

**CONNECTING URBAN AND RURAL AMERICA: THE
STATE OF COMMUNICATIONS ON THE GROUND**

FIELD HEARING

BEFORE THE

SUBCOMMITTEE ON COMMUNICATIONS,
TECHNOLOGY, AND THE INTERNET

OF THE

COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION

UNITED STATES SENATE

ONE HUNDRED THIRTEENTH CONGRESS

FIRST SESSION

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AUGUST 19, 2013
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ONE HUNDRED THIRTEENTH CONGRESS

FIRST SESSION

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CONNECTING URBAN AND RURAL AMERICA: THE STATE OF COMMUNICATIONS ON THE GROUND

MONDAY, AUGUST 19, 2013

U.S. SENATE,
SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY, AND
THE INTERNET,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Little Rock, AR.

The Subcommittee met, pursuant to notice, at 9 a.m. in the Board Room, Electric Cooperatives of Arkansas, Little Rock, Arkansas, Hon. Mark Pryor, presiding.

OPENING STATEMENT OF HON. MARK PRYOR, U.S. SENATOR FROM ARKANSAS

Senator PRYOR. I will go ahead and call our meeting to order here. First, I want to say thank you all for being here.

This is a committee hearing for the Senate Commerce Committee. And there is a subcommittee called Communications, Technology, and the Internet, so this is an official subcommittee meeting. We are following all the protocol that we use in the Senate.

So let me just say thank you for everyone who is here in attendance, especially for our panelists and all the things that you are going to talk about today.

The title for this hearing is “Connecting Urban and Rural America: The State of Communications on the Ground.”

And before I say another word, I want to thank the Arkansas Electric Cooperatives for allowing us to use their facilities today. Not only are they beautiful but they are very functional. And we are very appreciative to Katrina Weyland, who I saw earlier—she was the first person I saw when I walked in—and also Carmie Henry, of course, who has been at the co-ops for a long time and always does great things. But I want to thank the Arkansas Electric Cooperatives, as well as Duane and many others who I have met here today and just say thank you.

Also, a special welcome to FCC Commissioner Jessica Rosenworcel, who is here. And she is going to stay here on the panel, so to speak, and certainly we would love to get her thoughts and insights as we go.

You know, the nation’s communications sector is the most dynamic and innovative part of our economy. Whether it is things like traditional wireline or wireless or broadcasters/cable/satellite,

or some mixture of those things, lots of investment, lots of innovation, and it has been amazing to watch and amazing to see.

We have a lot of people sitting around this room who really will play an extremely important part in Arkansas's future to make sure that we get this technology here in our state.

And that kind of goes to really the driving mission, one of the central challenges that we have on the CTI Subcommittee and something that I take very personally, and that is: How do we make sure that these great, cutting-edge, amazing services reach everyone, not only urban areas but also rural areas and also people that either maybe don't have the economic ability or maybe have a disability of some sort or another? How do we make sure that it reaches everyone?

And I think one of the things we do not want to see is the tale of two Americas, where you have urban and suburban America that have the latest and greatest and best technology and they have the investment and the innovation and all those good things, and then you get rural America, that is just left behind with second-rate, third-rate telecommunications services. That is not good for rural America, but really it is not good for anyone.

And as we go through the day, we are going to hear things about why this is important and why the Congress should continue to create conditions for things like job creation, innovation, investment, and other aspects that telecommunications brings with it.

So I am proud to be the Chairman of this Subcommittee. Just for the folks in the room from Arkansas who haven't participated in these in Washington, we have had four what we call "state of" hearings. And so the idea was, this year, to start the year with these four "state of" hearings. So we had the state of rural communications, the state of video, state of wireless, and the state of wireline. And we brought a lot of people together to look at the marketplace, look at the regulatory environment. We were able to talk about this nationally, get the big-picture view of this.

But today's hearing is really the culmination of those four hearings, in the sense that Arkansas is a great microcosm, that we can really look at this in more detail, in a more granular way, because we have in this state all those same challenges. We have the urban versus the rural. We have, you know, income complexities. We have things like the diversity of terrain—just, you know, challenges left and right, to make sure that we do this right.

But the great thing about Arkansas is we have people here on the ground who are very, very committed to making it run and run right and run well.

So I would say, if you think about telecommunications and the impact that it has on all of our lives, it is pretty astounding. I mean, it is as simple as just calling a friend and talking about what is going on there, or a loved one, something like that, all the way to making those 911 and other emergency calls that when you absolutely need it, you have to have it, because it really does save lives. And, you know, there are a lot of things in between, about watching local news, local sports, just being involved with your community and finding out what is going on there. People are taking classes online. They are conducting more and more business online.

Now, with all these new technologies, you can have a tablet, you can watch local TV on your tablet, you can stream movies. I mean, it is just this never-ending series of applications, this technology, that really is impacting lives.

And it is not just a luxury; it is something, again, that has become extremely important in our economy. And one thing that we need to remember is that now economic growth is going to be tied to this, and economy opportunity. We want to see Arkansas stay competitive. We want to continue creating jobs. We want to continue to see us improve education, improve health care. And this is one of the real levelers when it comes to providing cutting-edge, best-in-class rural health care. But also this comes to safety and keeping people safe and being able to do things that we have really never been able to do before.

So, here again, you look at Arkansas. We have this great ecosystem here. We have people that know each other, that want to work together, want to get it done. We have really large companies that are doing business here, and we have really small companies. We have a Fortune 500 company that is based here. We have innovative people. And, as I said before, we have lots of challenges.

So let me just run through our three panels very quickly and tell you how we are setting up today. The first panel is designed to understand the benefits of broadband and the status of its deployment and adoption across the state. The second and third panels will be from wireless and wireline providers, broadcasters, and other media representatives working to bring services to Arkansas.

And then at the end of today's hearing, you know, the goal is that we would have a more thorough understanding of the national and state challenges and that we would, that I would, know what needs to be done to not just improve telecommunications for the end user but also to create this environment where we continue to see the innovation and all the things, you know, that this technology promises.

So, again, I want to thank all of you all again. And we are going to go with our testimony in just a minute, but first I wanted to introduce our FCC Commissioner, Jessica Rosenworcel. She was on the Senate Commerce Committee staff, and she and I worked on at least one piece of legislation that was signed into law by the President, but, actually, we worked on several pieces of legislation. And she has been very, very good on the FCC, and let me turn the microphone over to her.

And, by the way, you push this little button, I think the one that is closest to you on the table.

Go ahead.

**STATEMENT OF HON. JESSICA ROSENWORCEL,
COMMISSIONER, FEDERAL COMMUNICATIONS COMMISSION**

Ms. ROSENWORCEL. Thank you, Senator Pryor. Thank you for having me here. It is a treat to be here in Arkansas, and I look forward to hearing from the slate of witnesses we have.

So I have been a Commissioner at the FCC for a little over a year, but I have actually worked on communications and rural communications for many years. In fact, before making my way to the Commission, as the Senator just said, I worked up on Capitol

Hill as Senior Communications Counsel to the Senate Commerce Committee.

So in that role I had the opportunity to work with Senator Pryor, and I know firsthand how he puts the people of Arkansas first. But more than that, I know he knows how important it is for all Americans, no matter who they are or where they live, to have access to modern communications.

And if you want proof, you can look at his leadership in the passage of the 21st Century Communications and Video Accessibility Act. It is a law that extends access to digital-age communications to all Americans, including those with disabilities. Now, he won't brag—that is probably not the Arkansas way—but I will. Because of this law, he is actually responsible for one of the biggest and most substantial communications laws in decades.

So it is a treat to be here, and I thank him and the Subcommittee. And I am looking forward to hearing directly from people who work hard every day to make sure that all Americans are connected.

Because on this front we have made real progress. In fact, more than 80 percent of American households in this country now have access to broadband at 100 megabits. The United States leads in the world in fourth-generation LTE wireless deployment. And carriers serving rural America have made real gains in some of our most remote communities, and this progress has created opportunities for businesses, for jobs, for education, for health care, and for civic life.

But there is no rest for the weary because laurels are not, in fact, good resting places. Time is marching on and technology advances, and every day there is work to do to make sure that rural America is not left behind.

This is true right here in Arkansas, and the FCC data demonstrate that with clarity. It tells us that over 13 percent of those in Arkansas lack access to broadband, and in rural areas the number is even higher. Moreover, across the state, broadband adoption is just about 48 percent. So we have work to do, because it is important that nobody in this state or this country is consigned to the wrong side of the digital divide.

Now, at the FCC, we have a range of programs and policies that can help, if we do our jobs right. We have upcoming spectrum auctions that can extend the reach of wireless broadband service to more rural areas. We have ongoing work on the IP transition, which is an effort to foster investment in next-generation networks across the country. We have a Universal Service Fund to help support communications in rural areas. But we need to make sure recent updates to this program help and not hurt rural deployment.

We are updating our E-Rate program that connects schools and libraries to the Internet. And this is especially exciting because I think if we change its focus from just connection to capacity, we are going to make real progress with digital-age education.

Finally, we have also updated our policies to support rural telemedicine through our Healthcare Connect Fund. And I think this is a good thing not just for health care; it is going to help further with rural broadband deployment.

So we have a lot going on, a lot of work to do. But Washington is awfully long on talk and short on listening, so today I want to flip that script and I want to listen to you and I want to learn.

So thank you for having me here, and I look forward to your testimony.

[The prepared statement of Ms. Rosenworcel follows:]

PREPARED STATEMENT OF HON. JESSICA ROSENWORCEL, COMMISSIONER,
FEDERAL COMMUNICATIONS COMMISSION

Thank you, Senator Pryor, for your kind introduction. I am honored to speak at today's hearing on the critical communications issues facing rural America. I also look forward to hearing the testimony from today's impressive panels of witnesses.

I've been in this job for a little over a year, but I've worked on communications issues facing rural America for many years. I saw them when I worked down in the trenches as Commission staff and in the private sector. And I saw them when I had the privilege of serving the Senate Commerce Committee as Senior Communications Counsel. That is also when I had the tremendous opportunity to work directly with Senator Pryor. I was able to see first-hand how Senator Pryor fights for the people of Arkansas. I know he knows how important it is for all Americans—no matter who they are, or where they live—to have access to affordable communications. This basic truth was born out with Senator Pryor's leadership in the passage of the Twenty-First Century Communications and Video Accessibility Act, which extends access to digital age communications to all Americans, including those with disabilities.

Today, I salute Senator Pryor for holding this hearing and for allowing us to hear directly from the people who work so hard to connect all Americans. We've made real progress on this front. Today, more than 80 percent of American households have access to broadband at speeds as high as 100 Megabits. The United States leads the world in 4G LTE wireless deployment. And our dedicated rural carriers have already brought communications to some of America's hardest-to-reach communities. This has created new opportunities for jobs, education, healthcare, and social and civic engagement. We have made progress. We should be proud.

But laurels are not, in fact, good resting places. Because—as we have seen through a series of hearings convened by Senator Pryor—communications markets are changing at a breathtaking pace. Time marches on, technology advances, and there is work to do every day to make sure that our rural communities are not left behind.

So today, I would like to mention some FCC priorities that hold great promise for the connectivity for rural Americans and Arkansans: incentive auctions, and updates to our universal service programs, especially the E-Rate program and the Healthcare Connect Fund.

First up, incentive auctions.

It is no secret that the demands on our airwaves are growing. Look around and the reasons why are obvious. We are now a nation with more wireless phones than people. Add to this that one in five households now has a tablet computer. But this is only the tip of the proverbial iceberg. Because what is emerging is a whole new world of 50 billion wirelessly interconnected devices—the coming Internet of Things.

This means we are facing a seismic shift in the demand for our airwaves. To understand how we will manage this challenge going forward, it is useful to briefly look back.

For nearly two decades, the Commission has led the world with its commercial spectrum auctions. We have held more than 80 auctions, issued more than 36,000 licenses, and raised more than \$50 billion for the United States Treasury. Our efforts are a model for wireless providers and governments around the globe.

Going forward we have a new kind of spectrum auction on the not-too-distant horizon.

Courtesy of Congress and the Middle Class Tax Relief and Job Creation Act, the Commission now has the ability to conduct spectrum incentive auctions. This is different. We are now permitted to provide incentives to existing spectrum licensees to voluntarily return some or all of their airwaves in exchange for a portion of the revenue from the subsequent re-auction of those airwaves for new commercial uses.

This is a smart way to make efficient use of spectrum, which is a limited government resource. And this is instructive. Because across the board in communications we are going to have to look for new and creative ways to make use of scarce government resources.

But make no mistake, these auctions are an epic undertaking. They will require a special brew of economics, law, and engineering. Our rulemaking process is just underway. It will consume a lot of energy to do this well—and do this right.

It also will require a lot of good ideas from anyone and everyone with interest in spectrum. I know many rural providers are either already providing wireless services or are considering how to do so. The 600 MHz spectrum that will be available through this auction is well-suited for rural applications. It has great propagation characteristics because it can cover vast distances with limited tower construction.

Second, universal service. More than a year and a half ago, the Commission took historic steps to update its high-cost universal service fund and intercarrier compensation system. Though it predated my arrival at the Commission, I commend my colleagues—past and present—for their effort. They refocused the high-cost universal service system from last century's technology on the broadband and wireless challenges of this century. They put it on a budget. And they increased accountability throughout.

But as I've said before, I worry that our reforms to the high-cost universal service system are extremely complex. I fear that this complexity can deny carriers dependent on them the certainty they need to confidently invest in their network infrastructure. So when opportunities arise to simplify our rules in a manner that is fiscally sound, good for rural consumers and bound to inspire investment—we should seize them.

Recently, we have done just that. We did it when we adopted changes to our regression model to provide rate-of-return carriers with additional flexibility to meet our new limits. We did it when we adjusted our rules to distribute a second round of incremental support from first phase of the Connection America Fund for price cap carriers. We should be willing to make further changes when doing so simplifies our rules, does not break our budget, and brings better service and more investment to rural communities—Arkansas included.

Third, the E-Rate program. The E-Rate program may not be as well known as our high-cost universal service program, but it has done mighty things to connect both rural and urban schools and libraries across the country. As the Nation's largest education technology program, it has connected 95 percent of schools and libraries to the Internet since its inception in 1998. But the job is not done. Because we are quickly moving from a world where what matters is connectivity to a world where what matters is capacity. Already, year-in and year-out, the demand for E-Rate support is double the roughly \$2.3 billion the Commission now makes available annually. Moreover, the agency's own survey indicates that 80 percent of schools and libraries believe that their broadband connections do not meet their current needs.

Let's be honest. Those needs are only going to grow. School administrators are facing tough choices about limited bandwidth in the classroom. How to divvy it up, what grades and classrooms get it, and what programs they can run on it. This means that without adequate capacity our students are going to fall short. They will be unable to realize the full potential of digital learning. That's a serious problem.

But this is not just a matter of getting schools and libraries connected; it's a matter of our global competitiveness. Welcome to the world that is flat. Knowledge, jobs, and capital are going to migrate to places where workers have digital age skills, especially those in science, technology, engineering and math—or STEM fields. In fact, the Bureau of Labor Statistics tells us that here at home over the next five years we will have over 1 million STEM-related job openings. STEM jobs are growing at a rate three times faster than all other occupations. And even opportunities outside of STEM will be increasingly digitized, and students in Arkansas and every state will need technology skills to become competitive in the worldwide workforce.

But we fail our students if we expect digital age learning to take place at near dial-up speeds. A recent Harris survey found that roughly half of E-Rate schools access the Internet at speeds of 3 Megabits or less. That is too slow for streaming high-definition video and not fast enough for the most innovative teaching tools. Add to this that in the United States, out of 42,000 high schools, only 2,100—five percent—offer computer science courses.

Contrast this with efforts underway in some of our world neighbors. They are pouring resources into these subjects, into schools, and connectivity. For example, in Singapore 100 percent of schools are wired with high-speed broadband. In South Korea, 100 percent of schools are also connected to high-speed broadband. With so much capacity, an effort is underway to transition all students from traditional textbooks to digital readers in 2016. In Uruguay, through a national program, nearly all primary and secondary schools have been connected and every primary school

student has access to a free laptop. Uruguay also has revamped its secondary school science and math curricula adding robotics and national math competitions.

For now, we can recognize that these countries are smaller than the United States. They have different cultures. They have different education systems. But we can still take from these examples that improving broadband capacity to schools for digital age learning must be a national priority. If we fracture this effort and leave it to every local school jurisdiction we will miss opportunities for scale and savings. Yet in the end the point is a simple one. Access to adequate broadband is not a luxury—it is a necessity for our next generation to be able to compete. Just like in my day you wouldn't have a classroom without a blackboard, today we shouldn't have a classroom without broadband.

We are at a crossroads. We have a choice. We can wait and see where the status quo takes us and let other nations lead the way. Or we can choose a future where all American students have the opportunity to gain the skills they need to compete, no matter who they are, where they live, or where they go to school.

For my part, I believe that it is time to compete. It is time for E-Rate 2.0. We need to protect what we have already done, build on it, and put this program on a course to provide higher speeds and greater opportunities in the days ahead.

So I am especially pleased that last month, the FCC began this process with a rulemaking. There are two issues I believe deserve our immediate focus if we want to see E-Rate 2.0 up and running fast. We need to focus on setting capacity goals and simplifying the application process.

First, E-Rate 2.0 must be built on clear capacity goals. By the 2015 school year, every school should have access to 100 Megabits per 1,000 students. Before the end of the decade, every school should have access to 1 Gigabit per 1,000 students. Libraries, too, will need access on par with these capacity goals. Capacity goals will create scale for content and device providers that will help bring the potential of digital learning to all schools. And the spillover effect for this kind of broadband in local communities is substantial. Building Gigabit capacity to anchor institutions like schools and libraries is the ticket to Gigabit cities and the ticket to digital education and economic growth.

To get to these goals, we need to take a hard look at the existing program. We need to collect better data from each of our applicants about what capacity they have and what capacity they need. Then I think we can make adjustments to how we prioritize funding to ensure that schools shorter on capacity get greater access to support.

As part of this hard look, we should phase down the estimated \$600 million we currently spend on outdated services like paging and free up those funds for more high-capacity broadband. But growing this program is about growing national infrastructure and enhancing educational opportunity for the next generation. It is a conversation we need to have, because it is where we need to invest now.

Second, we need ideas from stakeholders far and wide about how to simplify the application process. I can tell you from my experiences speaking about E-Rate during the last several months that nothing gets applause like the promise of simplifying the process. I hope we can take a fresh look at how the complexity of our existing system can deter small and rural schools from applying. To this end, in our rulemaking we ask about the feasibility of multi-year applications. This could substantially reduce paperwork and administrative expense. We also ask how to encourage greater use of consortia applications. This could mean greater scale and more cost-effective purchasing. I think these are good ideas. We should be open to others—especially from those who know the challenge of filling out these forms year-in and year-out.

So let's seize the powerful combination of broadband, plummeting device costs, and increasing opportunity for cloud-based educational content. Let's work together to reboot, reinvigorate, and recharge the E-Rate program for the 21st Century.

Lastly, we are working to connect rural healthcare institutions through the Healthcare Connect Fund. Telemedicine is no longer a dream for the distant future. It is here and now, and it can be an integral part of modern medicine. More than 5 million Americans had their medical images read remotely last year and 1 million Americans currently benefit from remote cardiac monitoring for implantable devices. In hospitals, a full 10 percent of all intensive care unit beds now use telemedicine in some form. Add to these numbers the tens of thousands of mobile health applications available on smartphones—and you quickly get the picture. Technology is changing the nature of medicine and the way it is practiced in communities in urban areas, rural areas, and everything in between.

All of this is impressive. But the best is yet to come. Imagine how telemedicine can help keep local bonds strong in rural communities by fostering aging in place. Imagine how it can reduce the costs and risks of patient transport. Imagine how

it can link rural patients to specialists in urban areas. The Commission has already contributed to the success of telemedicine by across the board increasing access to wireless and broadband networks that support a range of new health IT applications. And this year, for the first time, we make funding available under our new \$400 million Healthcare Connect Fund. Under the program, eligible health care providers can apply to receive funding to cover 65 percent of the cost of either broadband services or healthcare provider-owned networks.

We hope that with our updated Healthcare Connect Fund, we can continue to work with our Federal partners in other agencies to make sure that our efforts are always in concert. And we hope that we can work with our state partners to ensure that state medical licensing policies can foster, rather than hinder, the potential for telemedicine to improve medical care in the digital age.

Thank you to Senator Pryor for organizing this hearing. I look forward to hearing from the witnesses about connecting rural and urban communities in Arkansas.

Senator PRYOR. Thank you, Commissioner Rosenworcel. It is great to have you here. And I hope when you are in Arkansas it is not all work, work, work. I hope you have some fun while you are here too.

Let me go ahead and introduce this first panel. There is really no particular order on this, but I am just going to introduce everybody, you know, all at once, and then we will just go around and let everybody have their time for testimony.

I think we are asking everyone to limit their opening statement to 3 minutes, if possible, and then have plenty of time for discussion as we go.

So let me just say, first, we have Jeffery Hall. He is with the Arkansas Farm Bureau. Sam Walls III is President of Connect Arkansas. Michael Manley is Director of Outreach, University of Arkansas for Medical Sciences; he is at UAMS. Lang Zimmerman, he is really wearing two hats today: Vice President of Yelcot Communications, but he is also Commissioner of the Arkansas Economic Development Commission, which is great. And I just saw him last week. David Merrifield, he is with Arkansas Research and Education Optical Network. And Susan Harriman, she is a member of Fast Access for Students, Teachers, and Economic Results, which they call FASTER.

So let me just do this. Mr. Walls, if you don't mind, why don't we start with you and just go around the table this way. How does that sound for simplicity? Thank you.

**STATEMENT OF SAM WALLS III, PRESIDENT,
CONNECT ARKANSAS**

Mr. WALLS. I am just curious how someone with the last name of Walls starts first alphabetically.

[Laughter.]

Mr. WALLS. But thank you, Senator, for the opportunity to present today.

My name is Sam Walls, and I am Senior Vice President with Arkansas Capital Corporation and President of Connect Arkansas, which is a 501(c)(3) private nonprofit with a mission to prepare the people and businesses of Arkansas to secure the economic, educational, health, social, and other benefits available via broadband use.

We have been primarily funded through two grants from the 2009 Recovery Act, NTIA Broadband Technology Opportunities

Program, as well as some state matching funds and some contributions from service providers.

We are not a service provider, so our focus has been solely based on the idea of driving people—why are people not adopting the Internet, and how can we help overcome those obstacles? Through our surveys and outreach, we kind of broadly put those in two boxes. We are talking about accessibility and lack of broadband education.

From the accessibility side, the first question obviously is, do Arkansans have access to Internet? And working with service providers over the last several years, we have produced a pretty accurate coverage map that tells us, if you take out satellite Internet, 98 percent of Arkansans have access to broadband Internet. Take out wireless broadband, that drops to 92 percent. So, on the face, those statistics would show, at least from the ability to get on, that a majority of Arkansans have it.

To be fair, the definition of “broadband” in that one is 768-kilo-bits-per-second download. So there is an argument to be made whether that is—some people certainly would say that is not sufficient for a lot of today’s applications. But that is the definition we have used. From our surveys, we do know that in some areas of the state speed and reliability are still an issue.

We then ask, okay, if they have access, what are other barriers to keep them offline? And, clearly, the two big ones are cost of service and cost of equipment to get online. And cost of service is, again, going to be driven in large part by what type of technology you are trying to utilize, where you are located, and how much competition is in that particular footprint. And then buying the equipment is as simple as, obviously, some families’ income levels are such that they can’t make that initial investment to get online.

Going to the next one, it is—all right, so you have the access issue. What is the other piece that is keeping people offline? And that is where we get a lack of broadband education. And we kind of break that into two categories. It is those that question the relevancy of it still in their life, and then are those that they know it is relevant but they are intimidated by the process. Certainly, a lot of our older Arkansans may fall into that box.

Through our grants, Connect has tried to identify these things and has come up with various ways to try to help people overcome these, to explain the relevancy, to teach them and work with other groups to get them comfortable with the Internet.

In my last few seconds here, you know, a lot of the conversation is and will continue to be on the delivery platform side—how much money we spend to expand access, to expand speeds. And, certainly, that is the larger question.

We, however, have seen the value of the grassroots-type initiatives that we do on that end. And we would ask that, you know, as you continue going forward and look to put resources to it, it is a phenomenal ROI to continue to put forth this grassroots effort to support those type of things that Connect and other groups have done—we are certainly not the only one in this box—and not only build it from the outside but help us push the adoption from the inside.

And the analogy that has been used often is that it is the same efforts that were years ago in the rural electrification and getting people to adopt just basic electricity in their homes. It is the same thing here. And this thing will grow faster and get the benefits quicker if we attack this on both ends.

I do appreciate your time today. Thank you.

[The prepared statement of Mr. Walls follows:]

PREPARED STATEMENT OF SAM WALLS III, PRESIDENT, CONNECT ARKANSAS

Good morning. My name is Sam Walls and I am a Senior Vice President with Arkansas Capital Corporation and President of Connect Arkansas, a private nonprofit dedicated to increasing high-speed Internet adoption in Arkansas. Connect Arkansas was created in 2007 in response to the Connect Arkansas Broadband Act passed by the Arkansas legislature that same year. The Act states that Connect Arkansas's mission is to "prepare the people and businesses of Arkansas to secure the economic, educational, health, social, and other benefits available via broadband use."

To date, Connect's primary source of funding has been from two Federal grants from the 2009 American Recovery and Reinvestment Act through the United States Department of Commerce's National Telecommunications Information Agency's Broadband Technology Opportunities Program. This funding is projected to end by September 2014. The State of Arkansas has also provided matching funds for these grants as well as many service provider.

Connect has conducted numerous surveys of Arkansas citizens and the results show that barriers to Internet adoption can be stated broadly as: Access and Education. Connect has attempted to address issues within the parameters of its Federal and state grants.

When looking at Access, Connect first asked whether Arkansans have the ability to connect to the Internet if they so desired. Connect developed, in partnership with over 75 broadband providers, a detailed broadband access map of Arkansas. This map is updated biannually and is available online. Today, not counting satellite Internet access, but including mobile wireless Internet, 98 percent of the Arkansas population has access to broadband Internet. Without mobile wireless, 92 percent have access. Those percentages on their face would indicate that availability is not an issue for most Arkansans. It is important to note, however, that for purposes of these statistics, broadband Internet is defined as 768 kilobits per second download speed. There are those that would argue that these speeds are not adequate for many of today's applications. From our surveys and feedback from consumers, we do know that the "quality" of the available broadband Internet access is a concern for some with lack of speed and reliability are the most common complaints.

Continuing to explore the issue of broadband Access, Connect has asked the question: Why are Arkansans that do have Internet availability in their area not subscribing? As one would expect there are a number of reasons. In no particular order:

- Cost of service is a common response to this question. Pricing for Internet service varies widely depending on what technology is being used, where a person is located and lack of competition. While for some people, this issue is more that they do not view the Internet as a necessity. For many others, however, it does come down to a lack of resources to pay for it. Connect Arkansas has worked with various services providers to develop a discount broadband program for low-income families and we are seeing more services providers offer similar programs on their own.
- Cost of equipment to access the Internet is another issue for some. Many families state that they cannot afford the initial expense of purchasing the equipment necessary to get online. Connect has attempted to address this issue through its Computers for Kids program and its Discount Computer Program. Since 2011, Connect has distributed over 1,300 free, refurbished, Internet ready computers and provided training to families utilizing the free or reduced lunch program. In a recent survey, over 60 percent of those families are now Internet subscribers.

Lack of Access though is not the only issue that has kept Arkansans from adopting the Internet. Connect has looked deeper into the problem and asked that for those Arkansans that DO have Internet availability AND can afford the equipment and the cost of service why are they still not subscribing? Broadly speaking it is a lack of broadband education. Connect breaks this issue down into two categories.

The first category is people who do not believe they need the Internet. Connect surveys in 2012 show that 36 percent of non-adopters view the Internet as not relevant to their daily life. Responders stated that they were, “not interested”, “it was a waste of time” or that “they did not need or want it”. This is an improvement from 2011 surveys that showed 47 percent with this sentiment.

To reach out to people in this segment, Connect has applied a strategy where it promotes relevancy to people’s lives through various initiatives such as:

- Connect has promoted telemedicine a number of ways. One of the largest efforts was through a partnership with the University of Arkansas for Medical Sciences to train nearly 3,300 medical professionals and 300 community anchor institutions on the use of new and life-saving tele-health equipment.
- Connect has partnered with the Information Network of Arkansas to build and maintain nine transactional county websites in Arkansas which has allowed citizens of those counties access to services and information that they in the past did not have access to. By the Spring of 2014 that number will be 17 counties.
- Connect has developed resources for small business owners, giving them access to information that will help them start, manage or expand their businesses. The website, called Arkansas SourceLink, launched with more than 100 Arkansas nonprofit service providers. It also includes a calendar noting upcoming training and events in the state.
- Starting in 2012, Connect began its “Get Connected” campaign using nearly 170 media outlets to promote broadband awareness, including TV, radio and newspaper advertising, as well as active ongoing public relations outreach to the media. This campaign had generated over 2,000 phone calls from people interested in learning more.
- Connect has worked in 17 counties as part of its E-Communities initiative to help leaders at the county and local levels to identify where Internet is relevant to their strategic goals in the areas of agriculture, education, economic development, government, health, libraries and tourism.
- Connect has met extensively with numerous state and local educational agencies to further the use and availability of the Internet throughout the educational system.
- Connect has set up informational booths at multiple community events to promote broadband usage and relevancy.

The second category is people who do not know how to utilize the Internet. Current students within the Arkansas educational system are receiving more and more instruction using the Internet. However, many Arkansas adults not currently receiving an education find the Internet too intimidating and foreign. This is particularly true to older Arkansans. Surveys show that this lack of education on how to use the Internet is also a significant barrier to many.

Connect independently, and at times in partnership with other organizations, has conducted Adult Digital Literacy training on topics ranging from Internet security and safety to communicating with family and friends using high-speed Internet. Since January, more than 500 adults—mostly senior citizens—have taken advantage of this opportunity. Connect has partnered with the Arkansas Small Business and Technology Development Centers to offer their “Website in a Day” and Social Media/*Getlisted.org* Training in 57 counties. These are free opportunities for small business owners, tourism and history officials, and economic developers to see the ease of building and launching a website and embracing social media and promotion of virtually all search engines. Nearly 300 business owners and governmental workers have received training. Connect has taught e-entrepreneurship classes to 2,140 7th–12th grade students using I-pads emphasizing e-commerce and website development and has hosted an online high school business plan competition with over 220 students and teachers having participated.

