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December 27 2017

Federal Communications Commission

445 12th Street, SW

Washington, DC 20554

HighSpeedLink.net Comments Proceedings: 17-258

Dear Chairman Pai & Commissioners Clyburn, O'Rielly, Carr & Rosenworcel:

I am responding to you with my company's comments related to the above proceedings for the CBRS. Before I get into my comments let me tell you about myself and my company.

Rural Broadband Network Services dba HighSpeedLink.net

I started in the ISP business in 1995 in Harrisonburg VA with dial-up. As demand for faster service increased, we were the first operator to leverage GTE's Centrex service for ISDN and began delivering 128k services to businesses and some residential users in 1997. Demand continue to grow and so we were the first in our area leveraged Verizon's Frame relay DSL wholesale service in 1999. As time passed many customers out grew DSL, additionally Verizon's support of this wire-line service became unreliable so our company explored wireless. My company was the first in the area to offer High-speed Business internet via wireless in the Downtown and then later Valley Mall area of Harrisonburg. From that point to now HSL has invested nearly \$10 million in building infrastructure and delivering broadband services in the most difficult places in my region. In the past year alone I have invested nearly a half a million dollars in infrastructure upgrades in preparation of using the new CBRS band. As a 3.65Ghz Licensee and being located in an exclusion zone, we also invested time and money in requesting permission from the Satellite stations near me so that I could install a 3.65 system in my network. I have been operating this network for the past 2 years, likewise in preparation of the CBRS band. My company supports agricultural technology, small home businesses and large billion dollar factories. We have enabled families who choose home school for their children as well as supporting public safety, libraries and many nonprofits in the community with advanced telecommunications service in 5 counties that are mostly rural that, were and still are poorly serviced by FCC subsidized telephone ILEC's. HighSpeedLink.net has been preparing to use the CBRS spectrum based on the promise of a level playing field. The proposed changes to the CBRS rules are not only a blow to our company but a blow to fair and unbiased competition in this region and a blow to the public this FCC Commission is supposed to be an advocate for. We currently serve over 3,000 businesses and residents with Broadband Internet, we have been preparing to bring better service to thousands of businesses and residents who

are currently being under served by ILECS with emerging smart city/IOT, 5G like services and applications. We are against all of the proposed changes to the CBRS regulations proposed in the Oct 3rd NPRM to increase PAL sizes to PEAs and lengthen terms.

Alex Phillips CEO Rural Broadband Network Svcs, HighSpeedLink.net

I have been in the ISP business for 23 years. I became a WISPA member in 2008 to get involved with the TV White Space effort. TVWS had the potential for being a great option for service providers to deliver broadband in rural america but as you at the Commission know, over regulation and the Commission's bias to favor unsupported claims by large business interests has essentially destroyed the TVWS industry. I was elected to the WISPA board in 2011 and since then I have served in every officer position as well as FCC Committee Chairman. As FCC Committee Chair at WISPA I was privileged to be able to work with many of WISPA membership as well as WISPA Partners on projects such as the CBRS. I also had great opportunities to meet with Key FCC personnel who worked on the CBRS project as well as enrolling WISPA as a member of the Winnforum specifically to work on the CBRS project. When I first met with the FCC CBRS project team several years ago, many things were discussed regarding this spectrum but the key points made that were part of the CBRS were no build out requirements, that supported use it or share it, licensed areas or PALS that were at a common denominator level of census tract and with small short term spectrum licenses. These 3 key points resolved issues with past spectrum licensing regulations that supported spectrum hoarding by well funded large telecom carriers that resulted financial win-falls for large business while sacrificing public good the FCC was entrusted with. With the CBRS, the plan was to make public allocation of spectrum more efficient as well as more directed to the public good. Smaller license terms and geographic size stopped the perpetual domination of the large carriers to hoard spectrum and thus fabricating scarcity and allowing for opportunistic use of spectrum also supported more effective use of the public asset.

The best parts of the CBRS rules are being changed to favor large telecom, why, what did they ever do for the public?

