandwidth services to our respective distributors, we needed another instrument to serve areas that these EMCs weren't serving. So, we created a third member. It's NGN Connect and it serves in areas that there's not a focus for the EMCs to.

This just gives you some of the nuances of how we're put together and it really just provides us the flexibility to serve any community member irregardless of what distributor is available to them. Next Slide.

The model is typically what we see and Brett and Randy have mentioned the utility, if you will, of having fiber for an EMC to maintain its smart grid infrastructure. It'll need to be as efficient and robust as even those within metropolitan areas because EMCs face the same crisis on cost of energy going up and revenues falling. They need to be able to demonstrate competence within demand side management in all types of things.

In parallel with that they can leverage these assets and lease them to an entity like NGN and then a retail provider can come and provide services. There are models where the EMC is the retailer directly and that works very well. For

our purposes across this large landscape that we wanted to serve we needed some flexibility and hence the design. Next Slide.

For utilities again the greater network redundancy and security variances protect pads, you always see within electrical design if there are mission critical applications they'll look for two different source stations. We tried to emulate that within obviously our network design for NGN and again network capacity cannot be overlooked. Despite our being in rural areas we see a population that's hungry for bandwidth. You have to be ready to serve that.

The next thing for EMCs is another revenue source. We think that it's going to be an emerging opportunity and it already is for EMCs to provide services that they can naturally provide to their members. Next Slide.

Again, from a cooperative standpoint shared resources when you're dealing with high cost areas is really a key component of being successful. You have to utilize skill sets that would otherwise be expensive and spread them across, you know, the economies of scale in order to be successful. Network expertise, not contact centers, marketing and branding, government relations, consolidating your buying power, all those things are imperative to leverage when you're operating within the confines of a cooperative.

We are able to address regional and statewide multi locations too because we are in effect together. We can provide one vendor of record for many different locations. Infrastructure support and disaster recovery go hand-in-hand as different regulations both on the telecom and from the regulation and regulatory bodies for electric or FERK continue to increase this will put cooperatives into a strategic advantage to meet all of those requirements in the future. Next. That's it. Thank you so much for your time.

Scott Woods: Thank you Paul. Thank you again Paul, Randy and Brett for your time and presentations today. This was very useful information on the opportunities that electric Co-Ops have to bring or provide fiber networks to rural America. We'll now open up the webinar for questions from our participants. I'll turn it over to Karen Perry who will facilitate the question-and-answer session. Karen. Okay we seem to have some technical difficulties with Karen so I'm going to take some questions.

We have a question here from the audience. It says will the IP television service have similar limitations to live streaming services such as HULU Live? Can any of our experts answer that question and I'll try to find a more applicable question as we begin the question-and-answer session.

Randy Klindt: This is Randy. Ozarks has deployed an IP TV platform which really mimics regular cable television. It's more of a linear product than it is an over-the-top like HULU or Netflix. It's the same technology that AT&T has deployed in U-verse or Century Link in Prism or others that are deploying kind of a closed loop IP linear television product.

Scott Woods: Thank you very much. Here's the next question from Bob Ballance. Where can I find a vetted financial model that would help Co-Ops to understand the economic value and potential return on deploying broadband?

Karen Perry: Scott while the speakers think about that can you hear me?

Scott Woods: Yes. You're on. Thank you very much.

Karen Perry: Okay good. I'm sorry. I'll pick it up again after this question.

Scott Woods: Not a problem.

Randy Klindt: This is Randy. I'll take that.

Scott Woods: Randy do you want to take that one?

Randy Klindt: Yes I'll take that question.

Scott Woods: Thank you.

Randy Klindt: You know, I don't know if there's a particular financial model that's available for someone to produce their own numbers but there are a multitude of consultants that can do financial modeling for an electric cooperative that's exploring in broadband or fiber to the home network. I'd just encourage you to look for a consultant that works specifically with electric cooperatives because of the rural nature of the build, the build being on and taking advantage of electric cooperative assets and abilities to look for somebody that has that experience.

Karen Perry: Let me ask this question to any speaker who wants to answer. Are you aware of any Co-Ops who have used hybrid fiber wireless solution to bring down their deployment costs?

Paul Belk: Yes. This is Paul Belk. We have done that to a limited extent but I don't think that ultimately wireless, you know, being a perpetual hybrid status would be advisable because I think that in the short run there are solutions that can meet the FCC minimum standard for 25 and 3. It's going to be a stretch with LTE and depending on, you know, what the operator is – how they're operating, what channels they are operating on, fiber's really going to be one of the best long-term solutions.