There is no question that broadband can have a transformative impact on Arkansas. State leaders are constantly striving to positively affect the lives of our citizens through improving education, raising the per capita income, expanding and enhancing access to quality healthcare among other efforts. Widespread access and adoption of broadband Internet by Arkansans arguably will be a fundamental necessity when trying to develop strategies for these efforts. Currently, 71 percent of Arkansans have Internet in their home which actually compares favorably to the national average of 62 percent according to the Pew Foundation. Service providers will continue to expand and improve coverage within the state and entities like Connect Arkansas will strive to grow Internet adoption and usage by our citizens.

Connect would like to inform this hearing that on Thursday, September 26, there will be a one day conference held in Little Rock called the “Connecting Arkansas Internet Conference” in which state leaders will meet to discuss current broadband issues facing our state. We certainly invite anyone here today to attend, there is more information and registration on our website, *connect-arkansas.org*.

On behalf of Connect Arkansas, I would like to thank you for the opportunity to present today and applaud your continued efforts on this subject.

Senator PRYOR. You bet. Thank you.
Mr. Manley?

**STATEMENT OF MICHAEL MANLEY, RNP, MNsc, AR SAVES
DIRECTOR, DIRECTOR OF OUTREACH, UAMS CENTER FOR
DISTANCE HEALTH, UNIVERSITY OF ARKANSAS FOR
MEDICAL SCIENCES**

Mr. MANLEY. Thank you, Senator Pryor, for the opportunity to come today. It was almost 6 years ago to the day that we were before you, before an FCC Commission meeting, talking about the future of health care and where technology could take it. My boss, Dr. Curtis Lowery, and Tina Benton presented that day 6 years ago.

I can tell you we have good news. Margaret Mead wrote, “Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.” We were a small group of 10 individuals sitting around a table dreaming of how we could help health care here in the state of Arkansas better serve not only our urban areas but our rural areas as well. I can proudly say on August 1, 2010, the UAMS Center for Distance Health was awarded \$102 million for the deployment of a healthcare educational video-imaging and data network, now known as Arkansas e-Link.

It was a daunting task, sitting around as a small group, knowing that other individuals like AT&T, Windstream, Suddenlink, and our partners that are sitting here today were probably doing the same thing. But we knew something had to change here in the state of Arkansas with health care.

We can say today that every county in the state is now part of this e-Link network. Every hospital in the state is now a part of this. Every 4-year, which Mr. Merrifield will talk about, institution and 2-year colleges, human development centers, federally-qualified community health centers, mental health clinics, home health agencies—all came together here in the state of Arkansas to be able to accomplish this major task of being able to be connected.

Now, this was built on other things that already existed, such as our ANGELS Program, which took care of high-risk OB patients by using video technology so the moms could stay closer to their local provider to get their ultrasounds, to have access to four maternal-fetal medicine sub-specialists across the state. Currently, we have 23 clinics that are going, and we do over 3,000 consults a year. So these high-risk moms are getting their care closer to home.

Built upon that, also, because it was working—Arkansas also, healthcare-wise, was ranked 53rd in 2009 in stroke mortality—53rd. That means even Puerto Rico beat us. That is not good. So now, through this network, we are covering 41 hospitals across the state and their emergency department, again, with four vascular

neurologists that are being able to give t-PA clot-busting drug to patients who need it.

Does this make a difference? Absolutely. Where we used to deliver t-PA less than 1 percent of the time, we are now delivering this drug to over 30 percent of our patients that we are getting consults on. And this means better outcomes and not going to nursing homes or funeral homes but actually going home.

And this doesn't matter if you live in Osceola, DeWitt, and Helena, because we also service hospitals in El Dorado, Hot Springs, and Fayetteville.

I can report to you, Senator Pryor, that as of September 30, 2013, the Arkansas e-Link project will be fully deployed and all money spent according to the terms of the grant by the NTIA.

In closing, Arkansas is now one of the top connected telehealth educational states in the country. We are not below; we are in one of the top five. We are not ranked 49th or 50th in what we are doing with health care and education.

This project builds upon relationships that we appreciate, technology, and of course the support within the healthcare community, with one unifying theme that we continue to be held by all as we continue farther: Where you live shouldn't determine whether you live or whether you die. And we wake up every morning knowing we have much more work to do.

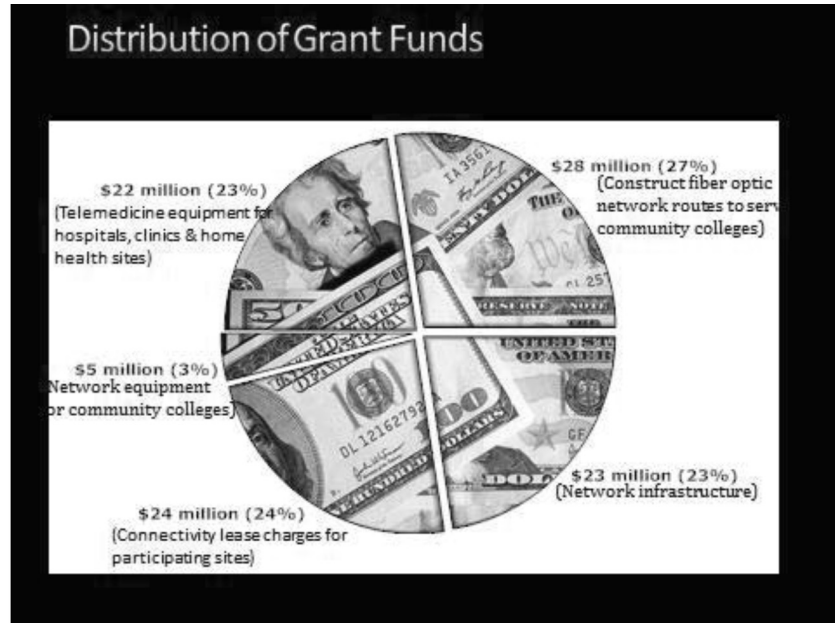
Thank you.

[The prepared statement of Mr. Manley follows:]

PREPARED STATEMENT OF MICHAEL MANLEY, RNP, MNSC, AR SAVES DIRECTOR,
DIRECTOR OF OUTREACH, UAMS CENTER FOR DISTANCE HEALTH, UNIVERSITY OF
ARKANSAS FOR MEDICAL SCIENCES

Margaret Mead wrote, "Never doubt that a small group of thoughtful, committed citizens can change the world, indeed, it's the only thing that ever has."

A small group of 10 set around a table in 2009 and thought of how we could change the face of health care here in Arkansas by utilizing proven cutting edge technology and patient centered outcome care, while spreading it across the entire state. UAMS Center for Distance Health (CDH) applied with thousands of others for a Broadband Technology Opportunity Program grant being administered by the Federal Department of Commerce. Partnering with over 400 Community Anchor Institutions (CAI) state wide, the Department of Commerce saw we had something special that would be more than just expanding broadband. On August 1, 2010, the UAMS Center for Distance Health was awarded \$102 million for the deployment of a Healthcare/Educational video/imaging/and data network later known as Arkansas e-Link.

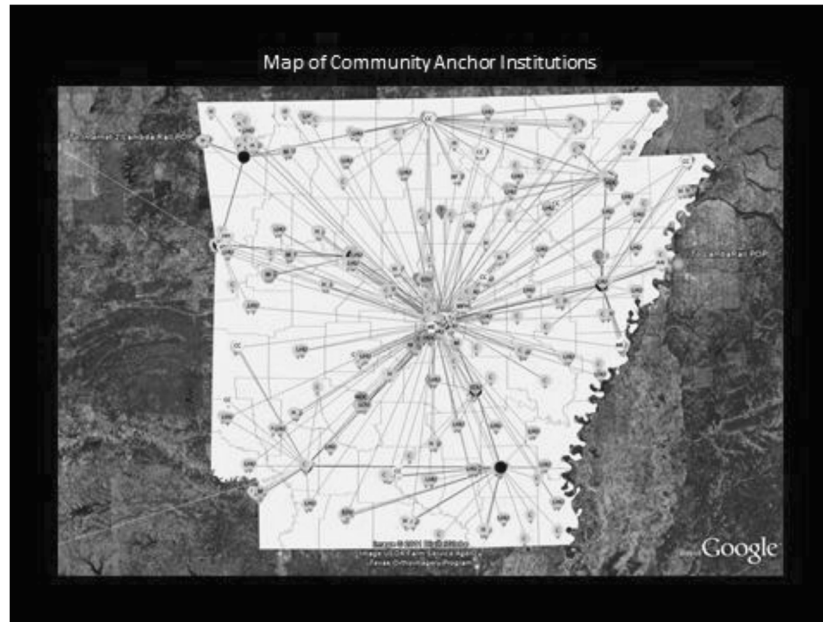


The funded service areas encompass:

- Every county in the state (75)
- Every economically distressed county in the state (69)
- Every county in Arkansas within the Mississippi Delta, the most distressed area of the country (42)
- Every medically underserved county in the state (73)
- 135 communities

The project partners with community anchor institutions including:

- Every acute care hospital, county health clinic, and center on aging
- Every four-year state university and all but one state two-year college
- All state human development centers
- A majority of federally qualified community health centers
- A majority of mental health clinics and home health agencies
- The state's only academic medical center
- The state's only publicly owned fiber optic network (ARE-ON)
- The state's only bioterrorism network
- The state's only trauma network
- Eight public libraries
- An ambulance service
- Other clinics, centers, and educational units

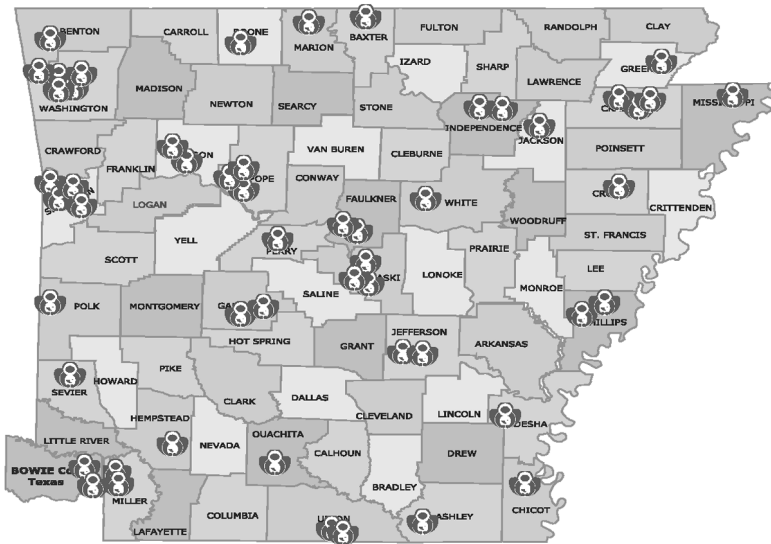


The upgraded Arkansas Telehealth Network integrated with ARE-ON in a “hub-and-spoke” system that ensures dedicated healthcare, higher education, public safety, and research activities, freeing existing circuits for public Internet use. Hubs and spokes have received bandwidth upgrades, interactive video equipment, and/or public computers based on their needs.

- Primary Hubs represent 48 sites serving large numbers of end-users that will connect to a statewide fiber network for upgrades of 100 Mbps+, enabling simultaneous management of up to 40 broadband transmissions, including distance education or clinical video conferencing, imaging transfers, record transfers, remote monitoring, and health information exchange.
- Secondary Spokes represent 74 regional sites upgraded to 10 Mbps at 59 sites and 20 Mbps at 15 sites via dedicated point-to-point connections are providing up to 15 distance education or clinical video conferences, imaging transfers, record transfers, and remote monitoring.
- Tertiary Spokes represent 352 sites serving primarily rural areas that will receive upgrades or new lines of 1.5 Mbps at 154 locations, which enables one simultaneous distance education or clinical video conference, image transfer, and record transfer. All tertiary spokes will receive equipment upgrades.

This solution did not compete with Internet Service Providers but rather contract with ISPs to provide network services.

Built on the backbone of existing prior telehealth programs infrastructure, ANGELS (Antenatal Neonatal Guidelines Education Learning System) and AR SAVES (Stroke Assistance through Virtual Emergency Support), the potential in the very near future of adding many healthcare specialties on this middle mile highway was possible through this project. ANGELS (Antenatal Neonatal Guidelines Education Learning System) was set up to take care of high risk pregnancy patients across Arkansas. The limited Maternal Fetal Medicine specialists in 2003, which were all centrally located in Little Rock, instigated the need to better serve these patients in a new way. Driven by having better patient outcomes by using this technology to take our specialists out to the patients rather than always having the patients come to them in Little Rock was the answer. ANGELS currently has 23 active telemedicine clinics across the state, and are currently serving over 3,000 consults per year via the network. Our most fragile patients now have access to the care they deserve to ensure both moms and babies have the best outcomes possible.



Taking that existing knowledge and broadband network that has been created, a proposal was again made to seek how we could better care for our acute stroke patients here in Arkansas. In 2009 when AR SAVES was started, the state was ranked 50th in stroke mortality, and overall, we were only administering the clot dissolving drug t-PA used in ischemic stroke cases to less than 1 percent of all eligible patients. Again, just for the fact there weren't enough vascular neurologists as resources in our community hospitals. After 4 years of building our program, AR SAVES currently serves 41 hospital Emergency Departments with only 4 vascular neurologists from around the state. On average, we are administering t-PA 30 percent of the time to all consults, with this number improving monthly. Time is of the essence with these patients, so not all make it under the time limitations. The AR SAVES program is not only making a difference in small rural hospitals such as Osceola, Dewitt, and Helena, but also in more urban areas such as El Dorado, Hot Springs and Fayetteville.


 The logo features a black silhouette of the state of Arkansas on the left. To its right, the word "AR" is written in large, white, bold, sans-serif capital letters, positioned above a thick black horizontal bar. To the right of this bar, the word "SAVES" is written in large, black, bold, sans-serif capital letters.


I can report that as of September 30, 2013, the Arkansas E-Link project will be fully deployed and all money spent according to the terms of the grant. The AR e-Link Program has been highlighted as a success by the NTIA at several meetings and events. But it doesn't stop here. We will continue to work to put more health and educational applications on this highway as we continue forward. This middle mile infrastructure has made a great investment into the broadband infrastructure to benefit the local communities in many ways. The next level of the individual patient for healthcare, or student in education, is coming fast and furious. You've heard "There's an app for that"? We are here to say that there is such a thing. Thousands of mobile healthcare and educational apps are being developed and deployed as we speak. The eventual migration onto this system will assist even more with better outcomes for the citizens of Arkansas.

In closing, Arkansas is now one of the top connected Telehealth/Education states in the country. This network provides the very foundation required to build a comprehensive plan to tackle the state's laundry list of health adversities. A centrally-managed, comprehensively-collaborative telehealth network will allow opportunities to build any number of programs. Our citizens will benefit tremendously from the Arkansas e-Link project, meeting needs of healthcare access to limited resources in both rural and urban areas. This project builds upon relationships, technology, and support within the healthcare community, with one unifying theme held by all, *"where you live, shouldn't determine whether you live or whether you die"*.

Who may I contact for further information?

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Senator PRYOR. Thank you.
 Mr. Merrifield?

**STATEMENT OF DAVID L. MERRIFIELD, EXECUTIVE
 DIRECTOR, ARKANSAS RESEARCH AND EDUCATION
 OPTICAL NETWORK**

Mr. MERRIFIELD. Senator Pryor and distinguished members of this panel, thank you for the opportunity to participate in today's hearing.

My name is David Merrifield, and I am the Executive Director of the Arkansas Research and Education Optical Network, or ARE-ON. ARE-ON is a not-for-profit consortium created to apply advanced communications technologies to support and elevate education, research, and economic development in Arkansas. We were first established in 2008, and our members include all of the state's public 4-year universities and nearly two dozen 2-year community colleges.

ARE-ON operates a high-speed optical network that connects all of our university and college members. Our network utilizes over 2,200 miles of dark fiber, much of which is provided by commercial providers throughout the state through long-term capital leases.

An important distinction about ARE-ON is that we own and operate the equipment that lights the fiber, rather than purchasing that service through typical and traditional communications services. This gives us enormous flexibility to uniquely tailor our network to the often-demanding needs of the community of higher education institutions that we represent.

ARE-ON delivers extremely high-speed broadband access to its members, with speeds up to 10 gigabits per second. And discussions today are under way for 100 gigabits per second. Our members receive general commodity Internet access as well as connections to national research and education networks such as Internet2 and the National LambdaRail.

ARE-ON enables the development and use of applications that leverage the high-speed network to do research and education in new and innovative ways. Broadband access without limitations permits our users to find new approaches to educational and research challenges and to collaborate with their peers and colleagues nationally and internationally.

As a sub-recipient of the \$102 million NTIA BTOP grant received by the University of Arkansas system in 2010, ARE-ON expanded its fiber-optic network to connect the 2-year community colleges throughout the state and to provide infrastructure over which, as

Mr. Manley has stated, the University of Arkansas for Medical Sciences has connected over 450 healthcare institutions statewide to form the Arkansas e-Link network.

ARE-ON would not be possible today without access to dark fiber from its commercial providers. It is our opinion that public policy and funding for national and state broadband initiatives should leverage public-private partnerships. Our investments have substantially benefited our providers by enabling them to construct more fiber, to reach more customers, to access more affordable telecommunications and Internet services, and to provide better rates and service to their customers.

It has been my honor to provide testimony, and I would be glad to answer any questions as arise. Thank you.

[The prepared statement of Mr. Merrifield follows:]

PREPARED STATEMENT OF DAVID L. MERRIFIELD, EXECUTIVE DIRECTOR,
ARKANSAS RESEARCH AND EDUCATION OPTICAL NETWORK

Subcommittee Chairman Mark Pryor, and distinguished members of this panel, thank you for the opportunity to participate in today's field hearing on the state of communications in Arkansas and the impact broadband can have on improving consumer access to telemedicine, education, and business development.

My name is David Merrifield, and I am the Executive Director of the Arkansas Research and Education Optical Network, or ARE-ON. I am a 36-year employee of the University of Arkansas, having served in Information Technology roles throughout my career, including the development and deployment of the Internet in higher education in Arkansas from the very beginning. I also hold an appointment by Governor Mike Beebe on the Arkansas State Technology Council.

ARE-ON is a not-for-profit consortium created to develop and apply advanced communications technologies to support, enhance, and elevate education, research, public service, and economic development throughout the State of Arkansas. We were established in 2008 by an agreement among the public, four-year universities in Arkansas. Our members include all of the four-year universities as well as the nearly two dozen two-year community colleges that make up the Arkansas Association of Two-Year Colleges.

ARE-ON operates a high-speed network that connects all of our four-year university members, and soon, most of the two-year colleges within the state. Our network is an optical network. That is, the network utilizes dark fiber optic cable throughout, which is then lit with our own equipment to create the communications links that tie our universities and colleges together. I want to draw your attention to an important distinction about the ARE-ON network. We own and operate the equipment that provides the light that passes from city to city, university campus to university campus, over fiber optic cable rather than purchasing traditional communications services from providers. This gives us enormous flexibility to uniquely tailor our network to the often demanding needs of our community of higher education institutions.

ARE-ON has from its inception focused on delivery of extremely high-speed broadband networking to its higher education member institutions. Besides providing access to the general commodity Internet, our robust state network connects our members to each other, to national research and education networks such as Internet2 and National LambdaRail, and to our peer state networks in neighboring states, including Oklahoma, Texas, Louisiana, and Tennessee. ARE-ON is one of nearly forty state-based networks throughout the United States, most of which utilize their own optical networking infrastructure to serve their respective constituents of educational and public institutions.

ARE-ON has also worked to create a leadership role in enabling the development and use of applications that leverage the high-speed network to do research and education in new and innovative ways. Broadband access without limitations permits our users to find new approaches to educational and research challenges. We encourage our universities and colleges to collaborate with their peers and colleagues statewide, nationwide, and internationally through the network. Such collaboration is often not possible without the ability to exchange large amounts of data or to effectively share resources such as scientific instrumentation or high performance computing clusters across the network.

Researchers, faculty, and students continue to stretch the bounds of the available networking infrastructure. Researchers utilize high performance large-scale computer clusters and huge amounts of disk storage to study everything from genomics, drug interactions, weather and climate, nanoscale technologies, marketing, and economics. Video is indispensable, for educational content delivery, day-to-day communications, entertainment, and so on, and before long today's high definition video content will give way to ultra high definition, creating an even larger demand for high-speed broadband networks.

Our choice to use dark fiber and optical networking technology was both deliberate and by design. Fiber optic cable provides enormous capacity and scalability. Today our members enjoy connection speeds up to 10 gigabits per second. Current technology enables us to increase this to 100 gigabits per second simply by swapping out electronics on the ends of the fiber, and technology is in development to raise the bar to terabit speeds. Our goal has been to build network infrastructure that not only meets the needs of today, but also has the scalability and flexibility to meet the needs of our members well into the future.

In 2010 the University of Arkansas System received a \$102 million grant¹ through the U.S. Department of Commerce under the National Telecommunications and Information Administration's (NTIA) Broadband Technology Opportunities Program (BTOP). ARE-ON is a sub-recipient of that grant, receiving \$41.2 million to expand its existing fiber optic network to connect one additional four-year public university and twenty-two (22) two-year community colleges. In addition, the ARE-ON fiber optic infrastructure provides a backbone network over which the University of Arkansas for Medical Sciences, as primary grant recipient, has connected over 450 healthcare institutions statewide to form the Arkansas e-Link Network. Our use of wave division technology in the optical network enables us to overlay multiple networks across our backbone, such as Arkansas e-Link, via dedicated, secure links.

The ARE-ON network currently has over 2,200 miles of fiber optic cable extending into five states. Much of this cable comes from commercial fiber optic cable providers and telecommunications companies, although ARE-ON has itself constructed nearly 100 miles of its own fiber to connect the leased intercity cables to our university and college campuses.

I want to point out that ARE-ON would not be possible today without access to the dark fiber from its commercial providers. The costs for overbuilding these providers are simply too high and doing so would have not served the best interests of the citizens of this state. When ARE-ON first approached providers in search of available fiber optic cable, there was much skepticism about the mission and intent of our organization. Some companies expressed concern that ARE-ON was going into competition with them, ultimately resulting in loss of their customers and revenue. We believe that the opposite has been the experience, however.

Throughout the development of the ARE-ON network, especially with the expansion of the network through the BTOP grant, our providers have benefited substantially from the investments and funding received through ARE-ON's long-term capital leases of dark fiber. Those investments have enabled providers to construct more fiber optic cable to extend their networks, to reach more customers, to access more affordable providers of telecommunications and Internet services, and to provide better rates and service to their customers. While ARE-ON's ultimate goal has been to form a network for the benefit of its higher education institutions, the commercial and residential customers of our providers have received benefits also. In many cases, these customers are exactly the underserved and unserved population of broadband users in rural areas that BTOP targeted.

It is our opinion that public policy and funding for national and state broadband initiatives should leverage public/private partnerships to successfully accomplish the ambitious goals set forth through the National Broadband Plan. Just as ARE-ON has done in addressing the broadband needs of its higher education members through its partnerships with commercial cable providers, we encourage use of similar partnerships to provide capital and incentives for expansion of broadband into the rural areas of the state, to use fiber swaps and peering arrangements to exchange facilities and network traffic between public and private entities, and to leverage the strengths of commercial providers for middle-mile and last-mile connections.

Today, ARE-ON's member universities and colleges enjoy a level of service previously not available to them. ARE-ON continues to look for innovative ways to ex-

¹Broadband Technology Opportunities Program (BTOP) Arkansas Healthcare, Higher Education, Public Safety and Research Integrated Broadband Initiative Project, Grant Award # NT10BIX5570102.

pand its ability to provide scalable, reliable, and secure broadband services to its members and to leverage its infrastructure to benefit all citizens of the State of Arkansas.

Conclusion

It has been my honor to provide testimony on our efforts for the members of the Arkansas Research and Education Optical Network. Thank you for the invitation and opportunity to speak on this very important issue, and I would be happy to answer any questions.

Senator PRYOR. Thank you.
Ms. Harriman?

**STATEMENT OF HARRIMAN, DIRECTOR OF POLICY
AND SPECIAL PROJECTS, ARKANSAS DEPARTMENT OF
EDUCATION AND COORDINATOR OF STEM WORKS, STATE
OF ARKANSAS ON BEHALF OF THE FAST ACCESS FOR
STUDENTS TEACHERS AND ECONOMIC RESULTS
(FASTER) ARKANSAS COMMITTEE**

Ms. HARRIMAN. Thank you.

Good morning. Thank you, Mr. Chairman, for the opportunity to speak on behalf of Fast Access for Students, Teachers, and Economic Results for Arkansas.

For the last several years, I have been working with Governor Mike Beebe's Workforce Cabinet on the STEM Works initiative, an initiative designed to strengthen science, technology, engineering, and math education in Arkansas. Today, we have almost 15 percent of high schools signed up for STEM Works and three universities implementing the UTeach teacher preparation model, which is wonderful.

But we have found that schools that wanted to participate in STEM Works sometimes couldn't because they lacked adequate broadband. So we started looking at broadband capacity around the entire state. How did we fare? The short answer was not well.

Last year, the 2012 "Digital Learning Now" report from the Foundation for Excellence in Education gave Arkansas an "F" for digital learning opportunities. TechNet's 2012 Broadband Index listed Arkansas as 50th among all states for broadband access. The Arkansas Association of Educational Administrators surveyed its members in 2011 and found that 78 percent wanted to implement technology initiatives but couldn't due to bandwidth limitations.

Preparing students to be competitive in the 21st-century global economy is an imperative in any state, but in states with many poor and rural students 21st-century schools not only prepare the workforce but help reduce the burden of poverty and isolation.

Arkansas faces the same challenges as other rural states working to increase broadband access. Service providers see expanding to low-population-density areas as cost-prohibitive. Construction and monthly service costs are too high for small communities to absorb. Local network infrastructure may be outdated. And there is a lack of sufficient technical expertise at the local level.

However, none of that is stopping the state from moving forward. The General Assembly passed Act 1280 of 2013 that requires high schools to offer one or more digital learning courses beginning in 2014 and 2015. The legislation also directs the state to study the broadband necessary to deliver quality digital learning. The report to the legislative leadership is due December of this year.

FASTER Arkansas was formed at the request of Governor Beebe and includes representatives from cable, telephone, and fixed wireless companies, secondary and post-secondary education, each of Arkansas's United States Senators, and, maybe most importantly, industry and business leaders, who recognize that the development of a strong broadband public policy is vital not only for the educational advancement of our students but is also vital for the economic growth and advancement of our state.

By working together, we believe that FASTER can put forth, in a unified voice, public policy proposals to be considered by both the legislative and executive branches of our government.

Arkansas is moving forward and making progress, but we need help. Arkansas needs access to funding for the middle—and last-mile build-out; access to funds to build and upgrade local area networks and provide technical support; a simplified, revenue-stable E-Rate program that prioritizes applications for regional educational consortiums, including Arkansas educational cooperatives; and ongoing support for digital learning.

Mr. Chairman, many of our districts are losing residents. When this happens, students either miss out on opportunities to take high-level courses or districts are forced to consolidate. This endangers the rural way of life and limits economic opportunities for our state. Broadband expansion offers ways to stem the tide, and FASTER Arkansas is committed to being part of the solution.

Thank you for your interest in this important issue.
[The prepared statement of Ms. Harriman follows:]

PREPARED STATEMENT OF SUSAN HARRIMAN, DIRECTOR OF POLICY AND SPECIAL PROJECTS, ARKANSAS DEPARTMENT OF EDUCATION AND COORDINATOR OF STEM WORKS, STATE OF ARKANSAS ON BEHALF OF THE FAST ACCESS FOR STUDENTS TEACHERS AND ECONOMIC RESULTS (FASTER) ARKANSAS COMMITTEE

Good morning. Thank you Mr. Chairman for the opportunity to speak on behalf of the Fast Access for Students Teachers and Economic Results (FASTER) Arkansas committee, which is focused on broadband expansion.

For the last several years, I have been working with Governor Mike Beebe's Workforce Cabinet on STEM Works, an initiative to strengthen Science, Technology, Engineering and Math education in Arkansas. STEM Works subsidizes project- and problem-based learning programs for high school and college students. Today, we have almost 15 percent of high schools signed up for a STEM Works program and three universities implementing the UTeach teacher preparation model, which is wonderful. But we found that schools that wanted to participate in STEM Works sometimes couldn't because they lacked adequate broadband infrastructure.

So we started looking at broadband capacity across the entire State. How did we fare in the global bandwidth arms race? The short answer was not well.

- Last year, the 2012 "Digital Learning Now" report from the Foundation for Education Excellence in Education gave Arkansas an "F" for digital learning opportunities.
- TechNet's 2012 Broadband Index listed Arkansas as 50th among all states for broadband access.
- The Arkansas Association of Educational Administrators (AAEA) surveyed its members in 2011 and found that 80 percent of district administrators experienced problems with bandwidth in the previous year, 78 percent wanted to implement technology initiatives but couldn't due to bandwidth limitations, and 84.5 percent had to restrict access to educationally-relevant or useful sites due to bandwidth concerns.

Now, it hasn't always been this way. Arkansas was among the first states to recognize the importance of broadband, providing all schools connections to the Arkansas Public School Computer Network in 1992.

Multiple public boards, commissions, and task forces have been created at the state level to research, strategize, advocate and propose broadband solutions, but they have achieved limited results. Differing business models, numerous provider territories, divergent constituency interests, inadequate funding, market realities, and the absence of strong, visionary leadership were obstacles to moving forward.

Arkansas has not ignored broadband expansion but progress has been slow and unsteady.

Challenges for Rural States

Preparing students to be competitive in the 21st Century global economy is an imperative in any state. In states with many poor and rural students, 21st century schools not only prepare the workforce, but help reduce the burden of poverty and isolation. Meeting this imperative is a special challenge in places where people are relatively poor and distances between them are relatively large.

Arkansas faces the same challenges as other rural states working to increase broadband access to schools:

- Service providers see expanding to low population density areas as cost-prohibitive;
- Construction and monthly service costs are too high for small communities to absorb;
- Local network infrastructure may be outdated; and
- The lack of sufficient technical expertise at the local level.

Arkansas Is Moving Forward

However, none of that is stopping the state from moving forward.

Everyone involved recognizes the potential benefits of effective digital learning:

1. Students can learn anytime, anywhere, including online, blended or hybrid classrooms, or through digital content.
2. Teachers can use real-time data and adaptive software to individualize instruction for each student and help them reach their full potential.
3. Teachers can use digital learning and technology to participate in professional development and enhance their skills.
4. Students will gain access to courses and expertise that is not available at their local school.

The possibilities are endless.

The General Assembly passed Act 1280 of 2013 that requires high schools to offer one or more digital learning courses beginning with the 2014–2015 school year. The legislation also directs the state to study the broadband necessary to deliver quality digital learning to each school district. The report to legislative leadership is expected in December 2013.