The October 3rd NPRM has changed the most significant dynamic of the CBRS and that was to stop the historically documented **Spectrum Hoarding** by large carriers. Please FCC Commissioners, don't be fooled by T-Mobile's attempt to change the course set by the original intent of the CBRS. Remember you are stewards of this Public Asset who should be primary focused on what is good for the Public and not the Stockholders of these large corporations. We are opposed to the larger PAL sizes and the changes to licensing terms.

T-Mobile's request for CBRS rules changes were at the behest of its handlers at AT&T as well as other Large Telecom. All of the FCC Commissioners should know this. AT&T, the #2 spectrum holder in the US second to Sprint, is the same carrier who hoarded 2.1GHz spectrum for over 9 years and is now only deploying this spectrum as part of their agreement with the Justice Department to allow their purchase of DirecTV but moreover because the FCC is funding this **Fixed Wireless** deployment under the Connect America Fund using a **fiber deployment cost** model. There are also many documented reports that show how many of the

large carriers have hoarded spectrum. Just ask Google search. Let's not kid ourselves on this point, hiding behind the term "In Compliance" is an area the Commission should review and change.

The FCC's primary objective for this spectrum should be to do the most good for the Public. The change in the PAL geographic size does not do this because it severely limits small operators from participating in the auctions. Currently small WISP's, Telcos and Utilities of all sizes are using the 3.65 band in geographic areas that are all smaller than PEAs. The following are my points of disagreements with those requesting these changes in the Oct 3rd NPRM:

- We disagree with T-Mobile's and CTIA's assertion that these changes are needed to promote 5G deployments. There is no degradation in their ability to deploy 5G technology with census tract level PAL sizes. In reality census tracts allow for more targeted use of the spectrum in higher density areas leaving rural areas available where they are needed for Small Telcos, WISP's and Utility operations.
- We also disagree with "Many entities maintain that the current PALs paradigm generally does not incentivize investment". What the current PAL paradigm does not incentivize is spectrum hoarding. A practice known to be used by large telecom companies as a means to inflate asset values and create scarcity that in turn result in further inflating the value of the asset. Its borderline ponzi. What the original rules do incentivize is for sound business models that are unique from region to region that in turn result is self sustaining economics that are generally found in small to mid-sized telecommunications companies who are more intimate with the regions they service.
- We do not agree with T-Mobile's and CTIA's assertion for the need of a global harmonization in this band as a predicate for investment. No changes are needed to foster this investment in 5G. Reports published this year by the Global Mobile Suppliers Association states the following, contrary to T-Mobile and CTIA:
 - **Updated report was published by GSA on April 5, 2017 and confirms the mainstream LTE user devices ecosystem and fast developing support for LTE-Advanced and LTE-Advanced Pro systems. As a result of our latest research and verification process we have increased to 7,847 the number of LTE user devices we have verified as announced in the market, coming from 546 suppliers. This is over 77% higher than the number of devices we reported in February 2016. The number of suppliers grew 48% in the same period.** <https://gsacom.com/paper/status-lte-ecosystem-report-gsa/>
 - **New Evolution from LTE to 5G report confirms 774 operators investing in LTE and 18 committed to deploy 5G** <https://gsacom.com/press-release/new-evolution-lte-5g-report-confirms-774-operators-investing-lte-18-committed-deploy-5g/>