I think companies or consulting firms like Conexon generally advise that if you're going to have a long term strategy of six to seven years of deployment, you know, don't be unfocused with – and I don't want to speak for you Randy but I see that there's a value in being focused on getting the long term solution in first rather than, you know, taking up and duplicating resources. You have to have folks that are cross pollinated or have different departments in order to support the services.

Randy Klindt: Just one...

Karen Perry: Randy?

Randy Klindt: I was just going to add one point to Paul's. You know, our principle is all electric cooperative members have access to the same level of service at the same price. That kind of rules out hybrid wireless fiber networks.

Karen Perry: That's part of the philosophy.

Randy Klindt: Yes.

Karen Perry: Are you aware of any electric Co-Ops who have been able to get financing either from local banks or through SBA loans in order to finance their deployments?

Randy Klindt: This is Randy. Every cooperative that I've worked with has gotten their financing through either RUS or co-banker CFCM. I'm not personally aware of any that have used local financing lending institutions.

Karen Perry: Do anybody else have any experience with local lending institutions in this area?

Paul Belk: NGN does. We do regional banks that, you know, and the lines range from, you know, hundreds of thousands to, you know, millions. Typically once you get into the, you know, the six-digit, seven-digits then you start looking for more conventional or at least larger aggregation banks like co-bank or CFC and the like.

Karen Perry: And regional banks and banks can get community reinvestment act credits for broadband investments. Perhaps that's something we'll see more of in the future. Let me ask if any of you have had an encountered issues with rights of way and how you managed through those issues. Randy, want to start that one?

Randy Klindt: Sure. I'll go back to the Co-Mo project where we deployed in Missouri. That project was complete. We didn't have any right of way issues there and it's really a state by state issue. I think it's something you have to really evaluate your state laws for your right to do that. Arkansas for example has a broadband over the Power Lines Act that allows electric utilities to use their electrical infrastructure to deploy broadband in the same rights of way. That clears the way for electric utilities in the state of Arkansas.

Karen Perry: Brett can you give some examples of what speeds are being offered across the field by electric Co-Ops are roughly how much people are charging or companies are charging?

Brett Kilbourne: Sure. I can tell you that. I'm sure Randy has also got a good sense of what other utility companies are offering. Yes, it ranges from \$80, you know, for 100 megabit services or even gigabit services eventually up to about \$100 for gigabit services. That's typically what they're offering around the country for those.

They have a service package that's the start probably at about \$50 for a triple play type of package. Yes that's what you'll see generally, you know, amongst various different electric cooperatives whether you're looking in one area or the other. Randy you want to try to add anything to that?

Randy Klindt: Most of the cooperatives that I work with typically try to price their entry level which is 100 megabit service at \$49 or \$59 and then gigabit services from \$79 to \$99.

Karen Perry: Isn't that a nice phrase, entry level at 100 megabits per second particularly in rural America? There are some states that have restrictions about municipal broadband or community broadband. One of our questioners wants to know if those restrictions are equally applicable to electric Co-Ops or if you've been able to deploy in places that do have limitations in the legal framework.

Paul Belk: There are within the state of Georgia there are certain things. For instance, there's what's called the EMC Enabling Act. There's probably a form of this in most if not all states I suppose. Some states are very hands off with EMCs. However in the state of Georgia they're not real prescriptive about it but they do outline four baseline things that are very clear that – makes it clear that what they can serve.

The consensus is that it's undetermined as to whether or not within the state of Georgia. There have been some steps taken to protect EMCs whether it be a subsidiary or really even an organization that's separate from the EMC to render service. You do see some of that going on within the United States. Brett may have a different vantage point on that.

Brett Kilbourne: No you're right. You know, possibly I think 20 states that actually have restrictions on public power primarily utility broadband and most recently in Tennessee they passed a law that not only provides a new subsidy program but also allows the Co-Ops to be able to offer retail broadband. Previously they were restricted and...so long as they're not competing with a private entity. The idea behind it is, you know, they want to allow the electric cooperatives to go out and be able to provide broadband to those un-served areas in the state of Tennessee.

Karen Perry: A number of questions are interested in learning more about the relationships that these companies that your Co-ops and your networks have with other retail service providers, including the traditional providers both in the planning stages. Are you working in areas where some of those providers have some presence and then once your networks are built are you using ever a wholesale retail model where service providers are riding on your network?