FASTER Arkansas was formed at the request of Governor Beebe and includes representatives from cable, telephone and fixed-wireless companies, secondary and post-secondary education, each of Arkansas' United States Senators, and maybe most importantly, industry and business leaders who recognize that the development of strong broadband public policy is vital not only for the educational advancement of our students but is also vital for the economic growth and advancement of our state. By working together, we believe that FASTER can put forth, in a unified voice, public policy proposals to be considered by both the legislative and executive branches of our government.

How the Federal Government Can Help

Arkansas is moving forward and making progress but will need help. Arkansas needs:

1. *Access to funding for middle and last mile build/out.* In some locations, the cost of middle mile and last mile build/out of broadband infrastructure is cost prohibitive. A retooled E-Rate program could better subsidize and prioritize this work.
2. *Access to funds to build or upgrade local area networks and provide local technical support.* Aging schools may not have the necessary local network infrastructure or technical talent to take advantage of high speed broadband, even if it's available.
3. *A simplified, revenue-stable E-Rate program that prioritizes applications from regional educational consortiums, including Arkansas Educational Cooperatives.* This would encourage the development of more comprehensive, regional solutions and greater economies of scale for purchasing and construction.

4. *Ongoing support for digital learning.* Having Federal officials talk about the importance of digital learning and broadband expansion helps drive home the importance of this issue.

Mr. Chairman, Arkansas is a rural state. Many of our school districts are losing residents and when this happens, students either miss out on opportunities to take high-level courses, or districts are forced to consolidate. This endangers the rural way of life and limits economic opportunities for our state. Broadband expansion offers way to stem the tide and FASTER Arkansas is committed to being part of the solution.

Thank you for your interest in this important issue.

Senator PRYOR. Thank you.
Mr. Zimmerman?

**STATEMENT OF LANG ZIMMERMAN, COMMISSIONER,
ARKANSAS ECONOMIC DEVELOPMENT COMMISSION AND
VICE PRESIDENT, YELCOT COMMUNICATIONS**

Mr. ZIMMERMAN. Thank you, Mr. Chairman, for inviting me to participate in my dual role as a Commissioner on the Arkansas Economic Development Commission and also as a broadband provider in rural north-central Arkansas through my family company, Yelcot Communications.

I appreciate you holding this field hearing back in Arkansas also, where the businesses run the gamut from small mom-and-pop all the way up to the world's largest retailer. Every entity throughout this gamut relies not only on the availability of broadband networks but also their robustness and reliability. And beyond the business world, where the AEDC focuses, the sectors of government, medicine, education, agriculture, and nonprofits have similar requirements.

AEDC's primary goal is recruitment of new businesses to the state and the retention and expansion of those already here. And in recent years, redundant fiber networks have become as important to business site-selection experts as redundant power supplies. Businesses need to retain connectivity to internal and Web-based networks on a continual and reliable basis.

And it is not just big businesses; small, rural firms making niche products without a brick-and-mortar storefront rely on their Websites for order taking, processing, and delivery. If the Internet is down, their entire business is down because all their sales are online.

An excellent example is the pending Big River Steel mill in Osceola, Arkansas. This project represents a \$1.1 billion investment in Arkansas and the promised creation of 525 jobs with an average salary of \$75,000 a year.

In talking to the AEDC project manager in preparation for this hearing, I made the comment that Big River Steel probably didn't have a big need for broadband. I learned in a hurry that the mill is being constructed by the German steel mill specialist company SMS Siemag, whose engineers will be performing diagnostic testing and receiving online streams of reports from the mill equipment here in Arkansas.

Speaking now as a provider, I can tell you that the recent changes to the Federal Universal Service Fund, USF, and the intercarrier compensation, or ICC, mechanisms have put a big

damper on the expansion of broadband investment from telephone companies like Yelcot.

The FCC's USF and ICC transformation order and subsequent follow-on proceedings have—or are proposed to—significantly changed how rural rate-of-return telecom providers recover their costs. Some of the reform's proposals include caps on costs that can be included in the calculation of USF support, phased-down payments from long-distance providers for access to the local network, increased broadband requirements, and reduction in the rate of return that companies are authorized to earn on their investments.

The caps depend not just on investments individual companies make but also on what investment is made by other companies across the country. A company has no way of knowing if any investment puts them in a position to be capped and lose support. In addition, the FCC has begun the process of reevaluating the rate of return that rural telephone companies are authorized to earn on their investment, including a proposed significant reduction in the current authorized rate of return.

This lack of predictability in the application of the new caps on support and the reduction in revenue makes investment risky and has started a race to the bottom, rather than give companies the regulatory certainty we need to make the enhancements to our broadband networks that are necessitated by the transformation order.

Mr. Chairman, thank you for giving me this opportunity to address the Committee.

[The prepared statement of Mr. Zimmerman follows:]

PREPARED STATEMENT OF LANG ZIMMERMAN, COMMISSIONER, ARKANSAS ECONOMIC DEVELOPMENT COMMISSION AND VICE PRESIDENT, YELCOT COMMUNICATIONS

Thank you, Mr. Chairman, for inviting me to participate in my dual role as a Commissioner on the Arkansas Economic Development Commission and as a broadband provider in rural north-central Arkansas through my family company Yelcot Communications.

I appreciate you holding this field hearing back in Arkansas where the businesses run the gamut from small mom-and-pop up to the world's largest company. Every entity throughout this gamut relies not only on the availability of broadband networks, but also their robustness and reliability. Beyond the business world, where the AEDC focuses, the sectors of government, medicine, education, agriculture, and non-profits have similar requirements.

AEDC's primary goal is the recruitment of new business to the state and the retention and expansion of those already here. In recent years redundant fiber networks have become as important to business site selection experts as redundant power supplies. Businesses need to retain connectivity to internal and web-based networks on a continual and reliable basis. And it's not just big businesses; small rural firms making niche products without a brick-and-mortar storefront rely on their websites for order taking, processing, and delivery. If the Internet is down, their business is down because all of their sales are online.

An excellent example is the pending Big River Steel Mill in Osceola, Arkansas. This project represents a \$1.1 billion investment in Arkansas and the promised creation of 525 jobs with an average salary of \$75,000/year. In talking to the AEDC project manager in preparation for this hearing, I made the comment that Big River Steel probably didn't have a big need for broadband. I learned in a hurry that the mill is being constructed by the German steel-mill specialist company SMS Siemag, whose engineers will be performing diagnostic testing and receiving online streams of reports from the mill equipment in Arkansas. There is no way the owners of a \$1.1 billion steel mill would want production halted because of a bad Internet connection.

Speaking now as a provider I can tell you that the recent changes to the Federal Universal Service Fund (USF) and Intercarrier Compensation (ICC) mechanism

have put a big damper on the expansion of broadband investment from telephone companies like Yelcot. The FCC's USF and ICC "Transformation" Order and subsequent follow on proceedings have, or are proposed to, significantly changed how rural rate-of-return telecommunications providers recover their costs. Some of the reforms and proposals include: caps on costs that can be included in the calculation of USF support; phased down payments from long distance providers for access to the local network; increased broadband requirements; and reductions in the rate of return that companies are authorized to earn on their investments. The caps depend not just on investment individual companies make, but also on what investment is made by other companies across the country. A company has no way of knowing if any investment puts them in a position to be "capped" and lose support. In addition, the FCC has begun the process of re-evaluating the rate of return that rural telephone companies are authorized to earn on their investment, including a proposed significant reduction in the current authorized rate of return. This lack of predictability in the application of the new caps on support and reductions in revenue makes investment risky, and has started a race to the bottom, rather than give companies the regulatory certainty we need to make the enhancements to our broadband networks necessitated by the Transformation Order.

Thank you for giving me this opportunity to address the Committee.

Senator PRYOR. Thank you.
Mr. Hall?

**STATEMENT OF JEFFERY HALL, ASSOCIATE DIRECTOR OF
GOVERNMENT AFFAIRS, ARKANSAS FARM BUREAU**

Mr. HALL. Mr. Chairman, thank you for the opportunity to testify today and talk about agriculture and how it benefits from rural broadband. I am the Associate Director of Governmental Affairs for Arkansas Farm Bureau and a cow-calf producer myself.

Agriculture is Arkansas's largest industry. For agriculture to continue to lead our state's economy, it needs viable rural communities to supply the services needed to support their families and small businesses—no different than the 1930s with the need of electricity and telephone services in rural areas, which was accomplished by a successful public-private partnership.

The obstacle then was the problem of distribution. How could we get the much-needed electricity and telephone service to homes in rural areas? The problem of access is the same for rural broadband. To thrive, rural areas need access to health care, government services, and educational and business opportunities.

Precision agriculture technologies have made farmers more efficient today. The use of GPS and auto-steer guidance systems are two types of precision agriculture used to increase crop yields, lower cost, and reduce chemical use, which benefits the environment.

The two types of technologies work together, helping farmers identify precisely where to plant seeds and how many seeds and, if needed, apply variable rates of pesticides and fertilizer. Auto-steer on tractors is not hands-free, but it allows farmers to drive equipment in straight lines while reducing fatigue. It also ensures consistency when different people take turns in the driver's seat.

The livestock sector also utilizes technology and has increasing need for better services. Today, poultry farmers use monitoring systems to provide added protection for birds. Cattle are being sold through the video auctions and the ability to place bids from your smartphone or computers.

The online marketplace has a great impact on the cattle industry. Farmers are able to research information about herd manage-

ment and cattle markets. It is fair to say that farmers now buy and sell cattle all over our country. With online access, the perfect herd sire might be found hundreds of miles away. The Internet also allows cattlemen to find the right point of sale for their animals going to market. With the local auctions disappearing, this has never been more important than today.

In order to get high-quality, affordable service to the last mile, there must be cooperation between public and private interests. It is important that we continue to work together to resolve the issues that hinder the Internet service for all rural Arkansans.

Thank you for having us this morning.

[The prepared statement of Mr. Hall follows:]

JEFFERY HALL, ASSOCIATE DIRECTOR OF GOVERNMENTAL AFFAIRS,
ARKANSAS FARM BUREAU

Mr. Chairman and Members of the Committee, thank you for the opportunity to testify today.

My name is Jeffery Hall. I am the Associate Director of Governmental Affairs for Arkansas Farm Bureau and a cow-calf producer.

Arkansas agriculture needs viable rural communities to supply the services needed to support their families and small businesses. This is no different than in the 1930s with need for electricity and telephone service in rural areas. This was accomplished by a successful public-private partnership.

The obstacle then was the problem of distribution. How could we get the much-needed electricity and telephone service to the homes in rural areas? The problem of access is the same for rural broadband.

To thrive, rural areas need access to health care, government services, and educational and business opportunities. For many rural communities, access can only be gained by using broadband services and sophisticated technologies that require high-speed connections. Rural business owners need access to new markets and employees for their businesses. Rural health care providers need access to health information technology. Rural students need access to educational resources and continuing education opportunities. Current and future generations of rural Americans will be left behind their fellow citizens if they are without affordable high-speed broadband opportunities.

The Small Business Administration conducted a study in 2010 that evaluated the methods used by small businesses to access broadband services and the impact of broadband on small businesses. The study found that broadband service is vital for small businesses in "achieving strategic goals, improving competitiveness and efficiency, reaching customers, and interacting with vendors." Farmers and ranchers in rural America rely on broadband access to manage and operate successful businesses, the same as small businesses do in urban America. Access to broadband is essential for farmers and ranchers to follow commodity markets, communicate with their customers, gain access to new markets around the world and, increasingly, for regulatory compliance.

Many farmers and ranchers conduct their business operations from their homes. The U.S. Department of Agriculture reports a total of 62 percent of U.S. farms had Internet service in 2011, compared with 59 percent in 2009. This upward trend of Internet access must continue if farmers, ranchers and other small businesses in rural America are going to thrive and be successful in a global economy.

Precision agriculture technologies are used by about 50 percent of U.S. farmers and ranchers. GPS and auto-steer guidance systems are two types of precision agriculture used to increase crop yields, lower costs and reduce chemical use, which benefits the environment. These two types of technologies work together, helping farmers identify precisely where to plant seeds and how many and if needed, apply variable rates of pesticides and fertilizer. Auto-steer on tractors is not hands free, but it allows farmers to drive equipment in straight lines while reducing fatigue. It also ensures consistency when different people take a turn in the driver's seat.

Livestock sector also utilizes technology and has increasing need for better service.

Today's poultry farmer uses a monitoring system to provide added protection for the birds. The first is the main controller unit, which controls and monitors all operations of the two houses. It monitors the power and records temperature, humidity, water usage and exhaust fan run time, as well as other conditions. The second sys-

tem is the SCADA 3000 system, which monitors the performance of the main controller as well as specific environmental conditions like temperature, humidity, carbon dioxide levels and ammonia on the floor. This Sensaphone system monitors 48 parameters daily, collecting data on each parameter every minute and logging that data on a computer. The data is accessible through remote locations for snapshots of live conditions and trends.

Cattle are being sold through video actions with the ability to place bids from your smart phone or computer. The online market place has had a great impact on the cattle industry. Farmers are able to research information about herd management and cattle markets. It is fair to say that farmers now buy and sell cattle all over the nation? With online access, the perfect herd sire might be found hundreds of miles away. The Internet also allows cattlemen to find the right point of sale for their animals going to market. With the local auctions disappearing this has never been more important.

Another element that farmers and ranchers and all residents of rural America must consider is that the world communicates differently with the rise of the Internet. If elected officials are going to correspond with constituents via e-mail and the Web, then rural America must have access to the Internet. The immediacy of communication in today's world will leave farmers and ranchers behind if they can't have the same tools of advocacy that their more urban counterparts enjoy.

The importance of agriculture and its needs are critical to everyone. The U.N. Food and Agriculture Organization estimates that farmers will have to produce 70 percent more food by 2050 to meet the needs of the world's expected population of 9 billion people. To meet that goal farmers and ranchers must have access to the technology, information and markets. Providing access to high quality and affordable Internet is a part of that equation.

Farm Bureau supports using the Universal Service Fund (USF) to expand broadband deployment to rural areas. The first phase of USF reform was the creation of the Connect America Fund (CAF) to replace the current high-cost program that subsidizes telephone service. The CAF will begin to subsidize the deployment of broadband this year.

Internet providers are racing to work through the problems of service deficits. In order to get high quality and affordable service to the last mile, there must be cooperation between public and private interests. It is important that we continue to work together to resolve the issues that hinder better Internet service for rural Arkansas.

Senator PRYOR. Thank you.

And, Mr. Hall, let me start my first question with you. You know, agriculture is our number one industry. You talk about the innovations and the new technologies that are there.

Is it a hindrance for farmers around the state no matter what kind of farm they are, to live in a rural area if they can't have access to the Internet?

Mr. HALL. I believe that it would be a hindrance for them to increase their production and become more efficient.

So we need to continue that. I know in certain places in Arkansas it is easier to get the type of high-quality service so that they can utilize those technologies so that they can grow. Margins in agriculture are extremely narrow, and for the precision agriculture, to really reduce that and be able to farm more acres I think would be a benefit.

Senator PRYOR. And I assume you are just going to see technology continue to grow in agriculture. Is that fair?

Mr. HALL. Yes.

Senator PRYOR. Yes.

Mr. Zimmerman, let me ask you, you mentioned the Big River Steel project. And given your work on the AEDC, how often do these companies that you are recruiting and that you are talking to, how often do they mention the need for broadband? Why is that so important to them?

Mr. ZIMMERMAN. I will tell you, I talked with the staff before the hearing just to get an idea from the actual staffers that deal with business recruitment on a global basis, that exact question: How often do these companies ask about broadband? Is it half the time? And the word I got back was it is a lot more than half the time.

And what they are particularly interested in is redundant networks so that if a cut is made going east of town, they can still route traffic out to the west. And the redundancy really adds to the reliability.

You still see newspaper articles or hear TV stories these days about a single fiber cut in between city X and city Y knocks out telephone, cable, and Internet service for hundreds or thousands of people for 10 to 12 hours at a time because they have to go splice that thing back.

We had something happen outside of Stone County in Mountain View, Arkansas, where we had a major fiber running through there, and it got cut in the middle of the night. And we don't know of any construction going on. And it turned out a farmer, his dog died; he went out with a backhoe to dig a grave for the dog and dug up our fiber, buried the dog, and we had to go and find where the loose dirt was to get fiber turned back on for these people.

So that is why it is important to have these redundant routes out.

Senator PRYOR. Yes, interesting. Okay, so this has become a major component part of getting companies to locate here and keeping them here and keeping them coming.

Mr. ZIMMERMAN. Absolutely. The reliability or the ability to have a ring around the metropolitan areas or where they are looking to locate is very essential.

Senator PRYOR. Ms. Harriman, let me ask you, I know that, in Arkansas, obviously, economic development is important, but a big piece of that is also education. You know, there is a direct tie there. And your group is working apparently very well and making good progress and you are moving forward, and all that is very exciting. And it looks like you are going to continue to do good things there.

But let me ask about the E-Rate program that I know the FCC is discussing right now. Are there changes that you would like to see that would benefit Arkansas in the E-Rate program?

Ms. HARRIMAN. Very much so.

I just started learning about E-Rate in March when this problem emerged in our office, and one of the first things I did was ask for a copy of the state's E-Rate application. And it was over 300 pages and took months and months and months of work. I think Becky Rains is here, who helped put that together. There are five or six forms that have to be turned in at certain deadlines.

And not only is the paperwork very hard to understand and the process is very difficult, but the actual follow-through and not knowing whether or not what you want to have funded is going to even be funded, and then having to have the seed money to get the rebate back. It seems like a very huge barrier for districts and for states to have to deal with as they are trying to increase access to broadband.

Senator PRYOR. OK.

Are you all in the process of revising that right now, the E-Rate?

Ms. ROSENWORCEL. Yes, E-Rate is a wonderful program. It is a tremendous equalizer for small and rural schools to be able to get high-speed broadband. But we do have a problem, and you hit the nail on the head. We have made the program so complicated that small and rural schools are having a hard time applying. So it is my hope, as we revisit this program this year, we are going to address that head-on.

Ms. HARRIMAN. Thank you.

Senator PRYOR. Mr. Merrifield, let me ask you a kind of a related question. And that is, your program that you talked about, ARE-ON, what do we need to see just to continue to have ARE-ON get stronger and more relevant and, you know, just continue to move in the right direction?

Mr. MERRIFIELD. Well, ARE-ON network itself is established. We have built our network; we have connected to colleges and universities. We have a significant infrastructure that is state-based and state-funded in place. And, certainly, that infrastructure should be leveraged to its greatest degree for any efforts that have to do with public policy or public funding here in Arkansas.

You know, our focus is on higher education today. There are great needs in many other areas. And so I would offer that the Arkansas Research and Education Optical Network should provide infrastructure in some fashion to help alleviate some of the problems we have here in the state.

Senator PRYOR. And so, for your average student—is part of this that they can take classes online?

Mr. MERRIFIELD. Yes, sir. And the broadband that we provide our colleges and universities are really just part of the problem. You know, the other half of that is that students who live at home who need to take courses need to have access to broadband and be able to get video content or coursework content from their local colleges or even colleges across the state.

And so we are only a part of the solution. And, you know, the broadband development that we have done has enabled, through our funding, has enabled local providers or other providers that are represented in this room to increase the size and improve their networks so that they can provide better service to their subscribers.

Senator PRYOR. Mr. Walls, let me ask you, because Mr. Merrifield is touching on something that—you said in your testimony there are a lot of people in our state that may have access to broadband—and, again, some of that is going to be the definition of “broadband” and what is adequate, but, nonetheless, they have access, but they don’t utilize it.

And tell us why they don’t utilize it. And what can we do to try to make sure that if they want it they can have access to it?

Mr. WALLS. Well, again, if they don’t access it—let’s assume for a moment—I mean, the things we have done at Connect, taking the next step, I mean, in pricing, those are the conversations you are having right now. And, again, as networks expand, I think those issues start resolving themselves. You actually see service providers now doing some programs and advertising them to help low-income people get access. So I think it is a need that we are starting to recognize and get our hands around.

Things we have done—and, again, you have seen these around the nation—on the equipment, where we have done free or reduced-cost refurbished computers to kids on free or reduced lunch programs. I think there are a lot of opportunities there to try to—you know, those specific ones on access.

Then you get on the other side, the lack of broadband education. For those that want to do it but are intimidated by the process, again, it is outreach to those particular groups. It is working with groups like the Farm Bureau group and classes and things along those lines to farmers looking to, how do we use this technology better?

Senior citizens groups, the school system. You know, hopefully it is improving within the school system so that the younger generation is getting a lot of access to it. But for a state like Arkansas that has unfortunately a large percentage of people with only a high school education that graduated before, really, the computer generation, a lot of them—and they are not necessarily using them in their jobs. So how do we find those opportunities to find the relevancy in their life to show, hey, this is something that is interesting?

And it can be as simple, candidly, I mean, with hunting, you know, getting licenses online. I mean, you have to find—for us, Connecticut, it is I think kind of the mantra: Give us 5 minutes and we will figure out where it is relevant in your life for someone who is adamant that it is not. And so you try to push it from that side of the equation.

And it is a process. Again, it is a grassroots-type effort. But, again, it yields a pretty good dividend on our end, as far as, you know, getting that take rate up. And I think any service provider would tell you, particularly in some of these more rural areas, that, hey, if we could get better take rates, it certainly gives a nice incentive to maybe improve what we are able to do, maybe bring in more competition.

Senator PRYOR. And remind the Committee again what the take rate is in Arkansas?

Mr. WALLS. You know, it depends on what number you are at. I think you used the 40-something percent. We actually have a 70—I think it is like 78 percent. But, that said, when you include mobile/wireless and you get into—it depends on what numbers you want to use. But I think for the wireline it is below 50 percent. But in some communities, heck, it is 10 percent, it is 12 percent, it is way below what we need it to be.

And I go back to the economic development statement. You are hearing from—AEDC is hearing from the companies that look at us and say, “OK, is there broadband?” I think from a larger perspective, maybe the perception of Arkansas has driven it in part. And if someone from another state looks and maybe has a preconceived notion of what Arkansas is or is not because of our history or we are in the South or whatever, the things that come along with regionalism, and then you look and you see a take rate at 45, 46 percent, that may reinforce a particular perception that maybe even before they would even consider—they wouldn’t even consider coming here.

And I think if you can improve those types of numbers, you maybe have the opportunity to again shatter some perceptions of what Arkansas is or is not and maybe have more people look at us as an opportunity to do business here.

Senator PRYOR. And part of this is the availability of technology, but part of it is just the cost to the end user, right? It is just hard for a lot of our people in this state to afford.

Mr. WALLS. It is.

Senator PRYOR. You know, just bottom line.

Mr. Manley, let me ask you about what you were saying earlier about. You know, you talked about having good news. And that is good news, what you shared with us today and some of the examples you gave us. It is great news.

But when you are doing what you are talking about, is that more like a hospital-to-hospital communication? Do doctors have access? Or does the general public, are they able to access what you are talking about?

Mr. MANLEY. Basically, the BTOP Arkansas e-Link program is the middle-mile project that we built, as far as the healthcare system. So it is hospital-to-hospital, clinic-to-hospital.

But we have made it in such a fashion that, you know, they say, "Is there an app for that?" Guess what? There is an app for that. So from my iPad, I can now have access to any of these institutions, the hospitals, clinics, that we have access to now over the video network to be able to see those patients, be able to talk to the hospital's management, and different things like that.

One of the newest programs we are going to have is we have 11 hand surgeons across the state of Arkansas to handle all the trauma here. So our trauma is going to be one of our biggest programs being built. So now they are going to have access, wherever they are—it doesn't matter if they are in-state, out-of-state, or whatever—but in-state, they will have access to be able to evaluate those patients.

At a patient level, it is coming. Because there are thousands of mobile apps that are coming out every day. I am a Type 1 diabetic. If I need access to my healthcare provider, I am going to be able to do it from my phone.

And so that is kind of the—people called it the last mile when it comes to electricity. We consider this the first mile to the patient. And that is going to be the next largest growth that we see, I think, in the near future.

Senator PRYOR. Good.

I was just at the VA up in Fayetteville and they have added a new wing up there. And they were showing us that, that the VA has this system now where—I think some of it may be iPad- or tablet-based, some may be on a computer, and for some of it they may actually have to give you a little device of some sort, I am not quite sure. But it helps them provide just basic services to veterans, and it can be things like blood pressure and weight and just some of your real basics.

But the fact that you are saving the veteran the hours and hours of leaving their home, wherever they are, usually fairly remotely, and getting into a place like the Fayetteville hospital and do all that it is just a way to get efficiency. And it keeps a lot of folks

who don't need to be traveling and the stress of getting up and down and in and out, just keeps them, you know, where they need to be.

So, yes, the technology is great.

Mr. MANLEY. We would love to partner closer with the VA and expand our program here in Arkansas. So instead of someone, like, from Mountain Home having to travel to Fayetteville, they could actually receive that care there in Mountain Home because of the infrastructure we have put in now. And we would be more than happy to work with them on any level to be able to make sure our veterans get that care closer to home.

Senator PRYOR. That would be great.

Let's see now. We have just a few more minutes with this panel, and I know we have covered a lot of ground, and I am wondering if any of the panel want to chime in. If they want to respond or say something about something they have heard or something they have thought of that either we haven't covered or—we would like to get your thought on that.

Anybody? Anybody have anything to add?

All right, well, listen, what we will do then is we will swap out this panel and we will let our next panel come up. And our guys here are going to do that real quickly.

Let me say thank you to all the panelists. And you all know this is the hearing but we are going to continue to talk and we are going to continue to try to find ways to help you make this a reality of just getting more and more of this all over Arkansas. So thank you very much for doing this and for preparing and being here.

And we will get our team here to swap out the nametags and all that, and we will move forward.

Thank you.

And we will bring our next panel up here in just a minute, once they get this swapped out.

While they are doing that, let me say that I know Senator Bozeman has someone here. I don't see anyone else from the other Arkansas offices, but I know Senator Bozeman wanted to send someone here to listen and be part of this. So thank you to the Bozeman office for being here.

If the other panelists could come on up and grab a seat once we are ready. And it looks like we are getting ready.

I will go ahead and run through the names of the witnesses here as they are getting situated. And we will try not to waste anyone's time on doing this.

So our second panel will be Dean Kurtz. He is the Vice President of the Southern Region with CenturyLink. Elizabeth Bowles, who is with Aristotle. Jeff Gardner, who is President and CEO of Windstream. That is the Fortune 500 company I mentioned a few moments ago, and many of you all are very familiar with Windstream. Greg Ashcraft, he is with South Arkansas Telephone. Always great to have him here. John Strode; John testified before us in one of our other committee hearings that we talked about. He is with Ritter. Steve Sanders, who is here from NATCO, another great Arkansas company. Eddie Drilling of AT&T, and we appreciate Eddie being here. And Eddie, by the way, has a great reputation not just here in Arkansas but around the country with AT&T.

I talk to his people in Washington a lot. And Dean Taylor with Verizon Wireless, South Central Region, located here on Alltel Drive.

So let me do this. Let me just, for the ease of this, why don't I start with Mr. Gardner and let you jump in. And if we can limit our comments to 3 minutes. And, again, there is this little button on the table there. Just press that button when you begin, and then turn it off when you end.

Go ahead, Mr. Gardner. Thank you.

**STATEMENT OF JEFF R. GARDNER, PRESIDENT AND CHIEF
EXECUTIVE OFFICER, WINDSTREAM CORPORATION**

Mr. GARDNER. Thank you, Mr. Chairman, for your leadership on communications.

Windstream started in 1948 as a local phone company in Sheridan, Arkansas. Sheridan is typical of the areas we serve, which include some of the most remote areas in the nation. In markets like Little Rock, Windstream is a competitive carrier, going head-to-head with the largest incumbent phone companies as well as incumbent cable companies.

Linking our urban and rural markets is the Windstream network and associated infrastructure, including more than 20 data centers that support cloud-based storage services. Our network includes 115,000 miles of fiber-optic cable, enough to circle the Earth four and a half times.

Educational institutions are important Windstream customers. For example, we deliver 1-gigabit service to both North Little Rock high schools. Windstream understands the potential of replicating this service elsewhere. Governor Beebe has formed a state taskforce to examine our needs as a state, and I am a member of that taskforce.

In rural Arkansas, the 2009 Recovery Act is funding broadband upgrades to about 13,000 of our customers, but thousands more continue to wait year after year for broadband. The FCC's new Connect America Fund is a work in progress but should help. Fortunately, CAF will begin investing in Arkansas in 2013. Both you and Commissioner Rosenworcel deserve great credit for accelerating the effort. Thank you for that.

Today, as a part of CAF, Windstream is announcing plans for substantial rural investments, and this includes a significant incremental investment in this state.

Windstream also serves small, medium, and large businesses in urban markets. In Little Rock, for instance, Windstream connects some of the largest medical facilities. Last year, we opened a state-of-the-art data center in west Little Rock.

Especially for competitive providers, it is vital that Congress and the FCC proceed with care in remaking regulatory structures for the IP era. Some have called for a sweeping rollback of the powers of the FCC, but telecom is complex. There are risks of competitive harm. Unbalanced regulatory treatment among competing platforms may disincite investment. Reforms must be judicious and fact-based.

Thank you, Mr. Chairman, for convening today's dialogue. We all need a practical understanding of the state's communication needs and challenges. Thank you.

[The prepared statement of Mr. Gardner follows:]

PREPARED STATEMENT OF JEFF R. GARDNER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, WINDSTREAM CORPORATION

Chairman Pryor: Thank you for your leadership on communications policy and for inviting me to testify today.

Windstream traces its roots back to Sheridan, Arkansas, where our predecessor began as the local phone company in 1948. This year, Windstream is proud to have joined the FORTUNE 500, and we are still proud to call Little Rock our headquarters.

Windstream unites rural and urban America with an innovative business model:

- Rural—We provide universal, carrier-of-last-resort service to some of the most remote areas in the nation, including many in Arkansas. About 90 percent of Windstream's exchanges are smaller than Sheridan. Although we have vigorous competition from wireless and cable companies in the rural towns, we also reach many locations that those providers consider too remote and too costly to address.
- Urban—In urban markets like Little Rock, we are a competitive carrier, going head to head with the largest incumbent phone companies, as well as incumbent cable companies. Windstream caters to businesses large and small, offering a personalized approach to management of every aspect of communications infrastructure.
- National network—Linking these diverse customer groups is the Windstream network and associated infrastructure, including more than 20 data centers that support cloud-based storage and services. Our network includes 115,000 miles of fiber-optic cable—enough to circle the Earth 4½ times.

Mr. Chairman, let me provide a few examples of how we serve your constituents and how those services could be affected by your work leading this subcommittee.

Connecting Schools and Universities

Educational institutions are significant and valued Windstream customers. Windstream serves a wide range of campuses, from small Arkansas districts with a few hundred students to Ivy League institutions.