Public demand will foster this investment all on its own in 5G. What these proposed changes in the CRBS will foster is a reduction in investment, specifically in the alternative carrier markets that have been elevated by both demand in broadband and the lack of interest and investment by ILECs and Large Telecom in general to serve rural America. Ubiquiti networks for example, is a global leader in wireless telecom products who services the Small Telco, WISP and Utility sectors globally and has seen nearly a 20% average growth over the past 5 years compared to Qualcomm over the same 5 years who has only seen just over 3%. Manufacturers like Ubiquiti networks, who have been focused in supporting an ignored market segment, have not only seen significant growth, they have invested in the growth of an industry that is primarily comprised of small business operators. These small operators have been filling the broadband needs in rural America while large carriers hoard spectrum and they have been surpassing in ways that the FCC should be supporting with leaving the CBRS rules as they were and not changing at the behest of **power hungry, money grubbing** telecom companies who have ignored the **public** need for decades. Additionally, excluding small business from the CBRS rules will strangle **real innovation**. Over the past 15+ years, companies like Ubiquiti, driven by the needs of small business have innovated technology that has pushed the WISP industry into the status of real competitor to large telecom. Products from the WISP industry are now part of the lexicon in traditional large industry trade shows held by CCA, CTIA and the like. To say LTE is on par with anything that has been developed out of the WISP industry is an overstatement. Drivers for LTE development are cheap disposable hardware that supports an economy of consumption with the side effects of filling the needs of some in the market with Broadband Internet. WISP industry innovations have solved real problems.

- We disagree with CTIA and several commenters that note that a ten-year, renewable licensing scheme is consistent with Commission's "proven approach" in most other licensed mobile bands. To the contrary. Being a WISP who has provided services to "Licence Saver" companies who have been helping large telecom to hoard spectrum in the 700Mhz band, I have seen first hand how this **failed** "proven approach" results in the public again being forsaken to the needs of large telecom carriers to maximize profits to their stockholders. The term "**In compliance**" has been overused to the point when discussed in meetings at the FCC, there is a subtle and subdued laugh followed by anyone who says it. All this, is a plan to have large carriers use their deep pockets to flash their wad of cash in front of the Commission as a distraction to keep you from looking at those you should be serving and that is the Public. For there to be real competition in these markets, the real value of this spectrum needs to be evaluated more frequently and the cost of spectrum needs to be an **operating expense** not a **depreciation expense** of an asset. Each Market will bear a different value based on demand and other economic factors. Leaving the rules as they are will result in more economically viable markets that will be unique from region to region, city to city, county to county and town to town.

- We disagree with anyone who says 500k census tracts are too much for any SAS to handle. Why do I disagree? Let's pretend we are all rocket scientists. Back in the 1960's NASA put men on the moon using computer technology that was a million times less powerful than my smart phone. Now calculating that the SAS will be hosted on many cloud computers that are significantly more powerful than my smartphone, will have redundancies, fail overs similar to what the amazon cloud uses, its probable that the SAS could handle the activity. If we were to compare to a commercial operation far more busy than keeping track of 500k census tracts like Amazon.com, on the peak **day**, Nov. 26, customers ordered more than 26.5 million items worldwide across all product categories, which is a record-breaking 306 items per second. Google's search cloud handles which handles three billion+ searches/day in fractions of seconds each also illustrates how this will not be an issue for the SAS. This seems to indicate the SAS should be able to handle much fewer transactions per second. Finally, 2 of the certified SAS operators Sony and Google have stated this is not an issue. Nothing to see here move along.