That's an important one so I'd love if each of you would comment on the relationship between your networks and your services and traditional existing or new service providers.

Brett Kilbourne: I'll jump in. For folks that want to dive in as well please chime in. We do have some providers that – there's the utilities that are actually offering a wholesale model. The one that leads to mind is Huntsville. They are deploying the fiber and then they are leasing it to third party ISPs, most notably Google. That has used the capacity on the Huntsville fiber network to be able to provide service in that area.

There are other utilities that, you know, are strictly wholesale. They provide long haul transport to all kinds of third party providers whether they're telcos or broadband service providers. They tend to be some of the larger utilities

whether they're generation and transmission utilities or large public power providers or big investor owned. That represents, I don't know, a recognized resource to a certain extent and one that I think has a lot of potential in the sense that even though they're not retail providers they can certainly enable access into some of those rural areas by providing that backbone that's needed to be able to get into the middle mile. I'll stop there. Randy, Paul you guys want to add anything?

Paul Belk: For us, you know, we provide wholesale services from, you know, just terminating traffic from other providers on to the network meaning that someone needs a 10 megabit circuit to service multiple locations and if it's AT&T or if it's Comcast we provide that service.

On one level we're wholesale. On another level they are retail service providers through our membership that provide internet service products throughout the region. It's what they call co-opetition or fairly incestuous business I suppose. There's one interesting...

Karen Perry: I like co-opetition much better.

Paul Belk: Yes I know. Well co-opetition is really the term that's really made it – it's just relevant. It makes sense because you can't be in all places and all things to all people. Even AT&T knows that. They have to have off-net providers so why not co-ops operate in that way?

Karen Perry: Let me ask you one final question and I'd like a quick response from each one of you. These are really high capacity deployments in rural areas. Can you give an example of a regional or local economic benefit that you've seen as a result of your network deployment? Paul would you like to start that one off?

Paul Belk: Sure. We've seen our medical industry absolutely explode. Namely Northeast Georgia Medical has expanded their disaster recovery presence throughout the northeast sector of the state. Their satellite offices are opening up faster than we can get them connected. They're all of course gigabit speeds and greater. And then of course our schools are also equipped with gigabit capacity.

I think with this in the economic development formula comes to mind is that if we have sufficient facilities and broadband access for young people to use as a tool to learn and to go to school locally and create jobs locally. We've even seen some even data centers that have located within our region because there's multiple providers, not just one and the tax incentives were decent.

You know, everything ranging from, you know, higher education to material movements of people actually coming...and one other thing too that I think is a benefit is we're seeing where folks that are work from home are actually bringing more of their assets or more of their business into our region because they no longer have to really treat their second home as really second class. They can work out of it.

We have a large second home community around lakes in the north Georgia region and it's – we have a lot of people from Atlanta come to play but they are now showing signs of staying. It's interesting to see the dynamic.

Karen Perry: Randy do you have an economic benefit that you wanted to mention from your experience?

Randy Klindt: Yes. Real quick Co-Mo Electric project, we did an analysis and it goes to the last point I made in my presentation, that we saved our members on average \$25 per month in service which injected about \$4 million a year in

discretionary income back into our members' pockets. Also Co-Mo has been named by the Forbes Technology Council as one of the top ten areas for where the next Silicon Valley will pop up because of their gigabit service that they've launched. It's not national attention from Forbes listed alongside Shanghai, China, Toronto as well and even Atlanta because of its low cost of living and gigabit internet service. Those are probably the two quickest examples I can think of.

Karen Perry: Brett I got to tell you his examples were so good that I think we're going to wrap it on that. I'm going to hand it back to Scott to close out this webinar.

Scott Woods: Thank you Karen and the participants for your questions. As we conclude today I want to remind you all that Broadband USA is available to provide technical assistance to help expand Broadband capacity and promote digital inclusion and broadband adoption. For more information please email us at broadbandusa@ntia.doc.gov or you may visit our website for more information.

Finally Broadband USA's webinars are scheduled for the 3rd Wednesday of each month at 2:00 pm Eastern. Please note that we will not have a webinar next month in December. We thank you all for joining us today and please join us again on Wednesday, January 17, 2018 for our next webinar on innovative funding solutions for digital inclusion programs. Thank you all and have a great afternoon.

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