In particular, one of Windstream's longstanding customers is the Mooresville Graded School System in North Carolina, which is considered a national leader in using high-speed broadband and wireless devices to overhaul its pedagogical approach and drive significant gains in student achievement. Windstream data connections have helped make these achievements possible, as we provide 1 Gigabit connections to each of Mooresville's lower schools and a 5 Gigabit connection to its high school. Although Mooresville's achievements are widely known in educational circles, the district gained additional acclaim this summer when it hosted a visit by President Obama. At Mooresville Middle School, the president announced ConnectEd, his plan to expand the E-Rate program to enable more schools to follow in Mooresville's footsteps.

Closer to home, Windstream provides 100 Megabit speeds to each of the 24 elementary schools in the North Little Rock district and 1 Gigabit speeds to the district's two high schools. As in the case of Mooresville, this service is funded in part through the FCC's E-Rate program.

Earlier this summer, I accepted an appointment by Governor Beebe to the FAST-ER Arkansas Task Force, which is studying broadband access in public schools and developing recommendations on areas for improvement. In my view, a critical threshold question is, why are some districts not moving up to higher-speed services? Based on Windstream's experience serving schools and businesses, very advanced offerings are deployed, even in smaller communities, and are in use by many. To the extent that educational entities do not use these services, we need to explore the cause: Is it lack of availability of facilities, lack of funding, or another reason like lack of computers or tablets in the schools, teacher training, or curriculum support?

Clearly, there is strong interest in Arkansas and at the national level in capitalizing on recent technological advances. Some have said there are opportunities for new types of educational materials; for broader dissemination of educational devices,

from smart boards to computers; for more self-paced learning; and more effective assessment and targeted intervention by instructors. Windstream supports these goals and objectives and would like to be a partner in developing a vision for this increasingly digital future, whether that's through state efforts or reforms to the FCC's existing E-Rate program.

Connecting Rural America

As you know, Windstream is one of the three largest providers of phone and broadband service to rural Arkansas. In this capacity, I have seen firsthand how engaged and effective you have been in improving the state's rural communications. Windstream is in the closing stages of an investment program funded jointly with the U.S. Department of Agriculture to upgrade broadband for about 13,000 rural Arkansans. In addition, Windstream contracted with the University of Arkansas to provide broadband links to more than 200 rural health sites. These both were significant projects for the state and both were made possible by the 2009 Recovery and Reinvestment Act, also known as the stimulus bill. Thank you for the important role you played in these success stories.

As we think about the challenges that lie ahead for rural Arkansas, two basic facts remain as true today as they were 20 years ago:

- (1) Wireline networks are essential for all communications.
- (2) The economics of rural communications are challenging.

I spent much of my career in the wireless industry and am as fascinated as anyone by the amazing changes that we have seen. But policy makers must not lose sight of the fact that all robust communications still come down to electrons or light moving along a wire. Wireless towers and antennas connect back to a terrestrial network. In fact, in Arkansas, as wireless carriers have upgraded to next-generation 4G services, they have come to Windstream for network connections. In the last two years, Windstream has constructed fiber backhaul facilities for 380 wireless towers in the state.

In addition, for all wireless networks and technologies, one of the most important traffic management tools is offloading traffic onto landline networks as quickly as possible. Often, this means handing off traffic to Wi-Fi networks supported by wireline providers. One recent analysis found that Wi-Fi already handles more than two-thirds of the data for LTE subscribers and that its share is expanding. When consumers use tablets and smart phones at home, at a hotel, or in a shop, chances are they are connecting through a wired Wi-Fi connection.

And, of course, many rural consumers live in places where wireless service is not so prevalent or reliable. The wired network—increasingly via broadband—remains the sole tether for rural residents to stay in touch with family, friends, and business interests around the state, country, and world.

In rural Arkansas, a modern and reliable wireline network continues to serve an important role comparable to good roads and bridges.

But the economic challenges of serving rural America are as old as the telephone itself. The basic question is, how can we deploy, operate, and maintain expensive assets in areas with low population density? As a general principle, network costs are lower per subscriber in more densely populated areas but higher in rural areas, while total revenue potential in an area decreases with lower density. That's why we have universal service programs and intercarrier compensation systems.

Today's hearing is timely, because the FCC is in the process of dramatically reshaping the financial underpinnings of universal rural networks. This transition must succeed, because the stakes are very high for rural America, including much of Arkansas, but many details remain unresolved.

"USF/ICC reform" has become shorthand for a top-to-bottom overhaul of rural communications programs, starting with the Universal Service Fund itself, and also including the Federal and state components of intercarrier compensation, as well as state USF programs. The FCC's reform order in 2011 mandated specific and sizable reductions in intercarrier compensation and proposed a fundamental overhaul of universal service for high-cost areas. Apparent even at a high level, the math here is simple and challenging. On one side of the ledger, intercarrier compensation has been slashed by billions of dollars, while Federal universal service funding remains at roughly the same level as before. On the other side of the ledger, the FCC's goals now are to sustain ubiquitous voice service while also, simultaneously, substantially increasing broadband access in rural America.

We understand the need for reform—in fact we pushed for it and helped get the comprehensive reform order across the finish line in 2011—but the job is far from complete.

This spring, the FCC decided to invest \$485 million in rural broadband expansion via Phase 1 of the Connect America Fund. You played an important role in that decision, Mr. Chairman, and I thank you. Pursuant to commitments made while the FCC was considering the rules for this round of Phase I funding, Windstream will match—on at least a dollar-for-dollar basis—the total amount of Phase I funding it receives. As a result, this coupling of public and private investment dollars will enable us to enhance broadband or deliver it for the first time to hundreds of thousands of consumers in Windstream’s territory.

Still, unresolved aspects of reform, coupled with slashing of intercarrier compensation, have created troublesome uncertainty for “price cap” carriers and the consumers they serve. For the future, there are plans to estimate the price cap carriers’ costs of providing service to certain rural areas, then offer funding above a high cost threshold, along with a set of performance requirements, to serve the area. There has been an unspoken assumption that the proffered funding will be reasonable to the provider, but also attractive to policymakers who are trying to cover the Nation with ubiquitous voice and broadband on a constrained budget. We are hopeful that these dual objectives soon will be fulfilled, and that the strain from existing uncertainty will be lessened. But we need the FCC to continue in a transparent and deliberate fashion as it moves forward with the next phase of reform, and ask the Committee to keep a watchful eye in its oversight role.

Connecting Urban America

Just as in rural markets, urban communications ultimately ride along a wireline network. In 2012, wireline networks moved 99 percent of all video traffic. The most recent data for 2013 suggests that Wi-Fi, a technology tied to landline networks, is carrying four times the data load of cellular.

Windstream’s focus in urban markets is on business customers, and we serve more than 450,000 businesses, including most in the FORTUNE 500. In Little Rock, for instance, Windstream serves some of the largest medical facilities. In the hospitality industry, Windstream ranks as one of the largest communications technology providers nationwide, supporting more than 1 million rooms. Windstream also serves major government entities, prominent universities, and leading financial institutions. Of course, we serve many small and medium-sized businesses and locations too.

In the past year, Windstream has seen particularly strong growth in demand for off-site data storage and related services. For example, a financial institution in Charlotte may want to back up its data at Windstream’s Little Rock data center to ensure 24/7 access and safety in the event of an unforeseen disruption to its operations in North Carolina. Windstream now operates more than 20 data centers, from Boston to Phoenix and from Chicago to Little Rock. Each has state-of-the-art electrical systems, secure entry, and a range of services, from cloud computing to disaster recovery.

In your role as chairman, I would ask that the subcommittee pay close attention to sustaining competition in urban markets.

There has been considerable discussion in Washington about the vigorous rivalry among firms that seek to serve residential customers. For phone and Internet service, most homes can choose at least between a legacy phone company and a legacy cable company. Wireless and satellite providers also are competitive for a narrower set of services. As a result, only about one home in four now receives voice service from a traditional landline phone company.

Yet alternate infrastructure—and the range of competitors—is narrower for businesses that need sophisticated, high-capacity communications. The majority of buildings across the country continue to be served only by a connection from a Bell Operating Company.

In 1996, a Republican Congress and a Democratic president agreed to a landmark law that reduced regulation of telecommunications in exchange for specific strategies to promote market competition. The provisions of the 1996 Telecommunications Act allow Windstream to compete even in markets where a Bell company still has a lock on critical infrastructure.

Citing the advancement of IP technologies and competition in residential markets, some have called for a sweeping rollback of the powers of the Federal Communications Commission. But few players in industry believe that fact-based policy reforms—especially when business customers are considered—will come so easily or conform neatly with partisan political philosophies.

Like Windstream, most companies are deploying IP in their networks and appreciate the importance of this conversation, which is enhanced by the creation of an FCC task force on the issue. This transition, however, is a process, and will unfold in different ways and at different times for each provider.

Increasingly, there is no “one size fits all” approach. As you know, Windstream operates as an ILEC in some areas, in others as a CLEC—indeed, as one of the Nation’s largest and most successful CLECs. So when it comes to issues such as interconnection, competitive access, transport, privacy, and public safety, we are keenly aware of the need for public policy to balance regulatory treatment among competing platforms; to avoid disincanting wireline investment; and, at the same time, to avoid competitive harm, especially during this transition period that we are in, a transition that is technology-driven.

I suggest that the subcommittee seek out specifics regarding changes in the communications market, and that it take care when considering policy reforms in response. In areas where the competitive or economic dynamics are not fully understood or where there are gaps in our knowledge, we will need to gather and analyze the right data to understand the specifics of the situation. In particular, we need to be wary of using competition in residential markets as a reason to withdraw regulatory rights and obligations that enable competition in business markets. Modernizing our regulatory structure and planning for a smooth transition to an IP world are essential to the health of the wireline industry and all the benefits that it brings our Nation. It is critical that reforms be judicious and founded on fact-based assessment of the modern communications marketplace.

The State of Communications on the Ground

Mr. Chairman, I congratulate you on convening today’s dialogue. It is important that the oversight and legislative efforts of the Senate Commerce Committee be grounded in a practical understanding of the challenges that lie ahead for Arkansas consumers and companies. All providers in rural areas have been placed under financial strain by the end of intercarrier compensation and the overhaul of universal service. This situation merits a watchful approach by your subcommittee. In addition, consequences of moving to the IP era may be enormous. I would urge you to cast a wary glance on policy reform proposals, in response, that sound simple and easy—as the transition to an “all IP world” is complicated and entails different consequences for different types of customers. Continued competition across the communications landscape will require reforms targeted to varying conditions.

Again, thank you for the invitation to appear today and to testify.

Senator PRYOR. Mr. Drilling?

STATEMENT OF EDWARD DRILLING, PRESIDENT, AT&T ARKANSAS

Mr. DRILLING. Thank you, Mr. Chairman. Appreciate the opportunity to be here with you today and with the Commissioner as well. Thank you for being here.

Certainly, access to broadband technologies has fundamentally changed society—the way we live, the way we work, the way we connect. At AT&T, we have had to fundamentally change the way we build and manage our network to keep up and stay ahead of this demand.

You know, I can relate a story here about Arkansas, Senator, where in 2000, when I first came in the job as president of AT&T-Arkansas, we had over a million access lines, 1.33 million, actually, access lines in Arkansas. And as of July of this year, that number is now 361,000 access lines, so that is a drop of 65 percent of our access lines over that period of time.

And if somebody would have told me that in 2000, I would have been concerned that I would have either been fired by now or our company would be broke or both. But, obviously, we have had to make an extreme pivot in the way we manage and build our networks.

That decrease is even more significant when you look at just the consumer access lines, which have dropped 75 percent. So, as of July, when you overlay the increase in the living units that we have in our traditional landline footprint, about 17 percent of the

living units that are in our footprint have landline telephone service.

So we see a high penetration of wireless in Arkansas. Over 50 percent of our customers have wireless only. A large number have gone to cable and VoIP. A very competitive marketplace out there.

But we have pivoted and we have invested heavily in Arkansas. Just in the last 4 years alone, through July, we have invested over \$840 million, \$90 million of that just in the last 6 months of this year. We have invested heavily in LTE wireless technology. By mid-2014, we will see all of our towers LTE-equipped and providing wireless broadband across the state and increasing the number of sites that we have in rural areas as well. We also have invested heavily in U-verse and other IP technologies across the state.

So what this means also is that are taking fiber deeper and deeper into our network, deeper into rural areas where we can more cost-effectively serve small businesses, healthcare institutions, educational institutions around the state as well. Of course, it requires more bandwidth and it requires more spectrum from a wireless perspective as well.

I think the challenge that we have going forward—because we know what we have seen in the last 6 years, and we know what is going to happen going forward in the next 6 years is going to be even more dramatic and require even more bandwidth. But we also have the legacy network that we continue to have to invest in and keep up with, even though we are losing customers on that network in droves.

So the commissioner mentioned the IP transition a few minutes ago in her remarks, and we sure look forward to working with you and the commission on this transition as we go forward over the next several years.

Thank you.

[The prepared statement of Mr. Drilling follows:]

PREPARED STATEMENT OF EDWARD DRILLING, PRESIDENT, AT&T ARKANSAS

Thank you, Senator Pryor, for inviting AT&T to join in today's discussion.

Access to broadband technologies has fundamentally changed society and the way we live, work and connect. It has helped drive innovation in the marketplace, open new markets, expand economic growth, connect us to family and friends, strengthen communities, serve as a tool for learning, and provide news and information. High-speed broadband access in rural areas delivers advanced broadband technologies, applications and services that fuel advancements and create efficiencies in areas such as farming, ranching, health care and education. And, thanks to amazing breakthroughs in wireless technology and increased deployment of next-generation mobile broadband—4G LTE—all these benefits can now travel with us.

Even as more Arkansans benefit from broadband deployment and access to the Internet, we have only just begun to reap the amazing rewards of high-speed broadband across this great nation. There's more to come: better, faster, and more reliable service and the development of even more applications and services.

Our effort to modernize and upgrade our antiquated 20th Century telephone networks and expand our mobile broadband network is aimed at meeting the demands of consumers who have embraced these new technologies and demand the next-generation of services and applications that high-speed Internet networks provide.

AT&T is committed to investing in Arkansas' future. In fact, during the past four years AT&T invested \$840 million in Arkansas, \$90 million of that occurred in the first half of this year alone. We continue to build out and deliver these state-of-the-art, cutting-edge broadband technologies to Arkansas consumers. And we are not slowing down.

AT&T has increased our deployment of U-Verse and 4G LTE across the state. Our plan is by the middle of 2014, our fastest and most reliable 4G LTE network will

be operational on the majority of our towers in Arkansas. We are increasing our deployment of fiber networks to more facilities and buildings around the state. And we are deploying fiber to more rural and hard-to-reach areas, particularly to more cell sites. What does this fiber build mean? It means that as we build out more fiber to more cell sites, and as we continue to increase our number of cell sites, we create a denser grid. This denser grid is capable of unlocking the full potential of the Internet and carrying the data-intensive traffic of these leading edge high-speed broadband applications and services that are serving and bringing substantial benefits to Arkansas' farmers and healthcare specialists. It also means the availability of more fiber to all areas of the state, that would decrease the costs of providing faster broadband service to schools and businesses.

Yet, AT&T, as an incumbent telephone company, faces difficult circumstances and a growing challenge to maintain these significant infrastructure investments in Arkansas. AT&T is no longer a monopoly telephone service provider. We provide broadband and communications services in a robustly competitive marketplace where consumers have many choices among various providers of networks, services and devices. Consumers and businesses have and continue to abandon the plain old telephone network in droves for broadband and mobile services offered by those alternative providers. For example, they are increasingly choosing wireless over traditional home phone service, as now approximately 50 percent of households statewide subscribe to wireless only service.

At the turn of this century, AT&T had nearly 1,033,382 residential and business telephone access lines delivering service in Arkansas. Today, the number of access lines we serve in the state has fallen dramatically. At the end of 2012, the number of access lines we served dropped to 414,020 lines—the equivalent of a 60 percent reduction in just twelve years. In fact, these double-digit access line losses happened while the number of households and businesses increased in the state during the past decade. The shift away from the legacy telephone network is happening so fast that by the end of this year we estimate that less than 24 percent of Arkansas households will have service from AT&T. But, while we thus continue to lose wireline subscribers (and the revenues from serving those subscribers) at a rapid pace, we retain all the costs of maintaining our legacy wireline network to meet our regulatory obligation to provide service on demand to anyone that wants it. One does not need a Ph.D. in economics to understand that this business model is no longer sustainable.

This disappearing customer base means that incumbent telephone companies, like AT&T, must be provided a path that enables the retirement of antiquated telephone networks, and creates the right incentives to justify and bolster expanded investment by incumbents (and, indeed competing service providers) in next-generation high-speed Internet networks.

What does this mean for our Arkansas customers? It means creating an environment for AT&T and other incumbent telephone companies that accelerates the modernization and upgrade towards high-speed broadband networks. It means bringing access to the services and applications brought by high-speed broadband Internet to allow farmers and ranchers to engage in a more globally competitive market and create greater efficiencies for food growth, reduction in fuel consumption, livestock monitoring and irrigation management. It means building more fiber to cell sites, and bringing fiber closer to elementary, middle and high schools—so that this service capacity can be used to deliver the incredible benefits of high-speed Internet to empower Arkansas' students learning potential and fuel the imaginations of our next generation.

And it means bringing a modern broadband network closer to Arkansas to create opportunities for telemedicine consultations, in which specialized medical professionals from urban areas can diagnose, treat and provide long-term monitoring capabilities not previously available to rural residents and Arkansas' senior citizens.

How can policymakers provide additional regulatory and business certainty to help speed the investment necessary to meet rising consumer demand for 21st Century broadband services? The FCC can take the first step, and act quickly on AT&T's request to begin a collaborative process with industry, public interest groups, and consumers to implement trials in a few local markets to create a "real-world" test of the transition away from the antiquated legacy telephone network and towards the deployment of networks capable of offering voice, video and high-speed Internet services. The trials will provide an opportunity for all stakeholders (including consumers, industry and policy makers) to identify and engage in an informed debate about any gaps in technology, services or policy, and to develop solutions that address parties' concerns. In some cases, the solution may entail changes to proposed replacement services to ensure that they will support essential features and functions following the transition. In others, stakeholders may conclude that

particular features and functions no longer are necessary or make sense in an all-IP world, or that entities that historically relied on TDM technology and services will have to adapt their own products and services to be compatible with next generation wireless and IP-based services. The important thing now is to commence those trials now so that we, as a nation, can begin to identify and resolve the issues (both known and unknown) that will arise as we complete the transition to next generation wireless and IP-based services while a TDM safety net is still in place so that an orderly transition can occur, along with the proper planning to make that happen.

As part of this process, the FCC must take a hard look at regulations that were written for a different technological and market landscape. Properly implemented, local market trials can play a key role in helping create a pro-consumer, 21st century regulatory framework that encourages innovation, facilitates significant and sustained investment, meets consumer demand for high-speed Internet service, and ensures that no consumer is left behind. Thank again for inviting me to speak on these important matters.

Senator PRYOR. Thank you.
Mr. Strode?

**STATEMENT OF JOHN STRODE, VICE PRESIDENT OF
EXTERNAL AFFAIRS, RITTER COMMUNICATIONS HOLDINGS,
INC. ON BEHALF OF RITTER COMMUNICATIONS HOLDINGS,
INC., NTCA—THE RURAL BROADBAND ASSOCIATION, AND
THE AMERICAN CABLE ASSOCIATION**

Mr. STRODE. Thank you, Mr. Chairman, for the opportunity to testify today.

Companies such as Ritter Communications and its subsidiaries are state-of-the-art broadband companies providing for our customers' varied data, video, and voice needs. We connect the state, the nation, and the world by holding the responsibilities of consumer protection, public safety, equitable competition, and universal service in the highest regard.

Despite our contributions, rural telecommunications companies face greater challenges than ever as the mechanisms for ensuring high-cost areas stay connected are called into question.

Many in the rural telecom industry continue to struggle with the FCC's Universal Service Fund and intercarrier compensation transformation order. The order's cuts, together with the threat of more to come, inject substantial regulatory uncertainty into the operations of our companies. In fact, even companies that are not affected by the cuts at this point are deciding against network upgrades for fear of becoming the next to be capped.

Thanks to your efforts and those of your colleagues, there has been some incremental progress toward eliminating the uncertainty and building a broadband future through more sensible modifications to the relevant programs. But this work isn't done, and we need a targeted Connect America Fund for small carriers that supports access to sustainable, affordable broadband.

This is part of a larger debate about technology transitions in the telecom sector. We need a thoughtful evaluation of whether existing rules should be modified or eliminated as technologies evolve. However, it must not disregard key public policy cornerstones, including universal service and consumer protection.

The epidemic of rural call-completion failures provides the best early indication of what can happen without sensible rules of the road to ensure core public policy goals are served.

Likewise, as our Nation undertakes new initiatives like FirstNet and modernizing the E-Rate program, it is important to be thoughtful in structuring and developing such programs. We should be leveraging existing networks and coordinating such initiatives with other programs like the High-Cost USF to avoid wasting valuable resources and program dollars.

Finally, we hope policymakers will update the rules governing the video and wireless marketplaces to ensure consumers are served and fair competition is enabled. In particular, the broken retransmission consent market, exemplified by the current CBS-Time Warner dispute, is governed by outdated rules that no longer reflect today's marketplace.

We are aware that the Senate Commerce Committee must renew the Satellite Television Extension and Localism Act by the end of 2014. As chairman of the relevant subcommittee, we hope you will keep an open mind regarding whether modernizing retransmission consent rules should be considered as part of that bill's reauthorization.

In closing, adopting and updating sensible rules of the road that create regulatory certainty and help build a broadband future for rural Arkansas will be essential to the success of our customers and our companies. We look forward to working with you.

[The prepared statement of Mr. Strode follows:]

PREPARED STATEMENT OF JOHN STRODE, VICE PRESIDENT OF EXTERNAL AFFAIRS, RITTER COMMUNICATIONS HOLDINGS, INC. ON BEHALF OF RITTER COMMUNICATIONS HOLDINGS, INC., NTCA—THE RURAL BROADBAND ASSOCIATION, AND THE AMERICAN CABLE ASSOCIATION

Mr. Chairman, thank you for the opportunity to provide the perspective of Ritter Communications and the nearly 900 similarly situated small rural communications providers from around the Nation that are represented by NTCA—The Rural Broadband Association and about 850 small cable providers represented by the American Cable Association.

Companies such as Ritter have been, and remain, essential to ensure that we are an interconnected nation. We serve the Nation's highest cost rural areas where others would not. We hold the responsibilities of consumer protection, public safety, equitable competition and universal service in the highest regard. Today most of us are anything but plain old telephone companies, offering state-of-the-art broadband services capable of providing for our customer's varied data, video, and voice needs. Many, such as Ritter, are also involved in other lines of business such as video services and transport and wholesale Internet services to sustain ourselves and our communities in a challenging era of economic and technological transition.

Rural telcos are responsible for sustaining 70,700 jobs nationwide directly or indirectly. They contribute nearly \$15 billion to the economies of the states in which they operate. But here is the really interesting fact—nearly two thirds of this economic activity, almost \$10 billion, benefits urban areas. This underscores the value—the payback—of an interconnected nation, and shows how a mix of entrepreneurial can-do spirit and reasonable public policies contribute to the greater well-being of our nation.

For all of these successes in the face of great challenges, rural telecom today faces perhaps greater challenges than ever. Technology's endless rapid evolution repeatedly forces all of us to adapt quickly. Globalization routinely introduces new twists to be acknowledged and understood. Customer allegiance is no longer a given even when superior performance is delivered. And, perhaps most importantly, our Nation's commitment to universal service—which is embodied in Federal law—is called into question as changes to policies (and the threat of more to come) make it harder for companies to plan to carry out that mission.

The low-density, high-cost areas that are served by Ritter and its rural industry colleagues represent special places. They contribute to our Nation's well-being through activities like food production, supply of natural resources, and a home for outdoor activities and enthusiasts from across the country and the world. But they

are also special in that they are not easy markets to serve, and policies and experiments that might work in more densely populated areas can undermine critical connections in these areas if not fully thought through in advance and carefully calibrated.

IP Evolution and the Need for “Rules of the Road”

A case in point comes in the raging debate surrounding the telecommunications industry’s Time-Division Multiplexing (TDM) to Internet Protocol (IP) transition. Many suggest that if they were merely relieved of today’s regulatory shackles they would quickly begin to more actively participate in this evolution. Others appear focused on maintaining the status quo and old rules regardless of changes in technology, consumer preference, or competition. By contrast, our position is that this technological transformation is already well underway independent of the existing regulatory framework or any potential regulatory changes. But at the same time, we believe there is a need for a thoughtful evaluation of whether existing rules should be modified or eliminated as technologies evolve. It is important, however, that this evaluation always hearken back to key public policy cornerstones of universal service, consumer protection, and equitable competition. Particularly in fragile rural markets, once again, discarding proven “rules of the road” that helped to provide certainty and justify investments on the mere basis that network technologies have evolved would be ill-advised and could lead to serious harm for consumers.

Indeed, the epidemic of call completion failures that currently plagues our Nation provides perhaps the best early indicator of what happens when technological or competitive changes are used to justify avoiding basic “rules of the road” that keep customers connected. Multiple surveys conducted by NTCA—The Rural Broadband Association and others have revealed that, despite statutory and regulatory mandates designed to ensure telephone calls are successfully completed, consumers in rural markets continue to find themselves cut off from calls from other areas. While there are rules on the books that should preclude such behavior, some have taken the view that they are not responsible for self-declared “unregulated” providers in the middle of such calls, and the lack of clarity surrounding what rules may govern these self-declared “unregulated” providers has only made it harder to get to the root of the problem. In the meantime, rural America suffers.

For this reason, I would like to acknowledge your co-sponsorship of Senate Resolution 157 which recognizes the public safety, economic, and national security implications of this situation and calls upon the FCC to take every possible step to satisfactorily resolve the issue. This resolution provides an example of how common-sense oversight is essential to address market failures, and shows the chaos that can ensue in the absence of a lack of clear “rules of the road.” Thank you also for your role in ensuring this bill was recently marked up by the full committee. We look forward to its approval by the full Senate as soon as possible.

Universal Service in High-Cost Areas

Of course, universal service policy remains a linchpin of helping to ensure high-cost areas can stay connected to the rest of America and the world—and another example of how uncertainty can undermine the ability to serve rural areas.

Many in the rural telecom industry continue to struggle with the aftermath of the FCC’s Universal Service Fund (USF) and Intercarrier Compensation (ICC) “Transformation” Order. In that order, the FCC’s reforms for smaller companies like Ritter largely consisted to cuts, caps and constraints to existing USF mechanisms and an ultimate destination of zero for ICC revenues that we can receive from the larger companies that use rural networks.

Our companies and the associations that represent us visit with the FCC and congressional offices frequently to see if improvements can be made to the new USF caps. The most significant concern is that some of these caps have injected substantial regulatory uncertainty into rural telecom investment, to the point where even companies that are *not* affected by the caps today are deciding against network upgrades simply for fear of becoming “the next to be capped.” In fact, NTCA conducted a study earlier this year that found nearly 7 in 10 small rural companies had postponed or cancelled broadband investments precisely because of uncertainty arising out of the FCC reforms.

Exacerbating this overhang of regulatory uncertainty, the FCC is considering imposing additional cuts, caps, and constraints atop those already adopted. At a time when everyone is still implementing the cuts already made and evaluating the effects of those on consumers and broadband investment, it seems rash to plow forward with yet more changes that would reduce USF support and ICC revenues for

responsible companies like Ritter. Yet that is precisely what the FCC is considering in the form of a Further Notice of Proposed Rulemaking.

Thanks to your efforts and the efforts of many of your colleagues, we are seeing incremental progress in the effort to create regulatory certainty and build a broadband future through more sensible changes and updates to the USF and ICC mechanisms. The FCC has adopted “phase-ins” to the caps as a result of congressional attention and industry pressure, and we have also seen the Government Accountability Office commit to Congress that it will undertake an evaluation of the effects of the USF and ICC reforms on key issues like consumer rates and broadband deployment. But real long-term fixes to the caps and the creation of regulatory certainty for network investments that can only be recovered over several decades still seems many steps away. In short, we still have a ways to go to create regulatory certainty—and your continuing help will be essential in that effort.

Even as we need to obtain some greater degree of regulatory certainty to facilitate investment and lending in the rural telecom space, there is just as great a need to do what hasn’t yet been done—reposition USF for smaller carriers to accommodate an IP-enabled, broadband-capable world. Today, when a small carrier of last resort like Ritter sells voice telephone service, we get some USF support to ensure that service is affordable for the consumer. But if the same consumer decides later that he or she only wants to take broadband and drop voice telephone service—a natural part of the “IP evolution”—small carriers lose USF support on that line, meaning that the rates often quickly become unaffordable. We still need a targeted Connect America Fund that provides sufficient and predictable support for smaller carriers like Ritter and facilitates giving consumers the services they want rather than compelling them to take legacy services to get affordable rates. Resolving this issue in short order must be seen as both critical to the FCC’s IP Evolution agenda and the success of its USF policies.

Other Universal Service Concerns

Even as it has taken some steps to modify USF distribution rules, the FCC has yet to tackle in any meaningful way the question of USF contribution reform. Just as in the past, when those benefiting the most from a nationwide integrated voice network contributed to the USF to help sustain that network, in today’s broadband era, so too must broadband network operators, all kinds of VoIP providers, and Web-based enterprises contribute to a funding mechanism that ensures the availability and affordability of broadband-capable networks nationwide. Expanding the base of USF contributors will ease pressure on the fund as well as all of its contributors, and ensure that the USF program can effectively help promote the universal availability and adoption of advanced communications services.

Ultimately, it is important to “size” the USF for the jobs that need to be done. The fact is that the high-cost fund, even as it was placed “on a budget” in 2011, had not been growing materially for years once controls were placed on wireless identical support. Yet there is much more to do in high-cost areas, with the National Broadband Plan identifying a “broadband availability gap” that stimulus programs and existing high-cost support levels could only hope to dent. And even beyond making service available in the first place, there is the need to keep that service affordable and of reasonable quality over time (so consumers can actually make use of it). Even in a “capped fund,” for example, the reality is that labor costs associated with deploying and upgrading networks increase over time, and as with certain portions of the USF, there should be some recognition that inflationary adjustments at the very least are needed within any USF “budget.”

One area of the USF that is attracting significant attention right now is the USF Schools and Libraries (E-Rate) program. As a result of the administration’s emerging ConnectEd initiative and the FCC’s push to “modernize” the program, the E-Rate program will be a key focus of universal service policy for the rest of this year.

Rural providers recognize the importance of E-Rate as part of a comprehensive USF program. Smaller carriers, facing the challenges of distance, were early adopters of distance learning concepts and technology and the communities they serve have benefitted from their focus and this program. Yet, as with any other potential USF reforms, these issues are too important to gamble on through experiments or sound-bite driven reforms. In particular, we believe it is essential to coordinate any E-Rate reforms with other portions of the broader USF umbrella so that any expansion of E-Rate, to the extent policymakers deem it appropriate, does not come at the expense of other important programs like the already-budgeted high-cost fund.