PEA for PAL boundary size is a really really bad idea

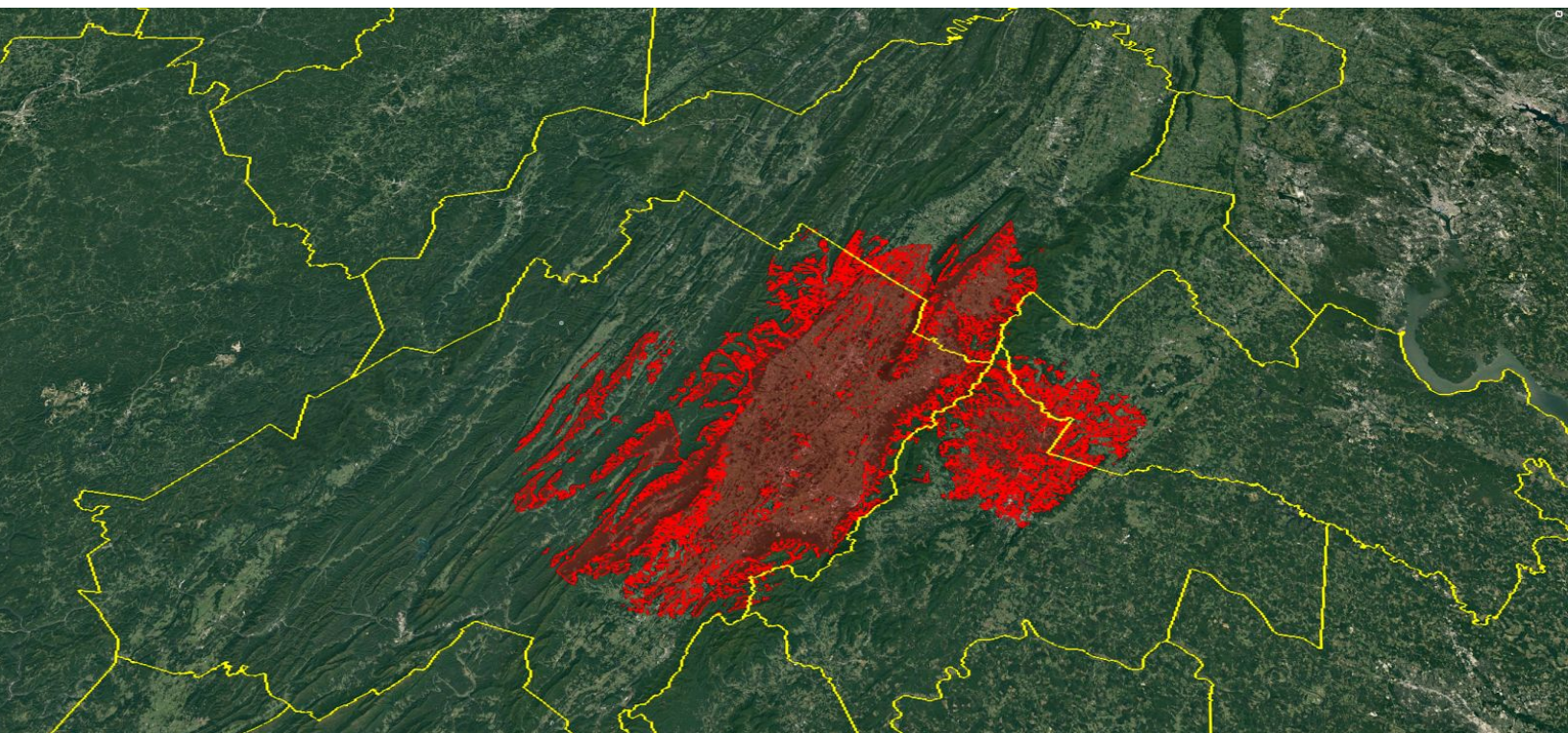
The argument of Census Tracts vs PEA's for PAL license size, no matter what has been suggested in the Spectrum Frontiers, is a faulty argument. There are 2 parts of this argument that are faulty specifically.

