Testimony of

L. Elizabeth Bowles

President & Chairman of the Board, Aristotle Inc.

Before the

United States Senate

Subcommittee on Communications, Technology and the Internet

"Connecting Urban and Rural America: The State of Communications on the Ground"

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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 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.

[1] *See 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 Rcd 10342, 10370 (2012).

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 Arkansas, 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 work force 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.