Similarly, the current national focus on First-Net is also one that presents both opportunities and challenges for the rural telecom industry. Certainly we should be doing everything possible to ensure the development of a robust nation-wide mobile first-responders communications network. But again, we must guard against waste-

ful duplication. Especially, given the need to ensure FirstNet dollars go as far as possible in covering various jurisdictions, FirstNet must give all due consideration to leveraging existing infrastructure where possible.

Other Key Competitiveness Issues

The success of the FirstNet initiative of course depends in significant part upon auctions of spectrum that will facilitate and finance network deployment. It will be particularly difficult to set a stage that ensures widespread carrier participation in such auctions, but we must live up to this challenge.

To meet this challenge, the 600 Mega Hertz block of spectrum that is the subject of the auctions should be licensed according to Cellular Market Areas (CMAs). A CMA-based licensing structure will best ensure that a variety of providers, large and small, are able to effectively participate in the auction. This will also provide the best chance of ensuring that rural areas see meaningful deployment of this valuable spectrum, rather than being an afterthought in a larger provider's deployment. Finally, we must build upon the lessons learned from the 700 Mega Hertz deployments and ensure the FCC adopts fair data roaming and interoperability provisions in conjunction with the distribution of this spectrum.

Much like wireless services, video products could be a promising way for smaller companies to diversify their offerings, be more responsive to consumer needs, and stimulate broadband adoption. But today's small rural multichannel video programming distributors (MVPDs) face an array of obstacles arising from outdated, decades-old rules that do not reflect the programming markets of today.

This has been a troubling issue for small rural providers for years, but it has become a major problem for the entire MVPD industry of late. Perhaps the most notable (or notorious) example right now comes in the recent negotiations between CBS and Time Warner Cable, Inc. As a result of market failures in those negotiations and a lack once again of clear "rules of the road" that put consumers first, Time Warner Cable and Bright House Network customers do not have access to local CBS broadcast programming. Equally alarming is that CBS has also limited access to its online content by Time Warner Cable and Bright House broadband customers. CBS' Internet blackout even affects these cable operators' broadband customers who receive their television service from other service providers, like DirecTV or DISH, and customers who get their television over-the-air.

Examples such as these underscore the problems with the retransmission market, with negotiations often leading instead to "take it or leave it" choices, particularly with regard to smaller operators, and brinksmanship over rapidly escalating and unaffordable fees—and, in more and more cases, leading to programming blackouts.

Whether viewed individually or as a whole, these tactics are anticompetitive, inflate consumer costs and lead to market failure. Congress and the FCC must act to fix the old laws that govern access to content and programming to reflect today's video marketplace.

Ritter Communications and nearly all other pay television providers in Arkansas and around the country are well aware that renewing the 2010 Satellite Television Extension and Localism Act (STELA) is one of the things that your committee must accomplish before the end of next year. Notwithstanding the rising number of retransmission consent disputes, and their impact on consumers, some lawmakers have already concluded, and stated publicly, that they want a "clean reauthorization" of this bill—that is, do nothing more than change a few dates in the existing law. Many in the industry have interpreted lawmakers who make such a declaration as taking a position that they will not address any other issues related to the pay television industry, regardless of the merit, need or circumstances. As Chairman of the Commerce, Science and Transportation Subcommittee on Communications, Technology and the Internet, we hope you would keep an open mind regarding the issues that should be considered as part of the STELA reauthorization, which is the most germane bill that will pass out of your committee in the foreseeable future.

Additional Challenges Faced by Small Businesses

Our diverse industry is confronting other, less obvious challenges as well. Increasingly, small rural communications providers have become targets of patent infringement claims levied by patent assertion entities (PAEs). Typically these PAEs purchase already existing patents merely for the purpose of enforcing them for financial gain, with the knowledge that small businesses often lack the resources to investigate and defend against such claims. PAEs are targeting the users or purchasers of the patented technologies rather than their manufacturers or creators, and PAEs also seem to focus on patents tied to established technologies and processes upon which small businesses rely.

Many in Congress and the administration alike are concerned about the effects of PAEs on innovation and technology deployment. The President has gone so far as to note concerns about parties that fail to actually produce or invent anything and yet look for a payout. The small rural communications sector urges the Administration and Congress to work together to identify solutions that will protect unwitting small businesses from this spurious practice.

Cybersecurity and privacy have also consumed the attention of policymakers and the public alike over the course of recent months. Secure critical infrastructure is crucial to America's national and economic security. Yet care must be taken to ensure our response to these threats does not create new unfunded mandates on small businesses, such as community-based carriers operating in rural areas.

We were pleased to see that the leadership of the Senate Commerce, Science and Transportation Committee recently introduced an updated cyber security package that more closely aligns with a "voluntary" industry approach advocated by the proposals put forth by the House of Representatives and the President's recent executive actions.

Rural providers take cybersecurity responsibilities seriously, and have been deploying cyber defenses tailored to the needs and vulnerabilities of their networks. NTCA has been providing training to members and serving on the Communications Sector Coordinating Council which facilitates the exchange of information on this subject.

We believe that we can best achieve the twin aims of developing secure networks and robust economic growth by encouraging government and industry sectors to work together to identify and respond to cyber threats.

Conclusion

While I have attempted to describe in reasonable detail the many opportunities that rural telecom providers are seeking and the challenges they face in doing so, there are of course any number of other issues that could be covered in this sort of hearing. The upshot, however, is that the rural telecommunications industry is committed to its consumers and the communities in which these small rural providers live and serve. Companies like Ritter are making every stride to respond to the challenges they face, to deliver high-quality and affordable services to their consumers, and to fulfill the national mission of universal service through the responsible and effective deployment of cutting-edge communications infrastructure. Adopting and retaining sensible "rules of the road" that create regulatory certainty and help build a broadband future will be essential to the success of these efforts. We look forward to ongoing efforts between the rural telecom industry and committed lawmakers such as those on this subcommittee to realize these objectives.

Senator PRYOR. Thank you.

Mr. Kurtz?

STATEMENT OF DEAN KURTZ, VICE PRESIDENT, REGULATORY AND LEGISLATIVE AFFAIRS, SOUTHERN REGION, CENTURYLINK

Mr. KURTZ. Thank you, Mr. Chairman, for the opportunity to speak to you today. And just to prepare you, for a boy that takes two syllables to say one-syllable words, 3 minutes might not make it.

CenturyLink offers communications services to 14 million homes and businesses in all 50 states and select international markets. Our services include broadband, voice, video entertainment and data, as well as fiber backhaul, cloud computing, and managed security solutions.

From our roots in Oak Ridge, Louisiana, our company has evolved over the years through innovation and significant capital investment. And we are especially proud of what has gone on here in Arkansas.

In 2000, CenturyLink expanded our operations in Arkansas and became the second-largest telecommunications provider in the state when we purchased 230,000 access lines from GTE. At the time of the purchase, broadband availability over that network was mini-

mal. Since that time, CenturyLink has invested over \$1 billion to upgrade, expand, and maintain our Arkansas network, and we now make broadband access available to 92 percent of our Arkansas customers.

We have followed a similar pattern of investment across our national network, bringing broadband infrastructure to many rural communities that would otherwise be left behind. Nationally, 83 percent of the areas we serve contain 10 or fewer customers per square mile. But we have so far brought broadband access to more than 90 percent of our customers.

While we have overcome many obstacles, serving low-density rural markets will always be a challenge as networks evolve, with a higher investment requirement for each customer.

CenturyLink has also sought to eliminate barriers to broadband adoption through our Internet Basics program. For low-income customers in our service areas who qualify for the FCC's Lifeline telephone program, CenturyLink also offers broadband service for \$9.95 per month, with a netbook computer for \$150.

We have conducted numerous training sessions across the country to educate current and potential customers about the basics of digital literacy so they can connect to distance learning, telemedicine, and small-business opportunities. Since the creation of this program, CenturyLink has signed up over 30,000 new low-income customers, and the growth of that program is accelerating.

Looking to the future, no communications company can afford to stand still. In 2011, we acquired a leading cloud-computing company, Savvis, and have combined their award-winning cloud services with our backbone to help make government and business customers more efficient and effective. We have also expanded our IPTV services, offering consumers another direct competitor to cable and satellite TV. We have connected over 16,000 towers to the fiber network for 4G wireless. We have also grown our cybersecurity services, and we are preparing for the transition to an all-IP network.

There are many corners of low-density population and challenging terrain where market forces alone will never put customers on a level playing field in the digital economy. Mr. Chairman, your leadership has been tremendously valuable in encouraging the FCC to proceed with reforms to its rural broadband policy that can bring targeted support to those areas in partnership with rural broadband providers.

We also appreciate your thoughtful consideration of cybersecurity issues, STELA, and we look forward to working with the Committee on all these issues in the future. Thank you.

[The prepared statement of Mr. Kurtz follows:]

PREPARED STATEMENT OF DEAN KURTZ, VICE PRESIDENT, REGULATORY AND LEGISLATIVE AFFAIRS, SOUTHERN REGION, CENTURYLINK

Mr. Chairman and members of the Committee, thank you for the opportunity to testify about the state of communications on the ground, and the challenge of connecting urban and rural America. CenturyLink offers communications services to over 14 million homes and businesses in all 50 states and select international markets. Our services include broadband, voice, video entertainment and data, as well as fiber backhaul, cloud computing and managed security solutions.

From our roots in Oak Ridge, Louisiana, our company has evolved over the years through innovation and significant capital investment, and we are especially proud of our story here in Arkansas.

Rural Broadband Investments

In 2000, CenturyLink expanded our operations in Arkansas and became the second largest telecommunications provider in the state when we purchased 230,000 access lines from GTE. At the time of the purchase, broadband availability over that network was minimal. In fact, many of our new customers in rural Arkansas did not even have access to local dial-up Internet access. Overall, CenturyLink has invested over \$1.08 billion to upgrade, expand and maintain our Arkansas network, and we now make broadband access available to 92 percent of our Arkansas customers, offering service in every local exchange we serve.

These investments have been essential in enabling business development and community empowerment in the state. For example, in 2010, CenturyLink provided the redundant fiber facilities that helped New Corp bring 100 new jobs to Russellville when it built its national inbound call center. Those initial 100 jobs have grown to over 500 jobs in the past three years. More recently in rural Mansfield, the mother of a student contacted us with an urgent need for home broadband service so her child could participate in an education project. CenturyLink's technicians developed a creative solution that allowed broadband service to several homes in her extremely rural area.

We have followed a similar pattern of investment across our national network, bringing broadband infrastructure to many rural communities that would otherwise be left behind. Nationally, 83 percent of the areas we serve contain 10 or fewer customers per square mile (compared to 13,000 per square mile in the greater Washington, DC area), but we have so far brought broadband access to more than 90 percent of our customers.

While we have overcome many obstacles, serving low density rural markets will always be a challenge as networks evolve, with a higher investment requirement for each customer, greater pole attachment costs, often difficult terrain, and the challenge of persuading customers to actually order broadband services once the infrastructure investments have been made.

Encouraging Broadband Adoption

CenturyLink has also sought to eliminate barriers to broadband adoption through our Internet Basics program. For low-income customers in our service areas who qualify for the FCC's Lifeline telephone program, CenturyLink also offers broadband service for \$9.95 per month, with a netbook computer for \$150.

We have conducted numerous training sessions across the country to educate current and potential customers about the basics of digital literacy, so they can connect to distance learning, telemedicine and small business opportunities. Since the creation of our Internet Basics program, CenturyLink has signed up over 30,000 new low-income customers, and the growth of that program is accelerating.

Innovation for the Future

Looking to the future, no communications company can afford to stand still for long, and CenturyLink continues to focus on investment and innovation. In 2011, we acquired a leading cloud computing company, Savvis, and have combined their award-winning cloud services with CenturyLink's global Internet backbone to help make our government and business customers more efficient and effective.

We have also expanded our nascent IPTV services, offering consumers another direct competitor to cable and satellite TV with a full suite of sports, news and entertainment programming, video-on-demand, DVR, picture-in-picture and online viewing capabilities. This is a challenging business to enter as a new competitor, with costs for sports content and broadcast retransmission rising sharply, but customers have so far been very receptive to having additional choices.

As wireless companies continue to expand their 4G data offerings, CenturyLink has connected its fiber network to over 16,000 towers nationally, and we expect to build fiber to at least another 4,000 towers by the end of 2013. Another growth area has been our managed cybersecurity services, offered to a broad range of Fortune 500 companies, government clients and small businesses. And finally, as the entire industry transitions to a world of all-IP networks, we are exploring creative technologies to offer consumers the reliable voice, data and video services they expect from us.

Public Policy Leadership

There are many corners of low population density and challenging terrain where market forces alone will never put those customers on a level playing field in the

digital economy. Mr. Chairman, your leadership has been tremendously valuable in encouraging the Federal Communications Commission to proceed with reforms to its rural broadband policy that can bring targeted support to those areas in partnership with rural broadband providers.

The Committee has also approved farsighted legislation to enhance cybersecurity by empowering the National Institute of Standards and Technology's mission to facilitate voluntary, industry-led standards and best practices that can protect our Nation's critical infrastructure from cyber threats. We are eager to see the Senate proceed with both the Cybersecurity Act of 2013 and companion legislation to enhance cyber threat information sharing among private sector providers and with the government.

Looking forward, we encourage you to continue the Subcommittee's thoughtful look at the technological changes and the barriers to competition in the video market, especially as the Committee considers reauthorization of the Satellite Television Extension and Localism Act (STELA). In particular, we hope the Committee will consider modernization of the 1992 Cable Act's rules for retransmission consent.

The Committee has also made important contributions to numerous other policy areas, including consumer privacy, disabled access, and broadband for schools and libraries. As telecommunications networks continue to transition to an "all IP" future, and carriers like CenturyLink continue to expand our broadband investments, we look forward to working with the members of the Commerce Committee.

Senator PRYOR. Thank you.
And Mr. Ashcraft?

**STATEMENT OF GREG ASHCRAFT, CHIEF FINANCIAL OFFICER,
SOUTH ARKANSAS TELEPHONE COMPANY**

Mr. ASHCRAFT. Thank you, Senator Pryor, for allowing me to be on the panel today.

My name is Greg Ashcraft. I am CFO for South Arkansas Telephone Company. South Arkansas Telephone Company is an independent local exchange carrier in Hampton. We have 2,800 telephone customers and 1,100 broadband customers.

Today, I would just like to go over a few of the challenges the telephone companies are facing today.

The first challenge, which Mr. Drilling has already touched on, is the loss of customers. And it is not large into small; it is nationwide. Their percent was pretty high, but, for instance, South Arkansas Telephone Company in 1999 had 4,400 telephone customers; today we have 2,800. So that is a loss of 36 percent. So it is a nationwide problem, and it is a major challenge.

The next challenge is uncertainty of the revenue streams, which Mr. Strode has touched on too. The loss of customers causes a loss of local service revenue, a loss of toll revenue, and also a loss of access revenue.

But then in 2013 there were two plans that were implemented that also put more pressure on revenue streams. One was we had to lower our intrastate access rates down to the interstate access rates level, which caused a revenue reduction.

Another plan was implemented that they would start doing a regression analysis on the universal service revenue each year. And the regression analysis is, they look at what all the telephone companies in the country were spending and compared that to what your company is spending on investment and expenses, and if you are in the 10 percent of that analysis, your universal service revenue is decreased.

There is no benchmark level of what the regression analysis amounts are, so it is very difficult for the companies to forecast

what their universal service revenues will be. That hampers investments in broadband. So it is kind of hard to gauge. So that is a challenge.

Another challenge is meeting the broadband demands and the changing technologies. As you know, broadband has changed a lot in the last 10 years. When the South Arkansas Telephone Company first started offering Internet, it was dial-up at 256K speed, and we carried all the traffic on one T1. Now, today, the minimum speed we offer is 6 meg, and we carry the traffic on 1 gig.

So we think we have done a very good job of meeting that challenge, but meeting that challenges has a very big price tag on it. So in order to offer those kinds of speeds, we have had to make capital improvements in our plant to add more remotes and put more fiber in the ground.

So that is just a few of the challenges that the companies are facing today and they will continue to face in the future. Thank you again.

[The prepared statement of Mr. Ashcraft follows:]

PREPARED STATEMENT OF GREG ASHCRAFT, CHIEF FINANCIAL OFFICER,
SOUTH ARKANSAS TELEPHONE COMPANY

I am the CFO for South Arkansas Telephone Company. South Arkansas Telephone Company is a small incumbent local exchange carrier (ILEC) in south Arkansas with 2,800 telephone customers and 1,100 DSL customers.

I would like to go over a few challenges that confront the Rural Telephone companies today.

The first challenge is the drastic loss of customers. The rural telephone companies are losing customers at a staggering rate. Customers are disconnecting their landlines and switching to mobile. At the end of 1999, SATCO had 4,400 customers. Today we have 2,800. That is a loss of *36 percent* of our customers.

Another challenge the rural telephone companies are facing is the uncertainty of our revenue streams. With the large loss of customers it has affected our local service and toll revenues and the loss of toll means less access minutes and less access revenue. And now in 2013 the FCC has implemented some plans that have put more pressure on our revenue streams.

First they lowered our access rates in the access reform. Then they implemented the USF regression analysis, that will be ran each year to see which companies are affected. There is no benchmark that the companies can gauge this analysis on. It depends on what all the other companies in the country spend, compared to your company. So, this makes it impossible for the companies to forecast their revenues.

Another challenge is keeping up with broadband demand and changes in technology. Broadband has come a long way in 10 years. We started offering dial up—with a speed of 256K and didn't think we would need more than a T-1 to carry the traffic. Today our lowest speed we offer is 6 meg and we have a 1GB connection to carry the traffic. We feel that the companies in Arkansas have done a very good job at meeting this challenge. But meeting this challenge comes with a very big price tag. In order to get these kinds of speeds to our customers, we have had to make major capital expenditures in our plant by putting in more remotes and more fiber.

Thank you for the opportunity to be a part of this meeting.

Senator PRYOR. Thank you.

A few moments ago, I said Dean Taylor. Of course, everybody understood I meant David Russell.

[Laughter.]

Senator PRYOR. Dean Taylor couldn't be here with us today, but we are delighted to have you. Go ahead.

**STATEMENT OF DAVID RUSSELL, VICE PRESIDENT OF
EXTERNAL AFFAIRS, VERIZON'S SOUTH AREA**

Mr. RUSSELL. Thank you, Chairman Pryor, Commissioner Rosenworcel, and fellow panelists and ladies and gentlemen. I am David Russell. I am Vice President of External Affairs for Verizon's South Area, representing Dean, who sends his regrets.

I am pleased to be able to report that Verizon has invested significantly in Arkansas in terms of advancing its network, employment, and community support. We were the first wireless carrier to bring 4G LTE technology to Arkansas.

I need to note here that 4G and 4G LTE are different technologies. "LTE" stands for long-term evolution, and it is a new technology and is viewed industry-wide as the global standard, the future of wireless technology. The big difference to the consumer, Senator, is it is a lot faster.

Verizon launched this service in several cities in northwest Arkansas in July 2011. We were the only provider of this technology in Arkansas for about the next year. We continued our aggressive rollout of this technology across Arkansas and announced the substantial completion of our LTE coverage across the state just 2 months ago. Verizon Wireless's network covers almost 97 percent of Arkansas's population, and, year to date, more than 99 percent of that network is also covered by our 4G LTE network.

This network is beneficial to customers because its speed allows them a real-time experience when they are mobile. They can upload, download, use the Internet, watch videos all at similar speeds as if they were connected by a copper landline.

Verizon's network is continuously recognized by J.D. Power, RootMetrics, and other third parties as the most reliable in the country. And we continue to prove that reliability to our customers in Arkansas and across the nation. On average, Verizon annually invests more than \$6 billion in our network across the country. This year in Arkansas, we will invest \$100 million in our wireless network to reinforce that reliability and redundancy.

So what does it mean for business and government? Well, in business, it means that companies in any industry can be mobile. They can monitor their fleet vehicles in real time. First responders can provide doctors with live video triage while a patient is en route to a hospital. Police officers can access any department or state data they need from their units and file reports from the scene.

As schools integrate new technology like digital tablets in the classroom, teachers rely on the connectivity and speed of LTE technology to support a child's learning experience and keep them connected.

Just last week, I was up in north Arkansas to present the Cotter School District, which is in a very rural part of the state, with a Verizon Foundation grant for \$50,000 that will support 300 students in adapting broadband technologies to enhance science, technology, engineering, and math education. Now, Cotter is very rural, but these kids are not missing an opportunity to learn because they are using our LTE technology to stay connected.

Verizon employs a diverse workforce across Arkansas, mostly in sales but in a number of other fields. For example, Little Rock is

home to a customer service center that will be hiring several hundred new positions this year, and we are hiring employees in other professional positions as well.

Verizon is a Fortune 16 company that is a good corporate citizen in Arkansas, bringing new and reliable technology to the state, supporting businesses large and small, and enhancing the economy.

Senator Pryor, we appreciate your continued leadership on many important issues in our industry, including your co-sponsorship of an amendment earlier this year that would have extended the moratorium on taxation of the Internet.

Thank you very much. That concludes my remarks.
[The prepared statement of Mr. Russell follows:]

PREPARED STATEMENT OF DAVID RUSSELL, VICE PRESIDENT OF EXTERNAL AFFAIRS,
VERIZON'S SOUTH AREA

Chairman Pryor, thank you for the opportunity to testify here today. My name is David Russell—Vice President of External Affairs for Verizon's South Area. I'm here today representing the President of our South Central Region for Verizon Wireless, Dean Taylor, who had a conflict and was unable to attend. Dean's region includes the entire states of Arkansas and Oklahoma, as well as West TN and North MS.

Verizon Wireless acquired Alltel Corporation in 2009 and our region headquarters are located where Alltel's corporate headquarters previously were located here in Little Rock.

Verizon has invested in Arkansas in terms of advancing its network, employment and community support.

Network

Verizon was the first wireless carrier to bring 4G LTE to Arkansas. I would like to note that 4G and 4G LTE are different technologies; LTE (Long Term Evolution) is new technology and is viewed industry-wide as the global standard . . . the future of wireless technology.

Verizon launched 4G LTE in several cities in Northwest Arkansas in July of 2011; we were the only provider of 4G LTE in Arkansas for about the next year. We continued our aggressive rollout of 4G LTE across Arkansas in cities big and small—and announced the “substantial completion” of our 4G LTE coverage across Arkansas in June of this year.

Verizon's wireless network covers almost 97 percent of Arkansas' population and more than 99 percent of that network is also covered by our 4G LTE network.

4G LTE is beneficial to customers because its speed allows them a real-time experience while they're mobile. They can upload, download, use the Internet, watch videos—all at similar speeds as if they were connected by a copper landline. Verizon's network is continuously recognized by J.D. Power, Root Metrics and other third parties as the most reliable in the country, and we continue to provide that reliability to our customers in Arkansas and across the Nation.

Network Investment

On average, Verizon invests more than \$6 billion in its network nationally.

This year in Arkansas, we will invest around \$100 million in our wireless network to reinforce that reliability and redundancy.

Business

What does this investment mean for business or government?

- In business it means companies in any industry can be mobile, they can monitor their fleet in real time.
- First responders can provide doctors with “live video triage” while a patient is en route to the hospital.
- Police officers can access any department or state data they need from their units, and file reports from the scene.
- live monitoring of Arkansas' crop fields lets a farmer know when the soil needs nutrients or the crops need watering.

- As schools integrate new technology like digital tablets into the classroom, teachers rely on the connectivity and speed of LTE to support a child's learning experience and keep them connected. Just last week I was up in north Arkansas to present the Cotter School District—in a rural and underserved area of Arkansas—with a Verizon Foundation grant for \$50,000 that will support 300 students in adapting broadband technologies to enhance Science, Technology, Engineering and Math (STEM) education. Cotter is rural—but these kids aren't missing an opportunity to learn using technology because they're connected on 4G LTE.

Workforce

Verizon employs a diverse workforce across Arkansas, mostly in sales, but in a number of other fields. For example, little Rock is home to a Customer Service Center that will be hiring several hundred positions this year—and we are hiring employees in other professional positions as well—contributing to Arkansas' economy statewide.

Verizon is a Fortune 16 company that is a good corporate citizen in Arkansas—bringing new and reliable technology to the state, supporting businesses large and small, and enhancing Arkansas' economy. Senator Pryor, we appreciate your continued leadership on many important issues to our industry, including your cosponsorship of an amendment earlier this year that would have extended the moratorium on taxation of the Internet.

Senator PRYOR. Thank you.
Ms. Bowles?

STATEMENT OF L. ELIZABETH BOWLES, PRESIDENT AND CHAIRMAN OF THE BOARD, ARISTOTLE, INC.

Ms. BOWLES. Thank you, Chairman, Commissioner. Thank you for having me.

I am Elizabeth Bowles. I am President and Chairman of the Board of Aristotle, Inc. We are a fixed wireless broadband provider and interactive media agency headquartered here in Little Rock. Additionally, I am the immediate past President of the fixed wireless trade association, Wireless Internet Service Providers Association, also called WISPA.

The FCC found that 76 percent of those without broadband live in rural America. And Arkansas is a rural state. But more than that, we are a rural state with mountains and granite and topographical challenges that can make deployment of wireline solutions difficult and expensive.

Although it is often overlooked, fixed wireless broadband can solve the challenges of delivering broadband to many of these rural areas. And WISPs like Aristotle are doing that now, primarily through the use of unlicensed and licensed-light spectrum.

Fixed wireless broadband is as reliable as wireline solutions, is capable of the same speeds, and is far less expensive to deploy. For example, Aristotle only needs between 40 and 120 customers to justify moving into an area. The cost of fixed wireless deployment is fractional compared to the cost of deploying fiber.

And even if fiber is the ultimate goal, fixed wireless is far quicker to deploy. Aristotle can deploy a tower in less than a week, and fixed wireless can serve as the last-mile delivery mechanism while fiber is being trenched so nobody has to wait for fiber.

And fixed wireless broadband can and should serve as a backup for wireline solutions to ensure that broadband connectivity is not lost. We heard earlier about a fiber cut. That type of thing can be resolved by a backup fixed wireless solution.

When we look at broadband deployment as a policy matter, it is critical that we create a blended solution that takes into account fixed wireless broadband. Unlicensed spectrum is crucial to that, and a balanced policy that makes room for both licensed and unlicensed spectrum uses is the only responsible path. Licensed spectrum is important, but so is unlicensed.

And in addition to balancing licensed versus unlicensed uses, the FCC should also balance the needs of urban areas with those of non-urban areas. The cellular congestion that is always in the news is a real problem—in Manhattan. It is not that much of a problem in Malvern. The FCC can and should make different sets of rules for urban and non-urban areas. For example, in 5 gigahertz, the FCC could prioritize small cells in urban areas by allowing priority for higher-power uses in rural areas.

In other words, just because a policy is perfect for a high-density market does not make it good policy for every market. And we should ensure that any policies are balanced.

We all agree that every rural Arkansan and every rural American deserves the same access to broadband as somebody in Dallas. The only way to accomplish this is through a balanced spectrum solution that not only protects the availability of usable unlicensed spectrum, but also makes additional spectrum available for both unlicensed and licensed-light uses.

Thank you.

[The prepared statement of Ms. Bowles follows:]

PREPARED STATEMENT OF L. ELIZABETH BOWLES, PRESIDENT
AND CHAIRMAN OF THE BOARD, ARISTOTLE INC.

Good morning Chairman Pryor and Members of the Subcommittee. I am Elizabeth Bowles, President and Chairman of the Board of Aristotle Inc., a broadband service provider and interactive media company based here in Little Rock. I am heavily involved in the local community, supporting and volunteering for a number of Arkansas causes. In addition to my local involvement, I've also served for three years as the President of WISPA, the Wireless Internet Service Providers Association, which is a national trade association that advocates on behalf of fixed wireless broadband providers across the country. I'm pleased to welcome you to my home town, and I'm privileged to speak to you today about the way wireless communications—and in particular, *fixed* wireless communications—are changing the lives of Arkansans and other consumers in rural and micropolitan America.

As President of a local broadband company as well as of a national trade organization, I have a unique insight into the way that legislators and regulators in Washington, D.C. can help farmers, teachers and children in places like Scott, Stephens, Osceola, and Star City. Although we are currently sitting in a metropolitan area, you only need to go five miles outside the Little Rock city limits to find rural America.

In its *Eighth Broadband Progress Report* issued last year,¹ the FCC found that “[a]pproximately 14.5 million of the 19 million (or 76 percent) of Americans without access to fixed broadband meeting the speed benchmark reside in rural areas. . . . The percentage of Americans without access in rural areas is 23.7 percent as compared to 1.8 percent in nonrural areas. These figures indicate that nearly one in four rural Americans lack access to fixed broadband meeting our speed benchmark.” This means that children in these areas cannot access online educational information, rural telemedicine is not possible, and economic development efforts are

¹See *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, Eighth Broadband Progress Report, 27 FCC Red 10342, 10370 (2012).

thwarted because few companies will locate in an area without sufficient broadband access. Aristotle and similarly-situated WISPs are rectifying this broadband gap.

Aristotle's deployment strategy is to bring broadband access to unserved and underserved areas of the state. While we do offer broadband service in the central Arkansas metropolitan area, it is the areas outside of the city where fixed wireless broadband brings the greatest economic development benefit, and it is those markets where Aristotle focuses our expansion efforts. Because fixed wireless broadband is much less expensive and faster to deploy than fiber or other wireline solutions, Aristotle can make a persuasive business case for entering markets that larger, wireline providers cannot justify. Most WISPs go where the telephone company and the cable companies do not because it's too costly to run wires, cables, and fiber to areas that are sparsely populated or challenged by difficult terrain. By way of contrast, Aristotle only needs between 40 and 120 customers to recoup its investment within 18 months following deployment of a tower.

WISPs are small, local employers who give back to their communities and contribute to local economies. Often WISPs are the first Internet providers to come back online following a national disaster. WISPs enable cellular data offloading that alleviates congestion of cellular phones. And we do this without taking a single Federal subsidy dollar.

WISPs are able to deploy quickly and cost-effectively in no small part due to the availability of unlicensed spectrum. Unlike licensed spectrum, which belongs exclusively to a single company in a defined geographic area, unlicensed spectrum is shared by anyone who can come up with the technology to use it. As a result, a vast number of consumer devices, such as baby monitors and telephones, co-exist with fixed wireless devices in the unlicensed spectrum space. There has been a boom of innovation in the unlicensed space over the last few decades. The unlicensed economy created by this innovation has allowed for an unparalleled development of consumer and technological advancements and subsequent reduction in equipment costs. The competition created by the availability of unlicensed spectrum has in turn allowed WISPs like Aristotle to deploy affordable broadband to non-urban areas in a cost-effective and efficient manner.