1. PEA is a poor example of a legitimate economic boundary

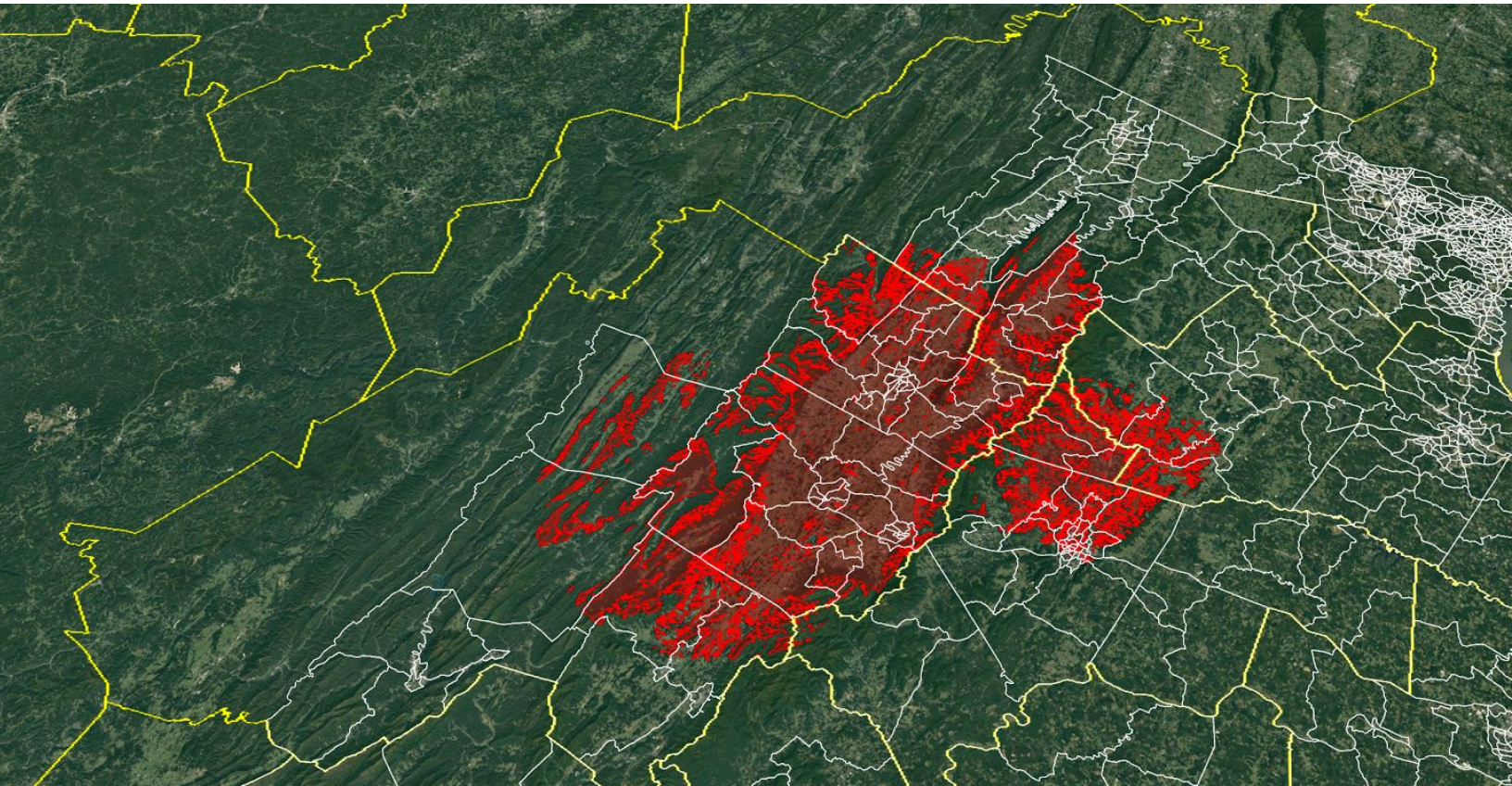
The notion of PEA's as a legitimate boundary area is flawed in many cases throughout the US. I will use HighSpeedLink.net's service area as example:

Our service area (red) is focused at the county level where previously, under and unserved areas, now covered by my wireless network are overlapping very well serviced areas. As a small business, we have made the decision to not service areas more than 3 hours from our headquarters. This is due to 2 basic factors. 1. Response time to outages and other issues that can cause service quality degradation; 2. We work within a footprint of service where we know geographically and are knowledgeable of our customer base. This model supports the leveraging of assets within our community and helps our business put back into the community, in the form of employees who work and live in the areas we service as well as relationships with county/city/town Governments who we can provide direct benefit too. We have also seen that this model helps our company provide a higher level of service to our customers needs that is unique to our community. In the following illustration you can see that we serve 4 primary counties and 2 counties partially. The counties partially serviced, by currently serviced by protected ILECs who are subsidized by the FCC in a High Cost area funded under CAF.