For this reason, it is critical that spectrum policy be balanced. Licensed spectrum is important and necessary, but we also must make sure that sufficient unlicensed spectrum is available for Wi-Fi offload, small cells, and—most importantly—for rural communities and fixed broadband services. Part of this balance is predicated on the fact that new spectrum is not being invented—it must be transferred to the government, re-purposed and shared in creative ways. Last year, the PCAST Report rightly found that sharing spectrum with the Federal Government or commercial incumbents may be the only way to bridge the spectrum gap when spectrum cannot be made available on a nationwide basis.

WISPs support the sharing approach because our spectrum needs are local and regional and not nationwide, so carving out areas to protect government radar and satellite earth stations do not present problems, especially when the trade-off is more unlicensed spectrum everywhere else. And as WISPs build networks and put unlicensed spectrum to use, we employ people, incent innovation, and enable rural consumers and businesses to have the same broadband experience as their urban and suburban contemporaries.

In the Spectrum Act that Congress passed last year, Congress took an important step to help promote unlicensed spectrum. It required the NTIA and the FCC to look at ways to make available up to 195 megahertz of spectrum in the 5 GHz band—120 megahertz in the 5350–5470 MHz band and 75 megahertz in the 5850–5925 MHz band. These bands are adjacent to the 3.65 band that WISPs already use, so the ability to gain access to more spectrum in adjacent bands is critical. This is not to diminish the difficult technical issues associated with sharing the adjacent bands with other services that already use (or are licensed to use) them. But these technical challenges should not stand in the way of creative solutions.

And, of course, it is virtually impossible to discuss spectrum policy without a word on incentive auctions, the process Congress authorized that will transfer broadcast TV spectrum to licensed wireless use so the mobile carriers can increase their spectrum holdings. What is important to rural Americans is not so much how that auction plays out but rather what the impact will be on the TV white spaces—the vacant TV channels that will remain for unlicensed use. Because of the superior propagation characteristics of this spectrum, WISPs will be able to add spectrum to their existing inventory to accommodate greater capacity and to extend networks further into rural and remote areas. More than any other unlicensed band, TV “white space” spectrum is well suited for penetration deeper into rural areas where there are limited or no terrestrial options. This is especially true for large areas of Arkan-

sas, where trees, foliage, and rolling hills make TV white space particularly attractive.

The ability to reap the benefit of this spectrum is threatened on two fronts: First, the FCC may be tempted to auction every single slice of “white space” spectrum in order to maximize the money obtained through the incentive auction process. This would be a serious mistake. In rural areas where there is typically more “white space” spectrum available, the need for this spectrum is also greater. In the balance of equities, it is clear that the consumer welfare benefits of allowing unlicensed use of rural “white space” far surpasses any immediate and short-term benefit the government could gain in terms of revenue from an auction. Any revenue received from an incentive auction would be one-time and limited, whereas the ability to deploy reliable fixed high-speed broadband access to the town of Star City would produce far greater economic benefits in terms of a larger tax base and greater economic and workforce development.

The second threat comes from re-packing, which is the process of relocating TV stations to alternative spectrum to make way for auctioned spectrum. When re-packing the TV band, the FCC should do what it can within statutory limits to optimize the remaining spectrum for fixed unlicensed use. Technical rules already limit the use of “white spaces,” and a re-packing process that ignores WISPs and other innovative users will be a lost opportunity.

Some equipment manufacturers are pressing ahead with “white space” equipment; others are on the sidelines waiting to see how the auction rules are constructed and result of the auction. The “white space” economy is at a crucial tipping point, so it is particularly important that the FCC insures that sufficient usable “white space” remains after the auction to provide the broadband benefits to rural America that “white space” spectrum affords.

Often when discussing spectrum, the small-cell debate comes to the fore. Late last year, the FCC initiated a proceeding to make available up to 100 megahertz of spectrum in the 3.5 GHz band—a band that sits adjacent to the 3.65 GHz band that many WISPs use. In the three-tiered “spectrum access system” to allow sharing with Federal and commercial incumbents, the FCC proposed authorizing “small cells” in at least a portion of this band. This proposal, of course, is designed to provide additional capacity for bandwidth hungry, urban areas—and there is nothing wrong with that—*provided* that the FCC does not miss the opportunity to allow higher-power use in rural areas alongside small cells. This is not an all-or-nothing proposition—small cells and higher-power facilities can co-exist. In fact, the FCC can—for the first time—adopt different rules for urban areas and rural areas. In urban areas, the FCC can prioritize “small cells,” and in rural areas it can prioritize higher-power operations. Incumbents can be protected through geographic exclusion zones, and unlicensed users can coordinate through a database. This is another example of how spectrum can be responsibly shared through creative spectrum management policies that balance the interests of rural and urban areas. Creative solutions like this are critical if we to ensure that every Arkansan has equal access to broadband Internet and the economic benefits it conveys.

I know I don’t need to tell you that access to broadband is critical to rural and underserved areas. But as Congress and the FCC moves forward with spectrum policy, we must avoid the temptation to impose on rural America solutions designed to rectify problems limited primarily to large, urban areas. While bandwidth congestion and the need for additional spectrum for cellular carriers is often in the news, the fact is that most of this congestion occurs in major metropolitan areas like New York, L.A. and Chicago. It simply doesn’t exist to the same extent in Little Rock, much less in Malvern. In these areas, its access to unlicensed spectrum for fixed service to residential areas that should be a focus of spectrum policy. This fact is self-evident, and we must ensure that a policy designed for high-density markets does not become the default policy for every market.

Finally, I would be delinquent if I didn’t say something about USF/CAF. Earlier in my remarks I mentioned that WISPs do not receive Federal subsidies. This is due in part because WISPs are ineligible for Universal Service Fund support because they do not offer telecommunications services as well. However, as USF reform moves forward, the WISP community remains concerned that the FCC’s rules could allow subsidized carriers to obtain financial support for areas where WISPs already provide broadband service and where an unsubsidized telephone company offers voice services. Additionally, we disagree with the FCC’s proposal to require WISPs to contribute *to* USF when they are statutorily prevented from taking funds *from* the program. These sorts of rules are inherently unjust and inequitable, but in addition they make it more difficult for WISPs to build out in the face of a subsidized competitor. Having sufficient funds for USF may be important, but it should not come at the expense of privately-funded small businesses.

For many Arkansans—and for that matter all Americans—residing in rural and remote areas, access to unlicensed spectrum is the one element that government can and must provide. WISPs can and do use that resource and add their own capital, ingenuity, perseverance and good old-fashioned elbow grease to provide broadband access to the millions of Americans that today do not have access to affordable broadband services. We should ensure that the policies we adopt are balanced and enable rural families to receive the broadband access they deserve.

Thank you for your time and interest, and I look forward to your questions.

Senator PRYOR. Thank you.
Mr. Sanders?

**STATEMENT OF STEVEN G. SANDERS, JR., PRESIDENT AND
GENERAL MANAGER, NORTHERN ARKANSAS TELEPHONE
COMPANY (NATCO)**

Mr. SANDERS. Thank you, Mr. Chairman.

My name is Steven Sanders, and I am the General Manager of Northern Arkansas Telephone Company. NATCO is an independent local exchange carrier currently employing 43 people that was founded in 1951 by my grandfather. It presently serves about 5,000 access lines in 6 northern Arkansas exchanges in Marion and Boone Counties.

Companies like NATCO face a formidable task: building communications networks in areas where there often isn't a business case for doing so because of sparse population and rugged terrain. Thanks to the efforts of Senator Pryor and others, NATCO in 2010 received a Broadband Initiatives Program grant loan from the Rural Utilities Service that will soon enable us to provide fiber-to-the-home broadband services at initial speeds of 20 to 50 megabits per second to customers in our Diamond City exchange.

NATCO also upgraded about half of its Bull Shoals exchange during 2009 and 2010 with fiber-to-the-home facilities but suspended that project in December 2011 due to the uncertainties arising from the FCC's November 2011 USF-ICC order. Many of the reforms to the Universal Service Fund and intercarrier compensation regime initiated by the FCC in the 2011 order have caused rural ILECs to think twice about making further investments in their networks.

The Federal USF program has had remarkable success in enabling over 95 percent of U.S. households to connect to the public voice network and in beginning the transition to a public broadband network. However, the Nation will not be well-served if its rural residents have access to only 4-megabits-per-second download and 1-megabit-per-second upload speeds supported by the FCC in rural areas, while their urban counterparts can obtain 100 megabits or better in both directions that are being supported by the FCC in urban America.

This will have an effect which deprives them of the use of many business, educational, medical, and entertainment applications available to urban residents. This is the worst sort of digital divide and will deny rural families of the opportunity to participate fully and fairly in the economic and social life of the Nation.

The quantile regression analysis model is a case in point where the FCC has created unpredictability and uncertainty that has brought broadband investment by rural ILECs to a virtual halt. If NATCO builds a fiber project in 2014, it will not begin to receive

any USF support to help recover the cost until 2016. And then the amount it receives will be subject to potential decreases each year due to the operation of the QRA, which calculates annual USF support each year on the basis of coefficients determined by the investment and operating costs of hundreds of other rural ILECs of which I have no knowledge. The end result is that I cannot assure lenders that NATCO can cover the costs of potential infrastructure projects.

In conclusion, broadband has incredible benefits to offer all Arkansans, but it is the rural economy, the one that is most geographically isolated, that stands to gain the most from the way that broadband shrinks the distance between users.

NATCO and others like it are committed to serving our communities. There is an opportunity here for Federal policymakers to assist us in building the networks of the future, and that is by making sure policies are in place to adhere to the principles and provisions of the Communications Act.

Thank you.

[The prepared statement of Mr. Sanders follows:]

PREPARED STATEMENT OF STEVEN G. SANDERS, JR., PRESIDENT AND GENERAL
MANAGER, NORTHERN ARKANSAS TELEPHONE COMPANY (NATCO)

My name is Steven Gill Sanders, Jr., and I am the President and General Manager of Northern Arkansas Telephone Company (NATCO).

NATCO is an independent, incumbent local exchange carrier, currently employing 43 people, that was founded in 1951 by my grandfather. It presently serves approximately 5,000 access lines in six rural northern Arkansas exchanges: the Flippin, Bull Shoals and Pyatt exchanges in Marion County, and the Lead Hill, Diamond City and Omaha exchanges in Boone County.

NATCO has a very rural and high cost service area. It is scattered over sections of a two-county area that no one else wanted to serve when my grandfather and father were putting the company together during the 1950s and 1960s. It is sparsely populated, with only Bull Shoals (2011 population: 1,948) and Flippin (2011 population: 1,354) having more than a couple hundred people, and the entire area having less than 7.6 lines per square mile. Its rocky terrain makes it very expensive to bury telecommunications lines, while wind (periodic tornados) and severe electric and ice storms wreak regular havoc upon overhead lines.

While I'm here today solely as a representative of my company and lifelong resident of the state of Arkansas, there are hundreds of small, rural independent local exchange carriers (ILECs) across the country that have similar thoughts and views as the ones I'm about to present. Companies like NATCO face a formidable task—building communications networks in areas where there often isn't a business case for doing so because of sparse population and rugged terrain. If it were not for the services provided by NATCO and other rural telecommunications providers, many Americans, small businesses and anchor institutions in rural areas would be cut off from the benefits of modern communications. In addition, much of the wireless traffic in rural areas runs from towers through our networks to the broader network. Without the underlying wireline network, cell phones would not work.

Nonetheless, NATCO recognizes that the public telecommunications network is evolving from a voice network to a broadband network, and has been working hard to bring digital subscriber line (DSL) and other broadband services to its customers. We presently provide 65-to-70 percent of our rural customers with some form of broadband service, generally at broadband speeds in the 1 Mbps to-8 Mbps range. Thanks to the efforts of Senator Pryor and others, NATCO in 2010 received a Broadband Initiatives Program (BIP) grant-loan from the Rural Utilities Service that will soon enable us to provide Fiber-to-the-Home (FTTH) broadband services at initial speeds in the 20-to-50 Megabits per second range to over 400 customers in our Diamond City exchange. NATCO also upgraded about half of its Bull Shoals exchange with FTTH broadband facilities during 2009 and 2010 but suspended that project in December 2011 due to the uncertainties arising from the FCC's November 2011 USF/ICC Order. Many of the reforms to the Universal Service Fund (USF) and intercarrier compensation (ICC) regime initiated by the FCC in its 2011 Order have

caused rural ILECs to think twice about making further investments in their networks.

NATCO understands that this is a time of economic uncertainty and budget deficits, and that many are seeking re-examination of the continued need for many government programs. However, the Federal USF program has had remarkable success in enabling over 95 percent of U.S. households to connect to the public voice network, and in beginning the transition to a public broadband network. It is both sad and frustrating to people like me who have grown up in the industry that the FCC has limited USF support for rural telephone companies to the \$2 billion aggregate amount they received in 2011 at a time when they need to make substantial investments in fiber facilities to upgrade their broadband services. The nation will not be well served if its rural residents have access to only the 4 Mbps download speeds and 1 Mbps upload speeds supported by the FCC in rural areas while their urban and suburban counterparts can obtain the 100 Mbps or better broadband speeds in both directions that are being encouraged by the FCC for urban America. This not only means that rural residents will have to wait much longer for information to appear on their computer screens, but more significantly, deprives them of the use of many of the business, educational, medical, and entertainment applications available to urban residents. This is the worst sort of “digital divide” and will deprive rural families of the opportunity to participate fully and fairly in the economic and social life of the Nation.

In fact, let me emphasize what should be one of the fundamental principles of telecommunications law—namely, if all Americans are going to have equality of opportunity, rural residents need reasonably comparable access to the same broadband transmission and content as urban residents at rates that are reasonably comparable to the rates paid by urban residents. This principle is already in law, as Section 254(b)(3) of Communication Act, which states that Federal support mechanisms for rural communications should be “specific, predictable and sufficient.” However, it needs to be much more thoroughly implemented and enforced.

Even within its \$2 billion USF budget for rural telephone companies, the FCC has created unpredictability and uncertainty that has brought broadband investment by RLECs to a virtual halt. The FCC’s Quantile Regression Analysis (QRA) model is a case in point. First, it is based upon the myth that RLECs have a surplus of capital available and that they are therefore inclined to over-invest in unnecessary infrastructure projects in order to maximize their USF support. I don’t know of any such companies and can guarantee you that I have to provide detailed justifications and projections to my Board and lenders before I can get approval of NATCO’s infrastructure investments. More important, the QRA puts managers like me in an impossible position. If I propose a \$3 million fiber upgrade for 2014, I will not begin to receive any USF support to help recover the cost until 2016, and then the amount I receive will be subject to significant potential decreases each year due to the operation of the QRA which calculates my maximum annual USF support each year on the basis of coefficients determined by the investment and operating costs of approximately 800 other rural ILECs of which I have no knowledge. The end result is that I cannot assure my Board and lenders that I can recover the costs of potential infrastructure projects. I have had to suspend our Bull Shoals fiber upgrade and have not been undertaking additional broadband upgrades (other than the BIP project in Diamond City).

In addition, the FCC is presently proposing to reduce significantly the authorized rate of return (ROR) for rural ILECs on their interstate infrastructure investments. The FCC’s proposed process ignores the procedure adopted by Congress in Section 205 of the Communications Act, and disregards pleas from the industry to wait until the effects of its 2011 “reforms” can be discerned before cutting ILEC revenues further. The FCC’s ROR proposal is further defective because it is based upon interest rates that are unlikely to remain at their current historic lows and upon the capital costs of much larger companies which often have little or nothing in common with rural ILECs.

Part of making sure that broadband continues to reach rural Americans is ensuring that the USF is on stable footing. As explained above, the FCC has begun the process of modernizing the distribution side of the fund with mixed results. But it also must begin reform of the contributions side—the method by which consumers pay into the fund. The traditional contribution base, which was once heavily related to long distance usage, is changing because of things such as e-mail, cellular service, and other movement away from the long distance network.

As we look to expand our broadband network in rural areas, we also confront the issue of household broadband adoption. The FCC has recognized the importance of video programming in encouraging broadband adoption. Our customers need access to high-speed broadband connections in order to take full advantage of online

streaming video services such as Netflix or Amazon Prime. Sufficient and predictable funding for broadband buildout is essential in enabling rural consumers to access the diverse video programming options available online. Rural broadband providers are also encountering increasing difficulties and expense to obtain retransmission consent from broadcast stations. When Congress enacted retransmission consent in 1992, it set no limits in Section 325(b) of the Communications Act on what broadcasters could require for their consent. Over the years, broadcasters have determined that rural telephone companies and other small CATV operators need the broadcasters more than the broadcasters need them, and have been increasingly using this concept to demand larger and larger retransmission consent payments and other additional consideration. Likewise, many satellite programmers charge small operators much more than large CATV companies for their program channels. Even with programming cooperatives that many rural ILECs use, they still pay much more than the CATV MSOs [multiple system operators] for the most popular satellite channels.

Whereas no one wants Congress to regulate program content, there ought to be a national debate about the non-discriminatory pricing of such content so that people in all portions of the country and customers of both large and small carriers can have reasonably comparable and affordable access to it.

In conclusion, broadband has incredible benefits to offer to all Arkansans, whether rural, urban or suburban. But it's the rural economy, the one most geographically isolated, that stands to gain the most from the way broadband shrinks the distance between users. My company and others like it are committed to serving our communities. There's an opportunity here for Federal policymakers to assist us in building the networks of the future and that is by making sure policies are in place that adhere to principles and provisions of the Communications Act. I look forward to working with you to achieve this goal.

Senator PRYOR. Thank you.

We have covered a lot of ground here. I want to dive in first, if I may, with Eddie Drilling. Mr. Drilling and I first met way, way, long time ago when he was with Southwestern Bell Telephone. And he really has had a front-row seat to so many changes, like many of you had, but he has had a front-row seat to so many changes in the industry.

And I would like to—let me start, if I may, Eddie, with you on the IP transition. That is just one of the many changes that are coming around.

First, could you explain to the Subcommittee what I mean by “IP transition”? Second, if you could give us an update in terms of where your company is. Because I would like to hear from all the companies on where they are on IP transition.

Mr. DRILLING. So this “years and years of front row seat,” basically you are just telling me I am old?

[Laughter.]

Senator PRYOR. Yes.

Mr. DRILLING. Is that what you are kind of getting around?

Senator PRYOR. Me, too.

Mr. DRILLING. I appreciate that, Senator. Thank you.

Well, you know, I guess the IP transitioning is something a little bit different to different people, different companies. But, you know, basically what I was explaining in my remarks is that this is taking place before our very eyes. You know, the fact that we have customers that are leaving our traditional TDM switch network at the rate that they are leaving it and either going with a wireless-only solution, an IP solution, VoIP, voice over Internet protocol, cable, who is providing service, you know, over VoIP, it is a very competitive environment. So this transition away from traditional landline-type services to an IP solution is what we are talking about.

And, you know, you would think—in our case, I mentioned that, you know, we were down to, like, 17 percent of our residential living units actually having a traditional landline, TDM-type service. And you would think that that would start to level off, but, in fact, what we are seeing even this year is that the rate of people moving away from traditional service is even accelerating.

So, you know, we are obviously still investing to try to keep up maintaining and keep up with what traffic there is on our old network, but it presents a challenge just because we obviously see the majority of our customers going in a different direction, wanting higher speeds of bandwidth. They want, in many cases, more extensive wireless coverage and LTE coverage, which we are accommodating.

And I think, you know, what we are also seeing, you know, 6 years ago we didn't know what an app was. You know, it wasn't even in our vocabulary. And now there are millions of these being created every day. You know, most of the world now is carrying around a smartphone. Basically 100 percent, over 100 percent of the people are carrying a wireless device. That is how their connectivity is coming to them. We are seeing more and more wireless data being consumed.

So this transition to how people are communicating, the IP networks that are carrying all these traffic, we have seen just in the last 5 years that increase by 30,000 percent over our network. And Arkansas is no different than any other state, even though we are more rural; we consume a lot of wireless data. So the demand is there, and I think we are going to see over the next 6 years that continue to go up exponentially.

Video is going to drive a lot of this. You know, the applications and the educational opportunities, the healthcare opportunities, agriculture, all these are going to be much more video-centric. And that is going to drive a lot more need for IP connectivity and bandwidth, spectrum, in order to accommodate that.

Senator PRYOR. And the other thing that has changed considerably over the years is your competitors, right? You have more competitors—

Mr. DRILLING. We have had a front-row seat for that, too.

[Laughter.]

Mr. DRILLING. Very much so.

Senator PRYOR. And it is nice that—

Mr. DRILLING. They are all around me here.

Senator PRYOR. Yes, it is nice that they are all sitting here all calm and everybody is nice to each other.

[Laughter.]

Senator PRYOR. Because in the marketplace, you are in there beating each other's brains in, right?

Mr. DRILLING. You know, I love these guys.

[Laughter.]

Mr. DRILLING. It was good to be a monopoly.

[Laughter.]

Mr. DRILLING. No, but it is a very, very competitive model.

And, you know, I would say that, in our case, as well, you know, we have 110 wire centers or towns that we serve in Arkansas. Half of those have living units of under 2,500 people—or 2,500 living

units. So we serve a whole lot of rural territory, as well, and we still see these dynamics in that marketplace, as well.

Senator PRYOR. So, if I can, Mr. Gardner, let me ask you some of those same questions about where your company is on IP transition. Mr. Drilling mentioned the data usage and how that just seems to go up, it seems like, every year exponentially.

So tell us where you are and how you are meeting some of these challenges.

Mr. GARDNER. Thank you.

I think Mr. Drilling did a great job of describing what is going on on the residential side. There is a great deal of change, and we have seen that as well.

At Windstream, we have really made a ton of investments on the enterprise side and are really converting our network very quickly to IP as well, adding softswitches, building fiber to the tower for companies like Verizon and AT&T. So it is happening every day. We are seeing very similar things.

I would say that we are a bit unique in that we are a competitive access provider, as well, in many states and some large markets, as well, and here in Little Rock. And in those markets, we are competing with AT&T, Verizon, some of the cable companies, as well. And I think it is a little bit different on the business side.

And so, as we think about the IP transition, I think that we have to think about those different models. It is not quite the same as on the residential side. There aren't as many choices for businesses. And competitive access providers like Windstream provide a unique option in the marketplace for customers. And oftentimes when we sell to a customer, we need to rely on a connection with AT&T or Verizon to reach that customer as part of our solution. And so it is something that we are very focused on.

And the other thing that I think, as we think through that, that is really challenging in our market, because we do have some huge companies, some midsize companies, and some small companies, we are all on different paths. And I think as we think through these IP transition solutions, we just have to be aware of the fact that companies are on different migration paths. We want the system to all work together so that customers at the end of the day are best-served.

So I absolutely agree that something needs to change. It is critically important. For us to serve our customers, we have to convert our networks very quickly to IP, and I think the regulatory change to support it is critical. And, again, I think that, when you think about it, just think about business a little bit differently than you do on the residential side.

Senator PRYOR. OK.

Mr. Strode, did you have anything to add on IP transition and data usage, et cetera? And, by the way, how many customers to you have, just so we will know?

Mr. STRODE. Roughly 10,000 voice customers, 15,000–16,000 video customers, high-speed Internet customers probably in the 12,000 range in Arkansas.

We provide an IP-based voice service over our hybrid fiber-coax cable network. Where we are the primary video provider in those areas, we are looking at how we can transition our traditional

ILEC territories to an IP-based service. And, certainly, our transmission between exchanges and to the outside world, some of that has already transitioned to IP-based services.

Just anecdotally—and I certainly don't say this to be critical of AT&T. As you commented, as Mr. Drilling said, his competitors are here. I looked around at this panel, and Ritter Communications partners with, works with, provides wholesale services to every company on this panel, I think, except Aristotle. But we are also competing with everybody on this side of the table.

[Laughter.]

Mr. STRODE. And certainly, you know, to some extent, our services compete with wireless services that are provided by Verizon, although we provide wholesale transport services to Verizon. So it is an interesting ecosystem that we are in.

My father-in-law has a defibrillator implanted in his chest and has a device on his nightstand that every night takes readings remotely from that defibrillator. A couple years ago, he became a—he lives here in Little Rock. He is a customer of AT&T. He decided to switch to U-Verse services, and that was great. They were really looking forward to the service they were going to get there. And after they made that transition, they found that the device that reads his defibrillator every night would not work with, is not compatible with the service that AT&T was providing. And so he had to go back. And they also maintained their U-Verse service, but they also subscribe to an analog line to their house to connect just to that device.

So there is some work that needs to be done in the industry, in the medical device industry, to make those devices where they will be compatible with the new technologies, as well. And I think that is a good example of something I talked about in my testimony, in terms of needing reasonable rules of the road to make these transitions that consider all of the implications and ramifications of those changes.

Senator PRYOR. Do you have any comments on IP transition and data usage?

Mr. KURTZ. Just quickly. Everything has pretty much been said. Obviously, as Mr. Gardner said, enterprise and government are driving a lot of that for us. We also offer our own IP product.

And, once again, as you see challenges, every company is kind of taking a different path with their direction. CenturyLink does not have a wireless company. So AT&T and Verizon are looking at it one way. Windstream has a competitive access provider looking at it another way. We will be looking at it another way.

So we are going through the thoughts right now. You know, it is being driven pretty fast, but it is going to probably take a 5- to 10-year period to get there for CenturyLink. And we look forward to working with everybody, but everybody has a little different look and view of how we are going.

Senator PRYOR. Mr. Ashcraft, I am curious about your company in terms of, are you trying to do an IP transition there?

Mr. ASHCRAFT. We have a VoIP product that we offer. A few customers are on it. We know that probably people are migrating, using other products because of our access is decreasing, so we

know they are utilizing some products. But we do offer that product.

Senator PRYOR. And, Mr. Sanders, you have that same—you do IP, right?

Mr. SANDERS. We do. We have invested in a softswitch, and our remote carrier systems are IP-based. And I think NATCO and a lot of small companies throughout the country have invested in that type of equipment.

I guess the thing that I would say is that—I mean, there are a lot of efficiencies that you can gain by using IP technology. But it is a situation where we would like to proceed with caution, because the service that we can provide our customers in our network is dependent on the services that are offered to us from other companies and the connectivity that we have from other companies.

The country has done a good job in building a network for voice communications, and we don't want to see anything fall apart, so to speak, when you transition to IP. And I know that the Committee and the FCC is somewhat familiar with call-termination issues, which to rural companies like ours are often VoIP-related. And whether it is intentional or unintentional, those VoIP issues do affect our customers.

Senator PRYOR. I want to follow up on that in just a minute, but, first, Mr. Russell, did you want to talk about IP?

Mr. RUSSELL. Well, Senator, I joined the communications industry in 1982, and I remember that at that time the innovations that were introduced that were remarkable in the marketplace was harvest gold and avocado green as colors of phones you could have in your home—

[Laughter.]

Mr. RUSSELL.—as opposed to the basic black. And, of course, the phones did have dials. So the transformation has been remarkable, in that my company was a regulated monopoly at that time, as well.

I think what you hear from us is, like these other companies, we see this transformation happening toward IP- and cloud-based services. And the reason that we have been so aggressive with the implementation of this long-term evolution technology in our wireless network has been to provide the faster download speeds. The average download is 10 to 12 megabits on this technology, which is very competitive with cable modem or DSL services. Because we know that that is where—the IP- and the cloud-based services are where so many industries are moving, because it allows people to be more productive and more cost-effective.

Senator PRYOR. Yes.

Ms. Bowles, did you have anything to add?

Ms. BOWLES. Yes. We are, of course, a company that everything we do is already IP-based, and so we view this as a huge market opportunity. And one of the things that our company is doing is we are looking at starting to offer Voice-over-IP services and some other IP-based services.

So coming at it from the other side, we view this as a really promising development from our competitive perspective, the ability to offer phone service and other product lines that we don't currently offer.

Senator PRYOR. OK. Great.

Mr. Sanders, let me follow up—oh, go ahead.

Mr. DRILLING. Could I just—

Senator PRYOR. Yes.

Mr. DRILLING.—add one more thing, Senator, in response to Mr. Strode's comments?

You know, I think when we look at this transition and all of the different products and issues that are out there —certainly, you know, home monitoring, health monitoring, and those kinds of things—I think that kind of points to what I know the commissioner is very familiar with; there has been a lot of discussion about having a trial to kind of work through some of these issues.

And I think that just points out the, you know, urgency and the need for us to kind of go through this and work through some of the issues. It is certainly not our intent, by any means, to leave someone without a heart-monitoring situation. I think the technology can keep up and we can implement that in a way that even makes this service and those kinds of technology better, more portable.

And I think that those can be worked out, but I just think it points out the urgency of moving forward with a trial so we can work through a lot of the questions that we may not have answers for right now, but we want to work on getting those answers.

Senator PRYOR. Great.

Mr. Sanders, let me follow up with you on something you mentioned a moment ago about call completion. And I assume that Mr. Ashcraft is having this problem, and I know that Mr. Strode has had it because we have talked about it before.

But tell the Subcommittee and the group here what you mean by, you know, the problem with call completion and it being related to VoIP.

Mr. SANDERS. Well, certain carriers—and we don't always know who they are—they use least-cost routing formulas to try to route calls in the most inexpensive way that they can. And so, as a result, sometimes in rural areas, where it takes a longer path to get to the end customer, sometimes those calls don't come through. And it, like I say, could be intentional or not intentional or a result of the technology.

But often we don't know about those calls when they happen, and so it is a little difficult for us to track down what happened. Because, typically, when the call comes in to us, we don't have any record of it if it does—we don't have a record of it if it doesn't make it in to us. So we have to rely on our upstream long-distance providers to help us with that if we hear from a customer who has reported the problem.

Senator PRYOR. And so, for the customer, what happens is they place a phone call and it just rings and rings and rings? Or what does it do?

Mr. SANDERS. Yes. I think that that is what happens on the other side.

Senator PRYOR. And you just don't ever—you really don't know unless you get a complaint.

Mr. SANDERS. Right. Our switch doesn't ever see the call, we don't have a chance to deliver it, and our customer doesn't know

that they were trying to be called unless somewhere down the line they talked to that person and they say, oh, you know, we had tried to call you at one time.

Senator PRYOR. And what is the connection to Voice-over-IP?

Mr. SANDERS. Many of the long-distance companies convert the voice to IP or are using IP, and so they have routers that are set up that start handing the calls off to try to find the most inexpensive way to route it. And at some point the router either drops the call or decides not to continue trying to complete the call.

Senator PRYOR. And have you had that problem, Mr. Ashcraft?

Mr. ASHCRAFT. Yes, sir.

Senator PRYOR. And, Mr. Strode, I think you have had that problem, as well.

And I guess the FCC has released a notice of proposed rulemaking on this with Level 3 Communications. I guess there is a consent decree.

And, Mr. Strode, from your standpoint, are those the right steps? Does that fix the problem? Tell me how you think this is going.

Mr. STRODE. It is a step in the right direction. I think until we can identify where all the problems are, it is hard to know what all the solutions are, certainly. But it is a step in the right direction.

Of course, we would love to see everything move as quickly as possible, certainly, and our customers would like the problems to be fixed. It is hard to explain to our customers what is going on, what causes those issues.

We appreciate your leadership on the resolution that was recently reported out of the full Commerce Committee, and we look forward to that being passed by the full Senate, as well.

Senator PRYOR. Yes. Thank you. We just passed that.

Ms. Rosenworcel, do you want to have a comment on any of that you just heard?

Ms. ROSENWORCEL. Well, first things first. If you are calling a relative in a rural area and your call just never goes through, that is not acceptable. And if you are trying to reach a business in a rural area and your call doesn't go through, that is a lost order. It is also not acceptable if you are trying to reach emergency help in a rural area and that call never goes through.

So this is a problem I think the FCC has to take action on. We have set up a taskforce, we have issued a declaratory ruling, and now we have this rulemaking that Senator Pryor discussed. I think the good thing about that rulemaking is it proposes new recordkeeping requirements. And those recordkeeping requirements will help the agency go after the bad actors that do not connect these phone calls.

And it is my hope I can go back to Washington and convince my colleagues that we should take action on that soon, because this is a problem that I think we can resolve and I think it needs resolving.

Senator PRYOR. Thank you.

Ms. Bowles, let me ask you a question based on your testimony. You talked about licensed and unlicensed spectrum. You mentioned how important unlicensed spectrum is. Could you tell the Sub-

committee and everybody else here what you mean by that? I think a lot of people aren't familiar with the term "unlicensed spectrum."

Ms. BOWLES. Sure.

Licensed spectrum is spectrum that is allocated for specific uses and specific people. Unlicensed spectrum is open for anyone to use who has equipment that will work on it.

One example of that is 900-megahertz spectrum, and you have running on that spectrum the wireless phones in your house, the cordless phones, the baby monitors, as well as fixed wireless broadband. And a number of fixed wireless providers around the country use 900 predominantly.

You recently had a ruling out of the FCC that Progeny is going to use that 900 for some first-responder networks that they are running in some of the major metropolitan areas. And that unlicensed spectrum is also used in toll tags and a number of other areas.

So what you see in unlicensed spectrum is, because it is wide-open, you have a lot of innovation and you have a lower cost of equipment and a lower cost for deployment of equipment on that spectrum because it has a larger market, I guess is a better way to put it.

And the actual value of that market is somewhere between \$17 billion and \$37 billion today. And that is not even projecting the \$25 billion savings for cellular offloading onto Wi-Fi networks and those types of things.

So unlicensed is extremely critical for this country's infrastructure. And when I mention the importance of it, it is not at the exclusion of licensed spectrum; you need that too. But we have to bear in mind that auctioning off every piece of spectrum or making everything licensed is going to shoot us in the foot, because we absolutely need unlicensed spectrum available in this country for the innovation that we have seen, particularly for rural parts of the country.

Senator PRYOR. Good.

All right. Now, I am going to do the same thing with this panel I did with the last one. We have covered a lot of ground here. Does anybody want to offer any comments or thoughts on things we didn't cover?

Jeff?

Mr. GARDNER. Just one thing that was mentioned earlier. We are really excited about the E-Rate initiative and what is going on here in Arkansas and what Commissioner Rosenworcel has done with her discussion around E-Rate 2.0. I think that is a tremendous opportunity for all the companies here to work with the educators in Arkansas and across the country to really take full advantage of the opportunity to connect these students to faster bandwidth to improve the education system around the country.

So we are excited about it and anxious to do whatever we can. And I appreciate the leadership of the commissioner and you, Senator Pryor, on this important initiative.

Senator PRYOR. Thank you.

Anybody else have anything?

Well, you guys have been great. Again, we are covering so much ground here. On any one of these topics, you could drill down and

spend an hour or more just talking about the one thing. But I think what we were saying before is that Arkansas really is a microcosm of what is going on out there, some of the challenges, some of the opportunities, and, you know, the various players in the market here. It is just a great case study in where we are with telecommunications.

So what we are going to do here is we are going to take a few-minute break between this panel and our next panel. Why don't we—I guess we can go 15 minutes. Why don't we try to reconvene right at 11 o'clock.

And let me say thank you all for being here and doing this.

And with that, we will just recess until 11 o'clock.

[Recess.]

Senator PRYOR. Again, you know, part of the value here is all these conversations that go on during the breaks, and that is certainly worth doing, but we need to move forward on our next panel. And let's see, it looks like they are all set up here, so what I will do is I will just, again, run through the list, and we will just go around the room.

LaDawn Fuhr, she is with Suddenlink Communications; Doug Krile, Arkansas Broadcasters Association; Allen Weatherly, AETN; Len Pitcock, Cox Communications; Mike Wilson, Comcast of Arkansas. I think I got everybody there.

So, Mr. Weatherly, why don't you go ahead and start? And 3 minutes each, and we will just go around the room. Thank you.

**STATEMENT OF ALLEN WEATHERLY, EXECUTIVE DIRECTOR,
ARKANSAS EDUCATIONAL TELEVISION NETWORK**

Mr. WEATHERLY. Thank you, Mr. Chairman. I want to thank you for your support of public media and that of your father, Senator David Pryor, who serves on the Board of the Corporation for Public Broadcasting. It is very important.

Since 2000, I have been Executive Director of the Arkansas Educational Television Network, a statewide public media service. And I also serve as Vice Chair of the national PBS Board of Directors.

So, from the point of view of one broadcaster and media content provider, in our state AETN provides free educational services and programming from PBS programs like Sesame Street to "NOVA," "Ken Burns" to, yes, "Downton Abbey" and AETN favorites like "Exploring Arkansas with Chuck Dovich," "Arkansas Week," and documentaries like our recent "Bayou Bartholomew." PBS ratings are up—unusual in today's broadcast environment. So people do respond to mission-based programming.

Our mission is to serve everyone everywhere every day, free to all Arkansans no matter their station in life or location. All distribution options are important: broadcast, cable, satellite, and online services that are helping AETN reach schools with our ArkansasIDEAS professional development service in partnership with the Arkansas Department of Education.

ArkansasIDEAS is a success, now one of, if not the, largest statewide online professional development portals in the nation, with currently 47,000 registered teachers and growing. Education has been at the heart of AETN for 5 decades, using connectivity to pro-

vide targeted educational services to educators—public, private, and homeschool.

Adequate broadband is vital for expanding important services to education through IDEAS; the AETN–PBS LearningMedia, which delivers thousands of video learning objects for teachers to use in their classrooms; PD-credit Common Core State Standards resources; and a gateway to the Teacher Excellence and Support professional development that educators are now required to obtain before being evaluated by their administrators; and contains free online professional development available through AETN they can choose to support the teacher.

Arkansas IDEAS has also created an open-access portal for non-licensed teachers, utilized by the Teach for America program, the Non-Traditional Licensure Program at ADE, and anyone applying for an Arkansas teacher’s license through reciprocity.

With limited resources but using every media platform, AETN works to provide resources for children to learn and give Arkansans access to unique dramas, documentaries, history, public affairs, and arts programming, accessible to all, which is vital, rural and urban.

Thank you for this opportunity.
[The prepared statement of Mr. Weatherly follows:]

PREPARED STATEMENT OF ALLEN WEATHERLY, EXECUTIVE DIRECTOR,
ARKANSAS EDUCATIONAL TELEVISION NETWORK

I am Allen Weatherly, Executive Director of the Arkansas Educational Television Network, a statewide public media service with six transmitters covering our state. I am completing my thirteenth year as the Director of AETN and have been in educational television for thirty-three years.

On behalf of the AETN and America’s 361 public television stations, we appreciate the opportunity to submit testimony for the record on the importance of local public television stations—in partnership with PBS and others—in providing needed educational services to the students, teachers and parents of Arkansas and beyond.

The range of distribution options remains an important part of our services—from broadcast—becoming even more relevant in an age when so-called “cord cutters” are returning to over the air for their local station options—cable, satellite and, importantly, online, which is crucial for state networks like AETN to reach schools all across the state with our Arkansas IDEAS professional development service delivered free in a partnership with the Arkansas Department of Education. Currently about 47,000 Arkansas teachers are registered for the service with more than 30,000 using Arkansas IDEAS on a regular basis.

Obviously, broadband capability is very important to us as we continue to find ways to expand our services to teachers, parents and students through Arkansas IDEAS, the AETN/PBS Learning Media (delivering thousands of video learning objects for teachers to utilize in their teaching), AETN’s mobile learning labs, kid’s camps and much more.

AETN also serves our state through broadcast and online capabilities to help showcase citizens from every part of Arkansas and their work through innovative projects such as “In Their Words”—an extensive archive of interviews with nearly 600 Arkansas World War II veterans—and LOUPE, an interactive portal showcasing arts and artists in Arkansas.

And I have not mentioned the tremendous and targeted programs and services AETN and other public stations provided throughout the year, from “Downton Abbey” to “Sesame Street” and “NOVA” to Ken Burns and our own popular programs like “Exploring Arkansas with Chuck Dovich”, “Arkansas Week” and many others designed to entertain and to educate.

I should mention here that the general audience programming on AETN described above is for the most part paid by contributions from thousands of Arkansans, not from the state or Federal grants that support infrastructure, technology and the educational services, which will be highlighted in more detail below.

Federal funding of \$445 million in two-year advance funding for the Corporation for Public Broadcasting (CPB) is crucial and while a blip on the radar, if that, in the Federal budget is very important to rural state networks like AETN and hundreds of other public media stations across the country. As an example, while the funding AETN receives as a result of Federal grants is an important part of our funding mix it amounts to something like 13 seconds of annual Federal spending.

Local stations and networks like AETN continue to serve as the treasured educational and cultural institutions envisioned by their founders, reaching America's local communities with unique, essential and unsurpassed programming and services.

Local stations treat their audience as citizens rather than mere consumers, providing essential services to all Americans, not just the 18–49 year olds to whom advertisers hope to appeal. We serve everyone, everywhere, every day, and for free.

Federal support for CPB and local public television stations has resulted in a nationwide system of locally owned and controlled, trusted, community-driven and community responsive media entities that form an incredibly successful public-private partnership. At an annual cost of about \$1.35 per year for each American, public broadcasting is a smart investment creating important economic activity while providing an essential educational and cultural service.

I should mention here that Congress eliminating the Public Telecommunications Facility Program, or PTFP, was a significant blow to all public media stations. Technology infrastructure is extremely important for stations, especially rural stations like AETN, and the lack of Federal grants and state technology funding is a difficult hurdle to try to jump—especially since, as mentioned before, we use member contributions for programming services.

Unlike many other broadcast organizations, PBS and public media are seeing growth across all of our platforms. PBS has seen a 5 percent increase in primetime viewership compared to last year, and had six out of the top ten shows for moms with young kids in June. For 6 months running, *PBS.org* has been the most highly trafficked broadcast website.

All sources of funding, Federal funding included, for public broadcasting is important because we are part of the Nation's public service infrastructure, just like public libraries, public schools and public highways.

Now, if I may, I would like to describe in a bit more detail how AETN is using rural connectivity in providing targeted educational services to educators—public, private and home-schooled—all across our state. Efforts like what I describe, in various shapes and sizes, are happening across the country at public media stations when mission trumps demographic audience targeting in order to maximize profit potential. Nothing wrong with that, of course, but I believe our primary goal is to serve and we will continue to stretch every resource we have to accomplish our promise to our citizens.

AETN and ArkansasIDEAS: An Important Tool for Educators and Students.

AETN continues to do some incredible work with quality production related to Arkansas, community outreach, and award-winning and popular programming from PBS and other sources. All this, in addition to the outstanding educational services described below, is due to the infrastructure and people throughout AETN.

Specifically for this message, education has always been at the heart of AETN services for nearly fifty years—both formally through education services and informally through all network services directly related to meeting AETN's stated purpose and promise:

PURPOSE (Mission): The purpose of the Arkansas Educational Television Network (AETN) is to enhance and empower the lives of all Arkansans by offering lifelong learning opportunities through high-quality educational television programs and services.

PROMISE (Core statement): The Arkansas Educational Television Network (AETN) fulfills its purpose by providing: educational resources to schools and all educators; innovative and high-quality public media television programs and services that illuminate the culture and heritage of Arkansas and the world; and opportunities to engage and explore new ideas. This relevant AETN content will expand the minds of children, inform Arkansans about public affairs and current events in our state, highlight arts and culture, and invite Arkansans to explore the outdoors and the world around them.

With this in mind, here are some things we would like you to know about the unique partnership between AETN and the Arkansas Department of Education (ADE) known as ArkansasIDEAS.

ArkansasIDEAS is now the largest, state-funded online professional development portal in the Nation. Through the visionary leadership of its parent organizations, the Arkansas Educational Television Network (AETN) and the Arkansas Depart-

ment of Education (ADE), ArkansasIDEAS has successfully supported educators for another Fiscal Year.

Our annual report to the state shows that the number of registered ArkansasIDEAS users has never been higher (46,697), and our course offerings (both online and face-to-face) have undergone exponential growth.

As in years past, ArkansasIDEAS has sought new ways to strengthen the types of professional development resources offered to educators all while maintaining the superior level of service our users have come to expect from AETN.

With the implementation of the Common Core State Standards (CCSS) in the upcoming school year, our Common Core micro site is one of the most popular services ArkansasIDEAS administers. Arkansas educators trust the site, which contains a plethora of Common Core State Standards resources, as the most reliable source of CCSS updates and information.

Indeed, the site is so popular that people from every state in the Nation have accessed it.

The site can be searched in a number of ways, though the English Language Arts and Mathematics. Mathematics-Trainer of Trainers sections are most common. Much of our education-specific in-studio work over the past fiscal year became video links that are now housed on the ArkansasIDEAS Common Core micro site.

In addition to the enactment of new standards for teaching and learning, the teacher evaluation system is undergoing a complete overhaul for the 2013–2014 school year.

This sweeping reform is the result of the 2011 General Assembly's passage of the Teacher Excellence and Support System (TESS). TESS, based largely upon Charlotte Danielson's work, *A Framework for Teaching* (Danielson, 2007), divides a teachers work into four domains.

Each domain includes subcategories that further dissect the specific tasks associated with each domain.

A rudimentary checklist will no longer evaluate a teacher's work. Rather, the work of an educator will be thoughtfully analyzed according to the educator's performance both in and out of the classroom.

During the last fiscal year, the ArkansasIDEAS staff has spent hundreds of hours preparing for TESS and is currently supporting TESS through a variety of means.

First, ArkansasIDEAS at AETN constructed a TESS support site. Teachers use this site as a gateway to the TESS professional development training they are required to obtain before being evaluated by their administrators in the upcoming school year. The mandated tutorials can also be accessed directly via the ArkansasIDEAS portal.

Second, the TESS site is enhanced with a reporting feature that enables Arkansas administrators to get a snapshot of the amount of time their teachers have spent training for TESS. This component is crucial for administrators who are required to verify that the educators assigned to their building have completed TESS training.

Managing these snapshot reports requires an enormous amount of effort from the IT department at ArkansasIDEAS and AETN and will continue to dominate a large portion of our time in the future.

Even before the TESS website went live, ArkansasIDEAS was proactive in their approach to TESS.

Our experienced team of licensed educators assigned a domain and sub domain to every course on the ArkansasIDEAS portal.

The current ArkansasIDEAS course catalog includes these Arkansas Department of Education-approved domain assignments. In addition, the TESS site also includes a search-by-domain feature. Now, when an administrator evaluates a teacher and documents a deficiency in a particular domain, they will have a collection of free, online professional development offerings from which to choose that will help support that teacher.

This prescriptive-based professional development is perhaps the most significant change in the new teacher evaluation system.

ArkansasIDEAS is also reaching out to pre-licensed educators across the state.

Working with the ADE Office of Professional Licensure, ArkansasIDEAS and AETN has created an open-access portal for non-licensed teachers.

This non-licensed portal was created on June 26, 2012 and is utilized by the Teach for America program, several masters of teaching degree programs, the Non-Traditional Licensure program at ADE, and anyone applying for an Arkansas teacher's license through reciprocity. It provides the necessary professional development requirements of Act 969 of the 2013 General Assembly.

An example of a course offered on the pre-licensed portal is the child maltreatment course. This course fulfills the requirements of Act 1236 of 2011, an act that

mandates all educators to have training in child maltreatment awareness. The course is also offered on the licensed-side of the portal and hundreds of Arkansas educators have taken it to-date.

During the last quarter of the past Fiscal Year, ArkansasIDEAS and AETN lent its talent and resources to the Science, Technology, Engineering and Mathematics (STEM) Foundations Institute.

This institute took place on June 6, 2013 and was a culminating event for the ArkansasIDEAS production team, working with the professional staff and infrastructure provided by AETN. Prior to the daylong event, producers captured exemplary STEM lessons in several schools across the state of Arkansas.

Experts in the field of STEM education highlighted each of these lessons on the day of the institute. Breakout sessions were recorded on the day of the training as well. The ArkansasIDEAS team of educators, producers and IT analysts are using this footage to create seven courses, one for each of the seven STEM frameworks, housed on the ArkansasIDEAS portal maintained through AETN.

ArkansasIDEAS continues to look for ways to serve Arkansas educators.

We now offer a dedicated library of Disciplinary Literacy courses. This library is especially helpful for educators wishing to add an area of licensure to their teaching certificate.

The Disciplinary Literacy Library contains forty-five hours of ADE-prescribed, professional development courses all of which are offered on the ArkansasIDEAS portal. Upon completion, teachers can submit this credit, along with appropriate Praxis scores, to the Office of Professional Licensure at the Arkansas Department of Education for approval and add an area of certification to their teaching license.

Expanding the number of high-quality professional development courses and resources offered on the portal continues to be a top priority at ArkansasIDEAS.

In the past fiscal year alone, 253.5 hours were added to the ArkansasIDEAS portal, and many of these courses were produced and created by the ArkansasIDEAS team at AETN.

In addition to the work done in-house, ArkansasIDEAS maintains a constant presence at educational conferences around the state.

AETN and ArkansasIDEAS education professionals often present at these conferences while our production teams continue to be in demand filming keynote addresses and breakout sessions—later used to create ArkansasIDEAS courses or resources.

ArkansasIDEAS provides technology training to schools that need it and have even acquired as a service that we now offer to educators who request it.

ArkansasIDEAS acquired two mobile labs that we have loaned to educational conferences and schools. Both the iPad and MacBook labs are equipped with stand-alone, Wi-Fi capability. It is our hope that these transformational tools will be utilized in professional development trainings and checked out to school districts who want to provide their teachers with technology training but lack the resources available to do so.

ArkansasIDEAS, a partnership of the Arkansas Educational Television Network (AETN) and the Arkansas Department of Education (ADE) has been a leader in providing educational resources during the past year and will continue to stay ahead of the upcoming educational changes as we seek out new ways to support Arkansas educators.

AETN is also expanding services that are important to Arkansans both rural and urban by developing an agricultural project and a public safety statewide first responder system utilizing our transmitters located throughout the state, just to cite two examples.

Across every platform, public media stations are working with PBS and others partners providing new resources for children to learn, and giving all Americans access to the dramas, documentaries, history, news and public affairs, and arts' programming that expands their horizons and opens up new vistas free and accessible to all.

This is what sets us apart, and that's why I am honored to be a part of a public media system that continues to serve all citizens with educational—and, yes, even entertaining programs and services. Connectivity is a crucial player in all this, especially for a rural state like Arkansas.

Thank you for the opportunity to speak with you. It has been a pleasure.

IDEAS Website (ideas.aetn.org)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual Data
Total Visits	43,940	27,523	29,909	124,770	226,142
Unique Visitors	23,672	14,895	17,047	64,199	119,813
Unique Pageviews	61,507	39,232	63,572	43,089	207,400
Returning Visitors	56%	56%	53%	55%	54.95%
New Visitors	44%	44%	47%	45%	45.05%

Visitor Demographics

1. Arkansas 89%
2. Texas 2.71%
3. Louisiana 1%
4. Oklahoma 1%
5. Missouri 1%

Interactive

Homepage video – 239 unique plays (297 total plays)

Search

184 unique events – (234 total)

AETN Transmitter Over-the-Air Coverage Areas



Arkansas Educational Television Network Coverage Areas

Senator PRYOR. Thank you.
Mr. Pitcock?

**STATEMENT OF LEN PITCOCK, DIRECTOR OF GOVERNMENT
AFFAIRS, COX COMMUNICATIONS**

Mr. PITCOCK. Thank you, Mr. Chairman. Again, I am Len Pitcock. I am Director of Government Affairs for Cox Communications here in Arkansas.

Cox Communications is the state's largest traditional cable provider, offering a variety of products to our residential and business customers. Our footprint consists of a service area primarily covering the northwest corner of the state. Today we offer video services, broadband, and telephone to our Arkansas customers, and in the near future we will likely offer home security services, as well.

Cox and almost all of the other providers here today offer a prime example of the convergence in technology found in the marketplace. As the Telecommunications Act of 1996 closes in on almost its 18th year as the primary regulatory framework for our industry, we see consumers gaining the full benefit of this legislation.

It wasn't that long ago when Cox customers were offered only a handful of channels in an analog-only format and 56K modems. Today, we and others are using our advanced fiber-rich networks to deliver any number of competitive products, giving consumers a wide array of choices for video, Internet, and telephone.

And I should mention it has just been 7 years since we launched our telephone product here in Arkansas. Today, we are the fourth-largest telephone company in the state and likely the largest competitive local exchange carrier. These advancements are made possible wholly from the investment of private capital into our business.

Today, Cox Communications offers almost 500 analog, digital, and high-definition channels here in Arkansas, speeds of 150 meg downstream to every customer that we serve, and telephone service in almost every community that we serve.

We heard Mr. Merrifield from the ARE-ON network on the first panel today talk about the size of the network and their capacity, and I am proud to announce that our network produces the same speeds. Our business customers have access to up to 10 gigs down today. In fact, part of the ARE-ON network rides on our plan.

Let me be quick to say that government-subsidized competition has always been a concern for the entire telecommunications industry. As Federal and state lawmakers continue to address last-mile broadband in America, we would again urge them and you to carefully consider the investments made by companies like Cox in the marketplace today before allowing government dollars to compete directly with those that have taken a financial risk.

In 2010, Arkansas was found to be the most competitive state in the country for broadband services. While we recognize government-funded efforts to address last-mile broadband are needed and appropriate in areas where no service is available, government should focus its efforts in Arkansas and around the country on increasing broadband adoption through existing broadband providers rather than using taxpayer dollars to fund network construction

and overbuilds in areas where broadband service is already available.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Pitcock follows:]

PREPARED STATEMENT OF LEN PITCOCK, DIRECTOR OF GOVERNMENT AFFAIRS,
COX COMMUNICATIONS

Good morning, Mr. Chairman. Again, I'm Len Pitcock, Director of Government Affairs for Cox Communications here in Arkansas.

Cox Communications is the state's largest traditional cable provider offering a variety of products to our residential and business customers. Our footprint consists of a service area primarily covering the northwest corner of the state. Today we offer video services, broadband and telephone to our Arkansas customers and in the near future, will likely offer home security services as well.

Cox, and almost all of the other providers here today, offer a prime example of the convergence in technology found in the market. As the Telecommunications Act of 1996 closes in on almost its 18th year as the primary regulatory framework for our industry, we now see consumers gaining the full benefit of the Act.

It wasn't that long ago when Cox customers were offered a handful of channels in an analog-only format and 56k modems. Today, we and others are using our advanced fiber-rich networks to deliver any number of competitive products giving consumers a wide array of choices for video, Internet and telephone. I should mention it's been just 7 years since we began offering telephony in Arkansas. Today, we are the 4th largest telephone provider in the state and the largest among all competitive local exchange carriers.

These advancements are made possible wholly from the investment of private capital into our business. Today Cox Communications offers almost 500 analog, digital and high definition channels in Arkansas, 150 megs downstream broadband speed to every customer and phone service in almost every community we serve.

Government subsidized competition has always been a concern for the entire communications industry. As Federal and state lawmakers continue efforts to address last-mile broadband in America, we would again urge them (and you) to carefully consider the investments made by companies like Cox in the marketplace today before allowing government dollars to compete directly with those of us that have taken the financial risk.

In 2010, Arkansas was found to be the most competitive state in the country for broadband services. While we recognize government-funded efforts to address last mile broadband areas are needed and appropriate in areas where no service is available, government should focus its efforts in Arkansas and around the country on increasing broadband adoption through existing broadband providers rather than use taxpayer dollars to fund network construction and overbuilds in areas where broadband service is already available.

Thank you, Mr. Chairman.

Senator PRYOR. Thank you.

Mr. Wilson?

**STATEMENT OF MIKE WILSON, SENIOR DIRECTOR OF
GOVERNMENT AFFAIRS, COMCAST OF ARKANSAS**

Mr. WILSON. Thank you, Mr. Chairman.

Good morning. My name is Mike Wilson, and I am the Senior Director of Government Affairs for Comcast of Arkansas, based here in Little Rock.

Comcast provides video, broadband, phone, and home security services in central Arkansas and in the West Memphis area. Since 1996, Comcast has invested over \$206 million in system upgrades to make sure that our Arkansas customers have access to the same programming and technology choices available anywhere in the country.

Our core video offering, Xfinity TV, now leverages IP technology and cloud-based servers to deliver an enormous library of video

content when, where, and on whatever devices our customers choose. Our new entertainment platform, which we call X1, integrates social media, search, and third-party applications to redefine the viewing experience.

But even with all of these choices and capabilities that the cable industry offers, when it comes to broadband, there are still too many Americans who are on the wrong side of the digital divide.

There are programs here in Arkansas that the cable industry has implemented to address the barriers to broadband adoption. Cable companies like Cox and Suddenlink and Conway Corporation, in addition to others, partner with Connect2Compete, which provides low-cost Internet access to families who have children participating in the free school lunch program.

Comcast's program is called Internet Essentials and is the nation's largest and most comprehensive broadband-adoption program. It provides low-cost broadband service for \$9.95 a month, the option to purchase a Comcast-subsidized Internet-ready computer for under \$150, and multiple options to access free digital literacy training in print, online, and in person. Families must have one child eligible to participate in the free or reduced lunch programs, and it includes public, parochial, private, and homeschool students.

Since Comcast introduced Internet Essentials just 22 months ago, we have connected more than 220,000 families, or nearly 900,000 low-income Americans, to the power of Internet in their homes, many for the very first time. In Arkansas alone, Comcast has connected over 750 low-income families. That is over 3,000 Arkansans who now benefit from access to the Internet.

Comcast did not accomplish our 2-year results alone. We have partnered with all of our school districts, many nonprofit organizations like the Arkansas state PTA, the Boys and Girls Club, Big Brothers/Big Sisters, and many faith-based organizations to help get the word out and assist with our training. All of these organizations have played a significant role in the program's success.

Senator Pryor, thank you for this opportunity to testify today and share information about what the cable industry is doing to expand broadband adoption in Arkansas.

[The prepared statement of Mr. Wilson follows:]

PREPARED STATEMENT OF MIKE WILSON, SENIOR DIRECTOR OF GOVERNMENT AFFAIRS, COMCAST OF ARKANSAS

Good morning, my name is Mike Wilson and I'm the Senior Director of Government Affairs for Comcast of Arkansas based here in Little Rock.

Comcast provides video, broadband, phone and home security services in central Arkansas and in the West Memphis area.

Since 1996, Comcast has invested over 206 million dollars in system upgrades to make sure our Arkansas customers have access the same programming and technology choices available anywhere in the country.

For example, Comcast provides our customers the ability to manage and personalize TV viewing, offering over 100,000 of the best and most recent TV shows and movies on their television sets, their computer and mobile devices in addition to thousands of choices to instantly stream at the customers fingertips in and out of the home.

But even with all of these choices and capabilities that the cable industry offers, there are still way too many Americans who are on the wrong side of the digital divide. Access to the Internet for our children is a must and there are many low income families *who do have access* to the Internet but make a conscious decision not to subscribe.

In understanding the barriers to Broadband adoption, the FCC has identified three major factors:

47 percent of low income families don't subscribe because they lack digital literacy or don't feel that it's relevant to their lives; 24 percent state that price of Broadband service is a deterrent and 15 percent don't subscribe because of the cost of the computer.

There are a number of programs here in Arkansas that the cable industry has implemented to address all three of these barriers to adoption.

Cable Companies like Cox, Suddenlink and Conway Corp., in addition to others, partner in Connect 2 Compete, which provides low cost Internet access to families who have children participating in the Free School Lunch program.

Comcast's program is called Internet Essentials. Internet Essentials costs just \$9.95 a month for service, provides access to FREE digital literacy training and the option to purchase a computer for under \$150. Internet Essentials is the largest and most comprehensive broadband adoption program of its kind and I'm proud to say that last week we began our third year of providing this service in all of the 39 states where Comcast currently provides Broadband.

I'm very pleased to tell you that since the onset of this program, more than 220,000 families now have a Broadband connection in their homes as a result of Internet Essentials. This means an estimated 900,000 low income Americans nationwide now have access to Broadband.

Across the Nation, Comcast has over 30,000 partner Schools; 20,000 individuals trained; 18,000 computers sold; 7,000 community partners and 27 million brochures distributed.

Bringing it closer to home . . . In Arkansas, Comcast has connected over 750 low income families, that's over 3,000 Arkansans who now benefit from access to Broadband that didn't prior to Internet Essentials being introduced. And these numbers don't take into account the success that others are seeing with similar programs.

Recently, Comcast announced additional enhancements which include:

- Increasing the speed to 5 Mbps downstream and 1 Mbps upstream;
- Streamlining the enrollment process by expanding the instant approval process for families whose students attend schools where 70 percent or more of the students are eligible to participate in the National School Lunch Program.
- Expanding the eligibility criteria to include parochial, private cyberschool and homeschooled students
- Creating an online application tool that can be used by families on computers at community centers, libraries or at a friend's house to request an application
- Introducing the Internet Essentials Opportunities card which can be purchased by community partners and used toward the cost of subsidizing Internet service for their families.

Comcast did not accomplish our two year results alone. We have partnered with all of our school districts; non-profits organizations like the Boys and Girls clubs; Big Brothers/Big Sisters and many faith based organizations to help get the word out and assist with our training. All of these organizations have played a huge role the program's success.

As all of these different adoption programs progress, I'm sure we'll see the similar outcomes from all of the other companies. This will definitely benefit the low income families in our state.

Thank you for this opportunity to testify and share information about what the telecommunications industry is doing to expand the adoption rate to Broadband in Arkansas.

Senator PRYOR. Thank you.
Mr. Krile?

**STATEMENT OF DOUG KRILE, EXECUTIVE DIRECTOR,
ARKANSAS BROADCASTERS ASSOCIATION**

Mr. KRILE. Good morning. My name is Doug Krile. I am Executive Director of the Arkansas Broadcasters Association. ABA is a not-for-profit trade association representing approximately 190

radio stations and 15 television stations in Arkansas, and that is pretty much everybody.