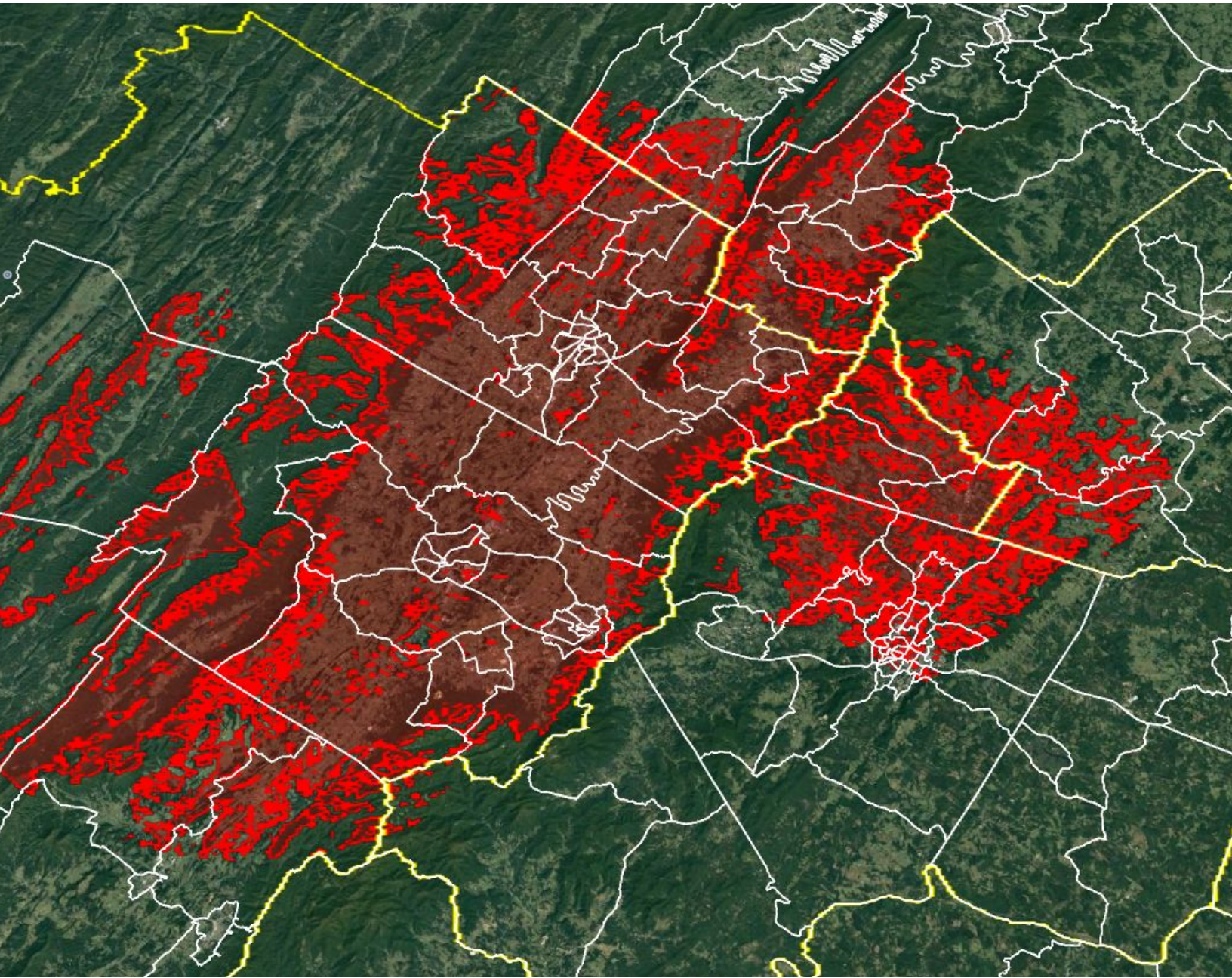
This next illustration shows our coverage area (Red) and PEA's (Yellow) in relation to my network. This is an absurd idea given that to service my network I would need 4 PEA's worth of PALs the size of the State of NY. Two of the PEA's covers both Virginia and West Virginia. How is this even considered a partial economic area? This is not even a bad joke, its a downright shame for the Commission to consider this as a viable option.