Thank you for the opportunity to appear before you and briefly discuss some of the key issues impacting broadcasters in Arkansas.

Many of our member stations, particularly the radio stations, are locally owned and operated in the rural parts of Arkansas. As such, they play a vital role in providing emergency information and contributing to the day-to-day lives of listeners and viewers who live in those areas.

When a sudden flood killed 20 campers at a remote campground in southwest Arkansas in 2010, radio and TV stations were the only sources of information as the heavy rain developed. The campground was outside the range of a nearby NOAA weather station. The broadcast stations also became the source of information on victims and survivors.

After Hurricane Katrina, the Arkansas Parks and Tourism agency developed a system to help evacuees from nearby Louisiana and Mississippi get updated information about the availability of food and shelter in Arkansas. Key to that system's success was the utilization of radio and TV stations to tell evacuees about the system.

Because many of our member radio stations are essentially family-owned and operated on very slim profit margins, ABA feels compelled to argue against congressional efforts to impose a new licensing fee for musical performers. We believe strongly that radio stations' provision of free airtime to play performers' music is, in itself, fair compensation. Any additional fees could literally force some stations off the air.

Other key issues focus more on the television side of our industry. Changes to the retransmission consent system proposed by the pay-TV industry would harm stations here. Currently, financial terms of cable, satellite, and telecommunication coverage carriage of local-market TV stations are negotiated in a free and open marketplace. Many times, our small-market TV station members must negotiate against very large pay-TV providers.

Despite this, broadcasters support the market-based system Congress created, which results in both sides reaching an agreement, keeping broadcast stations on pay-TV systems without interruption in almost all cases. And, of course, broadcast signals are always available to consumers free over the air via an antenna.

The other issue of concern to TV broadcasters involves the FCC's upcoming auction of broadcast spectrum. While the ABA does not oppose a truly voluntary spectrum auction, we agree with the National Association of Broadcasters that the process must ensure that broadcasters who do not participate in the auction retain their current coverage areas so they can continue to serve their local communities.

We also believe the FCC should work to limit the number of stations that must move to new channels during the repacking process. Currently, over 700,000 television viewers in Arkansas receive all of their TV programming over the air. Forced channel changes will disrupt those viewing habits, harming consumers and broadcasters.

Thank you.

[The prepared statement of Mr. Krile follows:]

PREPARED STATEMENT OF DOUG KRILE, EXECUTIVE DIRECTOR,
ARKANSAS BROADCASTERS ASSOCIATION

Good morning. My name is Doug Krile. I am Executive Director of the Arkansas Broadcasters Association. ABA is a not-for-profit trade association representing approximately 190 radio stations and 15 television stations in Arkansas.

Thank you for the opportunity to appear before you and briefly discuss some of the key issues impacting broadcasters in Arkansas. Many of our member stations (particularly the radio stations) are locally owned and operate in the rural parts of Arkansas. As such, they play a vital role in providing emergency information AND contributing to the day-to-day lives of listeners and viewers who live in those areas.

When a sudden flood killed 20 campers at a remote campground in Southwest Arkansas in 2010, radio and TV stations were the only sources of information as the heavy rain developed. The campground was outside of the range of a nearby NOAA weather station. The broadcast stations also became the source of information on victims—and survivors.

After Hurricane Katrina, the Arkansas Parks and Tourism agency developed a system to help evacuees from nearby Louisiana and Mississippi get updated information about the availability of food and shelter in Arkansas. Key to the system's success was the utilization of radio and TV stations to tell evacuees about the system.

Because many of our radio station members are essentially family-owned and operate on very slim profit margins, ABA feels compelled to argue against Congressional efforts to impose a new licensing fee for musical performers. We believe strongly that radio stations' provision of free air time to play performers' music is fair compensation, and any additional fees could, literally, force some stations off the air.

Other key issues focus more on the television side of our industry. Changes to the Retransmission Consent system proposed by the pay TV industry would harm stations here. Currently, financial terms of cable, satellite and telecommunication company carriage of local television stations are negotiated in a free and open marketplace. Many times, our small-market TV station members must negotiate against very large pay TV providers. Despite this, broadcasters support the market-based system Congress created, which results in both sides reaching an agreement keeping broadcast stations on pay TV systems without interruption in almost all cases. And of course, broadcast signals are always available to consumers free, over-the-air via an antenna.

The pay TV industry is pushing for changes in the law that would tilt the retransmission consent negotiation process in its favor. Ultimately, altering the process to favor pay TV providers will mean less choice for consumers and fewer dollars for local stations to use for news and public affairs programming, not to mention emergency weather coverage.

The other issue of concern to television broadcasters involves the FCC's upcoming auction of broadcast spectrum. While the ABA does not oppose a truly voluntary spectrum auction, we agree with the National Association of Broadcasters that the process must ensure that broadcasters who do not participate in the auction retain their current coverage areas so they can continue to serve their local communities. We also believe the FCC should work to limit the number of stations that must move to new channels during the repacking. Currently, over 700,000 television viewers here in Arkansas receive ALL of their TV programming over-the-air. Forced channel changes will disrupt those viewing habits, harming consumers and broadcasters. Television stations (and the ABA) are STILL fielding phone calls from consumers who are confused by the digital conversion that happened several years ago! To ensure that TV viewers' interests are protected, we ask Congress to carefully oversee the FCC's implementation of the incentive auction legislation.

Senator PRYOR. Thank you.
Ms. Fuhr?

**STATEMENT OF LADAWN FUHR, MIDSOUTH REGIONAL
MANAGER OF COMMUNITY AND GOVERNMENT RELATIONS,
SUDDENLINK**

Ms. FUHR. Good morning, and thank you for the opportunity to speak.

I am LaDawn Fuhr, an Arkansas native and the Mid-South Regional Manager of Community and Government Relations for

Suddenlink. Our team oversees Suddenlink's operations here in Arkansas plus three other Delta states.

Suddenlink is the second-largest cable broadband company in Arkansas, and we serve towns like Jonesboro, Russellville, Walnut Ridge, Batesville, Mountain Home, Hot Springs Village, El Dorado, and a vibrant mix of other larger, smaller, and rural communities. We also enjoy a productive working relationship with these communities, and we provide the most advanced TV, Internet, phone service, and in some places home security available in those areas to approximately 110,000 residential subscribers and 70,000 business subscribers.

We work hard every day to provide our customers with a superior level of care. And in addition to this customer care, we also work to make a real difference in the lives of our employees and the communities where we live and we work.

For example, since 2008, we have helped to e-cycle more than 200 tons of electronic waste, keeping it out of Arkansas landfills. We support education in Arkansas at all levels through a multitude of commitments. We provide our video and Internet services to school districts across the state. We are also a participant in the national Connect2Compete initiative. Through that effort, we offer steeply discounted broadband service for qualifying low-income families with at least one child enrolled in the National School Lunch Program, helping to bridge the digital divide.

We invest in our people, providing good jobs and benefits to more than 300 residents of Arkansas. And we are constantly improving our services, with over \$170 million in capital invested in Arkansas since 2006, and that includes \$20 million that is planned for 2013.

Those investments have delivered a better TV experience with more high-definition channels, an expanded video-on-demand library, and technologies that provide our customers more ways to enjoy their favorite news, sports, dramas, and comedies both inside and outside the home. These investments have also delivered a better Internet experience, with download speeds of 50 and 107 megabits per second widely available in our Arkansas service areas. These speeds are comparable to other large markets.

Our investments in Arkansas have also extended our services to new areas. And, most importantly, in 2012 we invested \$4 million to construct a 162-mile fiber ring that connects our communities to one another, our national backbone, and the larger Internet. This addition enhances the reliability and the robustness of the broadband services. And we are able to bring to many Arkansas communities this service, both large and small communities.

In conclusion, Suddenlink is poised for the future. We are a committed and conscientious member of the communities where we live and serve, and we are very proud to be an industry leader in this great state.

Thank you for your time.

[The prepared statement of Ms. Fuhr follows:]

PREPARED STATEMENT OF LADAWN FUHR, MIDSOUTH REGIONAL MANAGER OF
COMMUNITY AND GOVERNMENT RELATIONS, SUDDENLINK

Good morning and thank you for inviting us to participate in this panel. I'm LaDawn Fuhr, an Arkansas native, and the MidSouth Regional Manager of Commu-

nity and Government Relations for Suddenlink. Our team oversees Suddenlink's operations here in Arkansas, plus three other Delta states.

Suddenlink is the second largest cable broadband company in Arkansas. The communities we serve here—places like Jonesboro, Russellville, Walnut Ridge, Batesville, Mountain Home, and El Dorado—are a mix of vibrant, larger, smaller, and rural communities.

We enjoy productive working relationships with our Arkansas communities and provide the most advanced TV, Internet, and phone services available in those areas to approximately 110,000 residential and 70,000 business customers.

We work hard every day to provide our customers with a superior level of care. According to the recent J.D. Power survey, Suddenlink was recognized as the TV services company with the most improved customer satisfaction ratings since 2007.

In addition to customer care, we work to make a real difference in the lives of our employees and the communities where we live and work. For example,

- Since 2008, we've helped "eCycle" more than 200 tons of electronic waste, keeping it out of Arkansas landfills.
- We support education in Arkansas, at all levels, through a multitude of commitments. We provide our video and Internet services to school districts across the state. We are also a participant in the national Connect to Compete initiative. Through that effort, we offer steeply discounted broadband service for qualifying, low-income families with at least one child enrolled in the National School Lunch Program.
- We invest in our people, providing good jobs and benefits to more than 300 residents of this state.
- We are constantly improving our services, with over \$170 million in capital invested in Arkansas since 2006, including \$20 million planned for 2013.
- Those investments have delivered a better TV experience, with more high-definition channels, an expanded video-on-demand library, and technologies that provide our customers more ways to enjoy their favorite news, sports, dramas, and comedies, both inside and outside the home.
- These investments have also delivered a better Internet experience, with download speeds of 50 and 107 megabits per second widely available in our Arkansas service areas. These speeds are comparable to—and in some case better than—the speeds available to citizens of major urban areas.
- Our investments in Arkansas have also extended our services to new areas. Importantly, in early 2012, we invested \$4 million to construct a 162-mile fiber ring that connects our communities to each other, our national backbone, and the larger Internet. This addition enhances the reliability and robustness of the broadband services we are able to bring to many Arkansas communities, both large and small.

In conclusion, Suddenlink is a committed and conscientious member of the communities we serve, and we're very proud to be an industry leader in this great state. Thank you for your time.

Senator PRYOR. Thank you.

Let me also note that all of our panelists have done a great job today of keeping their comments to the 3 minutes. It is pretty common in Washington for them to run on and on and on. And so thank you all. You guys have shown great discipline, but also you just—typical Arkansas, you just want to get down to the meat and potatoes and don't have to hear yourself talk. So, anyway, thank you for that. We appreciate it.

Let me start with Mr. Krile.

I know that you have television and radio members.

Mr. KRILE. Yes, sir.

Senator PRYOR. And I assume that the number of your owners have gone down over the years, and so there has been some consolidation and whatnot.

But I am curious about how the Internet has changed the broadcast business model. Tell us how it is changing the broadcast business model.

Mr. KRILE. Well, the broadcasters have had to adopt the Internet and find the best ways to utilize it. Putting their radio station signals on the Internet is very common, even in the smaller-market stations. Using a Website to provide news and information to their listeners and viewers has become crucial. It is really a matter of pairing the two together and providing the services to as many people as you can.

I think radio stations that haven't adopted to that and started to use the Internet are few and far between. I can't actually tell you of any off the top of my head that don't have some type of Internet presence. And many of them really rely on it, for sporting events in particular, where there are people out of the market or even out of the state who want to hear the play-by-play broadcast the local stations are doing.

Senator PRYOR. Yes. Well, I can speak firsthand to that because I use that sometimes.

Let me ask about AETN. I know you are a little different model than what most of Mr. Krile's members are, but how has the Internet changed the model, the business model, so to speak, for AETN?

Mr. WEATHERLY. Well, certainly, the education part, which we have always done—it is in our name—but the ability to do online services, digital services, allowed us to really expand our educational services and jump full force into professional development.

Without the Internet capability, that would have been extremely difficult for us to grow the way that we did. That happened in 2005, and now we have 47,000 teachers who are using—Arkansas teachers who are using it. In fact, teachers from every state are using the system. So if they were to try to find AETN broadcast, it wouldn't work.

It is still extremely important to us, the broadcast part of it, as are our other partners here, but Internet-based activities has really been the growth area for AETN.

Senator PRYOR. And let's talk about rural areas. Are you having trouble getting that out into rural Arkansas?

Mr. WEATHERLY. I wouldn't say particularly. We have had great response. In fact, the ArkansasIDEAS program really worked initially because of its attractiveness to rural areas.

I think our biggest problem for rural is funding, obviously, to be able to replace equipment, with the loss of PTFP and some other programs federally. That has been a big hindrance to us. So when I look at what we are doing now, I feel pretty confident. What we can do in 5 years, especially capital-based, for a nonprofit like us is a difficult enterprise.

Senator PRYOR. And I should know this, and I don't. But does AETN follow the same model that the commercial broadcaster does in terms of getting their signal carried on a cable system? Tell us how that works.

Mr. WEATHERLY. Well, in a rural area, they oftentimes take it off of our broadcast signal, off the tower. Other than that, we have some landlines with Conway Corp., with Comcast, and a few others. So, yes, we do have a—in rural, they are going to do very much a similar thing, especially in many rural areas for cable and satellite. They are going to take our signal off-air and translate that or—

Senator PRYOR. And how does the money work? How does the money work with public broadcasting and cable?

Mr. WEATHERLY. Not well enough.

[Laughter.]

Senator PRYOR. That is what we always hear, right?

Mr. WEATHERLY. Yes. We don't—we are there. We appreciate that. That is mandated. We don't receive any income from cable or satellite. So that model is great for them and we are pleased to be there, but that is how come you occasionally see me on pledge drives and other things.

We are a mix of some Federal support; certainly we are a state agency for the infrastructure and education; and, obviously, viewer contributions. But in terms of cable, while we are pleased to be there, and satellite, we don't receive any of that revenue.

Senator PRYOR. And AETN is a statewide network, in a sense. And can you tell if the viewers, the numbers are going down in terms of people that are just picking up over the air? Or is that staying about the same?

Mr. WEATHERLY. Well, Doug's 700,000 is a very prominent figure for us. I think with cord cutters, I think some of the evidence is it is probably going up a little bit. But it certainly has not gone down in recent years. It has leveled out.

But, again, for us, it is a little bit different to talk about because so much of the cable signal and satellite signal in very rural areas comes off of our broadcast signal. So it is kind of hard to kind of parse that out, if that makes any sense.

Senator PRYOR. Yes, that does.

And I know that you have gone through this digital television transition. Is all that behind you now? And are you still broadcasting on analog at all?

Mr. WEATHERLY. No. No.

Senator PRYOR. And so it is all digital? What is your sense of people adopting digital?

Mr. WEATHERLY. Oh, I think it is happening pretty rapidly. Because it is like with LP records, you know, they didn't die out because anybody put a rule; it is just that nobody made them anymore.

Senator PRYOR. Right.

Mr. WEATHERLY. And I think that is what has happened with analog and digital. People have responded and they have adapted pretty quickly to it.

Senator PRYOR. Mr. Pitcock, let me ask you—I am going to change gears here. I know that right now there is a dispute between CBS and Time Warner about the signal and who carries what and how much everybody pays. And is that nationwide or is that just in isolated areas?

Mr. PITCOCK. The disputes?

Senator PRYOR. Yes, the CBS-Time Warner one. Isn't it on the West Coast? Do you know?

Mr. PITCOCK. Yes, I believe it is just in California, Senator.

Senator PRYOR. And my memory is that we have not had those kinds of disputes here?

Mr. PITCOCK. No, we have.

Senator PRYOR. And my understanding is that is because everybody works really hard to try to make it work.

Mr. PITCOCK. So the disputes have taken place in Arkansas, and on some occasions broadcasters have gone dark as a result of being able to come to terms with the multiservice provider, whether it is a satellite company or a cable company. As you are well aware, there is legislation in Washington that has been proposed right now to address this to some degree.

I think the cable industry's position and certainly the position of Cox Communications is we want to do what is in the best interest of the consumer. And if that means having some sort of cooling-off period where instead of the cable being removed—and I need to reassure everybody that we cannot carry a broadcaster without their specific consent. It is usually left to the point where it is being told that a cable provider or a satellite provider is being pulled off of the network. And the truth of it is that we can't carry them anymore. By law, we can't carry them.

So it would certainly be our position that if we found ourselves where a contract would expire, that there be some type of cooling-off period that would allow us, as we continue to negotiate, to keep those in place.

Senator PRYOR. Yes, I think most viewers have no idea how this really works, all the contractual back-and-forth on that. But it has been on the books that way for, what, 20-plus years. I am not quite sure when it all started. The 96 Act, I guess? I am not quite sure.

But, anyway, I know we are not going to solve that today, but that does come up periodically. And I think Arkansans kind of wonders why that is and what is going on there. And I think that what you have is—you know, clearly, the cable companies, they have legitimate reasons for taking their position. But also let's give the broadcasters a chance just to talk about their view of that. I know we are not going to solve this today, but since I have broached it, let's go ahead and hear from the broadcasters, as well.

Mr. KRILE. Well, I think the broadcast industry basically believes that because these negotiations do reach an agreement 99 percent of the time—they might go right down to the 11th hour, and that 11th hour may get pushed back once or twice or three times. Fort Smith just recently went right down to the wire—

Senator PRYOR. That is right.

Mr. KRILE.—but there was an agreement reached. And we just believe the system as it is structured right now works and should continue to work.

I think the biggest thing is the public needs to understand that 20 years ago the networks paid the local television stations to carry the network signal. That is completely upside-down now. And this is why the retransmission consent negotiations are so much more prominent than they were even 10 years ago. Because, in the past, the television stations let the cable companies carry them under terms of the must-carry laws, but now that they are not getting the revenue from the network, the retransmission consent negotiations have become much more prominent even for the small television stations.

And that is why we just believe that it is working most of the time. The Time Warner case right now is really a rarity. You don't hear about all the ones that succeed.

Senator PRYOR. Mr. Wilson, I don't want these guys to have all the fun.

[Laughter.]

Senator PRYOR. I want to ask you a question, as well. And that is something that I know that Comcast and the other cable companies are acutely aware of, and that is the cost of programming. And I know that it is hard to talk with too much specificity about it because it is just hard to talk about for legal reasons. But my understanding is the cost of programming to you continues to go up. And there is a bill in Washington that Senator McCain is offering on à la carte.

And, again, just because some people here in Arkansas are not that familiar with that issue, could you give us just the sort of 1-minute summary of that and sort of how Comcast views all that?

Mr. WILSON. Well, I think the concerns from the cable industry's standpoint when it comes to a la carte is that it is very difficult—I mean, a lot of times, the programmers include groups of programs during the negotiations, and one channel may be required if you purchase another one. So I think it is—and, again, Senator, this is an issue that is handled on levels much higher than mine.

Senator PRYOR. Sure.

Mr. WILSON. But it is a problem that I think that we are concerned. I think the biggest concern, I think, when you come to a la carte is that there are some programs, some niche programs, that if they weren't combined may not ever see—the viewers may never be able to see. So I think that is the biggest concern.

Senator PRYOR. But is it true that your cost of programming continues to go up in terms of what—

Mr. WILSON. Without a doubt, yes, sir.

Senator PRYOR.—content providers are charging.

And do you have that same experience?

Ms. FUHR. Yes, we do. Costs are constantly going up. And, you know, you actually hear it reported, you know, what the different networks say because they are taking on different programming, different sports programming. I mean, they have actually become very, you know, forward about talking about what it is costing.

And what we try to do is to package everything as cost-effective for the consumers. We have tiering. We have different ways that they can bundle to keep all their costs down.

And like Mr. Wilson said, there are lot of networks—I mean, if you look at how many networks have grown and changed over the years, there are networks that might not have even survived if they had been offered a la carte. Because they were in a bundle and they could offer some niche programming that took off and got the network some recognition.

And that is the bottom line, is to give our consumers options, cost-effectiveness, and entertainment. And so by bundling and trying to keep our cost factors down for them is the best way we can do it. But it is a struggle. I mean, you know, we all see that.

Senator PRYOR. Because isn't it true that the more you have to pay for the programming, at some point you are going to have to pass that on to the customer?

Ms. FUHR. Exactly. And, you know, it is an issue of where do you want to do that. And we try—anytime we do take a rate increase, we don't ever pass on the full amount that we are paying to the customer, but, you know, just a slight increase just to help offset that. Because we want to keep a variety for them, we want to keep it fresh, and we want to offer them the most current programming possible.

So it is a struggle, though.

Senator PRYOR. Yes.

And, Mr. Wilson, I guess several of you mentioned this Connect2Compete initiative. And tell us more about that. Tell us what your company is doing.

Mr. WILSON. You know, this is probably one of the most exciting things that the industry has become involved in, and the entire industry is getting behind it.

And, again, we know that there are areas where broadband is available but the consumer has made a conscious decision not to. And I think it was mentioned earlier in some of the testimony that part of it is digital literacy, part of it is cost. And what we are trying to do with these programs is address all of these.

All of the programs, I think, are basically the same. I can really speak more to Comcast Internet Essentials. But we are targeting families that have a child on the free or reduced lunch program and allow them service for \$9.95 a month, access to a computer for \$150. And what we have found is that the partnerships that were formed in order to get the word out have been extremely beneficial and have worked extremely well.

And if I could give you one example of a partnership that we have with the Little Rock School District, they have a program called Computer for Kids. And what the school district does is—there are a number of computers that are taken out of the schools every single year. They take all of those computers, take them to the Metro Vo-Tech school, right down the street here as a matter of fact, and refurbish them. And they may get—the ratio may be 1:2 or 1:3, but they refurbish these computers.

We work closely with them, and they have a Computer Power Day, where, again, it is the same families, families that have a child on the free or reduced lunch program, can come in and purchase a computer for \$40.

So we have worked closely with them. It has been extremely successful. It is partnerships like that that I think are really benefiting and allow us to move forward with this program. And we are seeing the results.

Senator PRYOR. Good.

Mr. Krile, let me ask about—I think that you said in your testimony, you sort of raised the question, or maybe you and I talked about this separately, I can't remember if it was in your testimony or not, but the fact that you think more people are taking the over-the-air signal now. Is that right?

Mr. KRILE. Yes.

Senator PRYOR. And tell me what you attribute that to. Is it the quality of the picture they can get with digital, or is it the cost of their alternatives, either cable, satellite? Or what is that?

Mr. KRILE. In some cases, it is a cost factor. People are turning back to over-the-air television because they think their cable or satellite bill has gotten to be too expensive.

And also because there is a trend, particularly among younger viewers, that they don't have to watch a show at 7 o'clock at night. They can watch it the next day when it is on demand, or they can watch it next day via Netflix or Hulu or one of those types of services, which now can be pretty much universally put up on your television screen.

And so, by doing the cord-cutting route, they pay \$8.95 a month for Hulu and \$8.95 a month for Netflix, take their free over-the-air television. What they are losing is the ESPNs of the world for live sporting events and things like that. So it is a balancing act. But, yes, people are doing that.

And part of it is the quality of the digital picture. I am a Comcast customer, but in moving to a new house, we wanted a TV in an office area that would have required me having Comcast come in and rewire. So I bought a 19-inch digital TV and a \$24.95 digital indoor antenna. It is a flat little white box about that thick. The picture is beautiful. I was surprised at how good it was. And all the local stations come in.

And I am an old foggy, but I can begin to see what somebody a little bit younger—we still like to watch that 7 o'clock show at 7 o'clock at night, but I can see where somebody younger who isn't tied to the house so much, who is busy with outdoor activities, with kid activities, they could adapt and adopt to that way of watching television.

Senator PRYOR. Let me ask you, Mr. Krile—I want to ask one of Commissioner Rosenworcel's favorite questions here about spectrum. I am assuming it is too early for you to know how the Arkansas television stations might, in this voluntary spectrum auction, how much of their spectrum they might be willing to give up, or are you sensing where this is going in Arkansas?

Mr. KRILE. There is not the spectrum shortage in Arkansas there is in the major metropolitan areas and some of the border states in particular. We don't think there will be an incredible demand by the AT&Ts, the Verizons of the world for Arkansas spectrum. There may be one or two small television stations that are not profitable that might be willing to voluntarily give up their bandwidth and be repacked on one other station's signal, but I just don't see a whole lot of that here.

The biggest thing we are concerned about is just moving the stations around channel-wise again, because we still get calls about the digital conversion and people are still confused about what happened there and where they find their TV stations, even after all these years. And so we are going to do that, to a degree, perhaps, all over again with the repacking.

Senator PRYOR. You know, one of the things we talk about in Washington on this subcommittee is the fact that the Federal Government owns a lot of spectrum. And people point to the Depart-

ment of Defense. There are other agencies too, but DOD is probably the big one.

But, you know, in talking to them, it is interesting, because one of the things they say is, look, “We are just like the general public. We are using more spectrum. More and more and more of our stuff is wireless and needs that spectrum.” And it could be everything from, you know, some of the weapons systems to just how they communicate and just the things that they do. They are more mobile than ever, just like everybody else is. So that technology is out there.

So trying to get the Federal Government—now, there is a plan now that is being floated, and I don’t know if it is in the final form yet, but there is a plan being floated. So we will see how that works out.

But that is another factor in all of this equation when we talk about spectrum. And the goal is to try to make spectrum available so people can have more access to wireless devices, you know, the consuming public can.

Now, Commissioner Rosenworcel, I feel like you have sat through this and you may have some comments or you may—I mean, we have talked about lots of different things. Some are pending before the FCC, and some are things that you just talk about a lot at FCC. So do you have any comments?

Ms. ROSENWORCEL. Well, first of all, we do have these big spectrum auctions coming up, and they are going to have big impact on the way we dole out the airwaves in this country. So we are keenly aware of their impact or potential impact on broadcasters, even in markets where there may not be that much demand for mobile broadband right now.

So I would say to the Arkansas broadcasters that under the law we do have an obligation in the repacking process to make sure that stations maintain their geographic and population coverage. That is in the law, that is important, and it is certainly something we are going to do.

With respect to retransmission consent, I think I agree with Senator Pryor, we may not be able to solve that today.

[Laughter.]

Senator PRYOR. Yes, that is fair to say.

Ms. ROSENWORCEL. But I do think it is important to acknowledge that the vast majority of those negotiations are uneventful and they work. It is just, we do have these situations where consumers get caught in the crossfire, and they are the collateral damage in disputes like this, where they can’t turn on the television and see their local game or the local news or their favorite shows.

So if they go on for an extended period of time, I think at some point the FCC or Congress will start paying more attention. So it is in everyone’s interest to make sure that they are resolved quickly and cleanly and without consumer disruption.

Senator PRYOR. Like, maybe before football season starts?

Ms. ROSENWORCEL. Like, maybe.

[Laughter.]

Senator PRYOR. That is what they were saying on the—I think it was on NPR. They were saying that the other day, that they thought that was one of the big factors in getting that wrapped up.

So let me do what I did with the other panels. Let me ask if anyone has any other comments or questions, because we have talked about a lot of different things here, and I didn't know if anyone wanted to add anything or comment on anything further.

Mr. WEATHERLY. I might just add that—

Senator PRYOR. Yes?

Mr. WEATHERLY.—to buttress on Doug's comment about the re-packing, you know, our concern is the incredible cost, because we all went through—in AETN's case, it was \$25 million to do six transmitters. And to have to do that again in a climate where fund-raising is extremely difficult for us is hard for us to imagine. And that is at a time when people are using our product more than ever. So it is a concern to us, obviously.

Senator PRYOR. You maybe covered this earlier, but give us a feel for AETN's financial situation. I know you get some Federal Government funds. And, of course, you are a state entity so there is some money there, I am sure. And then you get a lot from your viewers and then some foundations, et cetera. So is there a mix you can tell us about?

Mr. WEATHERLY. We get about 10 percent from Federal sources. Everything AETN receives from Federal sources amounts to 13 seconds of annual Federal spending. And all of public media gets—television, radio—is about an hour. So it is very important to us. When you hear all the arguments, it is not necessarily about the overall money.

That is about 10 percent. About 50 percent, 60 percent if you add in the ADE work with us on education, it comes from state sources. And then the rest comes from viewer contributions. The programs that people watch at night or on weekends, the "Downton Abbeys", the "Sesame Streets", the Ken Burns, those are paid for by viewer contributions here in Arkansas. We have tried to, for our 50 years, always tried to do it that way.

So that is basically the mix. But we are doing relatively well. We don't have the resources that some commercial stations do, but we also don't have some of the limitations they do in what we can broadcast and the mission-based broadcasting.

So I don't know if that answers your question, but—

Senator PRYOR. It does. And is it true that your viewership, PBS's viewership, is actually going up?

Mr. WEATHERLY.—it was up 5 percent last year. "Downton Abbey" certainly helps, but that is only one program. So it is up across the board. We don't get the same kind of ratings material and feedback here at AETN, but our anecdotal and the evidence we get is it is also up here, too, certainly our responses and things like that. Funding, not necessarily, because that is always a struggle, but certainly the use. And there are a lot of reasons for that.

I think I have used the analogy before that when people would always say there are stations that can take our place, one example was The Learning Channel in 1972, but they couldn't make any money, so now they call themselves TLC and their big program is "Honey Boo Boo." And that is fine for some people, but—not criticizing that, and certainly it has a place. But we have continued to maintain and somewhat grow because we haven't gone in that direction. Of course, we are funded differently, too.

Senator PRYOR. Right.

Well, listen, this is good. Does anybody else have any questions or closing comments or anything?

First, let me say thank you again for being here and doing this. I know you all prepared for this and have spent your whole day with us here at the Arkansas Electric Coops, and we appreciate that.

And we again want to thank the co-ops for providing their facilities today. It has been a great public service, and we appreciate them.

What we are going to do now is we are going to close down the hearing. And I, again, thank everybody for coming, all the work that you have done.

And what we do on the Subcommittee is we leave the record open for 2 weeks. So if any of my colleagues around the country, if they want to submit questions, or if you all want to supplement some of your answers, you are welcome to do that. But we will leave the record open for 2 weeks.

And, again, I want to say thank you for all that you do, and thank you for making sure that Arkansas doesn't get left behind when it comes to technology and the innovations that you see and the investment and all the things that you have to do. We really, really appreciate you.

And also we want to say a special thanks to Commissioner Rosenworcel for being here and for coming to Arkansas and just participating around the state. And we are going to go to Cabot in a little bit and see what they are doing in the Cabot school system with some of their technology and how students use it and how it helps the educational process.

So, again, thank you all for being here.

And, with that, we will adjourn.

[Whereupon, at 11:47 a.m., the hearing was adjourned.]