This next illustration shows Census Tracts(white) in relation to my coverage area(red) and the PEAs(yellow). Census Tracts are a known quantity and the lowest common denominator. These units have been part of the FCC lexicon for measurement for some time. It is the key unit in form 477. The genius behind this unit is that it allows for an operator, large or small, commercial or utility, to craft the right PAL to meet their area of network service. It is efficient, economically viable and it supports a diverse competitive framework that enables small and large businesses to compete on a level playing field.



This is a close up view of our network(red), PEAs(yellow) and Census Tracts (white) Census tracts are the most logical and least limiting unit that also corresponds to current 477 reporting.



2. PEAs for PALs will exclude small business from the process

Chairman Pai said “the government shouldn’t be in the business of picking winners and losers in the Internet economy.”

Why is it important for the FCC to not use regulation to pick winners and losers? Well to start it is not in your mandate. The repeal of the over burdensome Net Neutrality regulations were a step in that direction. It was clear to the Commission that Net Neutrality under Title 2 was a soul crushing endeavour that had the net effect of limiting investment while enabling large telecom companies to use their market power to find ways around regulations while leaving small telecom out in the cold to fend over scraps. Changing the CBRS rules unnecessarily in favor of large telecom although may sound on paper like a good plan to accelerate broadband deployment in rural america but, in the long run it will only result in the need for more subsidies from the public, to the carriers whom the FCC has picked as winners. Just look at how the current system has worked out. Most of the carriers under the USF and now CAF funding programs have, on any given day, a 40-70% chance of going bankrupt. Yet the FCC continues to fund these companies while small WISP’s have to fight to protect from being over built by these same carriers. Engineering winners and losers by regulation will result in poorly run operations that require a continue influx of funding at the taxpayer expense. The financial viability data for CAF recipients can be verified at www.macroaxis.com

Competition Diversity is Making America Great Again

Small business is know to be the backbone of the USA. Diversity of Competition is also part of this. Diversity can be qualified as a benefit to the economy in 2 ways:

1. Small business is good for the economy

The fact that Small business competing with large business is good for the economy is a well established fact. To illustrate this I am going to show an April 18th report from Huffington post on this topic as my comments to that effect. This report effectively conveys my sentiments on this issue.

[Jose Vasquez](#), Contributor

CEO, Quez Media Marketing & Build. Brand. Blast.

Why Are Small Businesses So Important for the Economy?

04/18/2017 10:17 am ET

Big businesses may dominate the stock market, but it’s small businesses and startups that keep our economy moving. Small businesses create job opportunities and drive economic growth in

smaller geographic areas, but how could they possibly compete with their bigger counterparts in terms of economic potential?

Competition

First, small businesses inject new competition into previously stale areas. A local farmer, for example, may be able to offer cheaper produce because he doesn't have to spend money on shipping. An agile startup may be able to innovate new technology faster than a bulky, bureaucratic counterpart, forcing changes in thinking and behavior.

Local Hiring

Small businesses also operate locally, which gives them a strong preference for hiring local people. Big corporations often move into new territory with a team already in place, which can improve a city's population, but nothing drives new job growth in a region like more powerful small businesses.

Diversity

Small businesses also have more flexibility, and can be started by almost anyone. That makes them more diverse in form, function, culture, and potential than large corporations. The greater diversity we have in the economy, the easier it is for the economy to withstand tough conditions.

Turnover

Even though it sounds like a bad thing, many startups and small businesses eventually fail. That turnover gives the community a chance to learn, recover, and rebuild, which is beneficial in the long run, driving even more new growth.

Small businesses and startups are what keep our economy strong, and I'm proud to have contributed, in one way or another, to dozens of startups in my time as an entrepreneur. If you've ever considered starting a business, know that there is no "perfect" time; you have to take the plunge at some point. Entrepreneurs like you are what keep the market alive.

2. Diversity of Competition

Diversity in the marketplace is key to filling every niche of need the consumer has. Diversity in business has even deeper meaning when it comes to Small business. Small businesses are generally owned and run by people who live in the communities they serve. There were 9.9 million women-owned firms nationally in 2012, up from 7.8 million or 26.8 percent from 2007. There were also 8.0 million minority-owned firms nationally in 2012, up from 5.8 million, or 38.1 percent, from 2007. As a board member of WISPA for the past 6 years, I have met most all of our members who are business owners. I have heard their stories of why they started a WISP. Many are Women or Minority owned business who were living in an area of the US with a need for broadband that was not being met by their ILEC and these people found a way to build a business around that need. If the FCC proceeds with its proposed change to PAL sizes to PEA's and not Census Tracts, you will be cutting off at the knees a very diverse community of **small women and minority** owned businesses who have a proven track record of success on

the chance of a short term gain that historically has a track record of failure as it relates to the public good.

Economic analysis of Competition Diversity

In the book *Competition, Diversity and Economic Performance Processes, Complexities and Ecological Similarities*, the author, **Clement A. Tisdell**, an Australian economist and Emeritus Professor at the University of Queensland, explores the influences of market competition and diverse behaviours of economic agents on economic performance, particularly dynamic economic performance. Various forms of diversity and competition play a central role in theories of the performance of ecological systems. In economics, however, little attention has been paid to diversity as an influence on economic performance and to some dimensions of competition found to be important for the operation and sustainability of ecological systems. Tisdell proposes that moderate market competition such as with small business is likely to be more effective in improving economic performance rather than intense competition alone found with large business (there are ecological similarities), and that moderation of market reactions and the presence of some imperfections play an important role in improving the dynamic economic performance of markets. His analysis of diverse business attributes of significance for economic performance has revealed that varied (diverse) business practices are likely to be optimal in an industry for achieving economic efficiency both in static and dynamic situations. In general, uniform business practices fail to promote top economic performance. Therefore, it is necessary to be wary of benchmarking approaches which suggest that all firms in an industry should strive to adopt the best economic practice in the industry. Consequently, analysis based on economic efficiency frontiers is found to be wanting.

To simply what the author is saying in terms related to this discussion, just like in the natural world, diversity always results in a healthy ecosystem. Cookie cutter solutions with in your face marketing, results in short term benefit to the consumer but in the long term is just more of the same. Same business model scaled to a smaller market segment due to an artificially manipulated economic system through regulatory exclusion of diverse competition. As market regions become less profitable to the large business, due to unforeseen changes in the economy, costs associated with maintenance, upgrades and in general quality of service will be sacrificed to sustain profit margins at a constant level in keeping with stated financial goals mandated by stockholder return on investment. Resulting net effect, is customer has to pay more or accept less. With no small business to offset this in its ecology, the consumer loses and has to accept a downgrade in overall quality of service. With regional small business as part of the ecosystem, at a level playing field, broader reaching economic downturns have less of an effect or in most cases are easily adjusted for, thus the consumer has a choice. Balance is maintained.

We have a real world example to share with the Commission that should illustrate how small business is important, even in one of the richest areas of the country, Washington DC. This is an actual email sent to one of WISPA's member small/woman owned businesses, DCAccess.net, right after the vote to repeal Net Neutrality. It shows how the large business

competition business models with significant profitability can't even meet the needs of residents in our Nation's Capital, but small diverse business is:

Hi all,

I wanted to send this email today because I think it is important that you know how much you are valued by your customers. I have no hesitation in speaking for the many people you provide internet to because your service is unmatched. However, it really is just me writing this email about my personal experience.

I have been a customer with you since I moved to DC in November of 2008. First of all, getting internet was difficult. I lived in a little alley off of H Street. Comcast kept saying they couldn't find my address... after weeks of phone calls and surveys that led nowhere, I asked my neighbor, Adele Robey, how she got internet in our alley and she told me about you. Within minutes of my first call (maybe an exaggeration, but barely) you guys were there.

You grandfathered me in at your lowest rate plan for as long as I wanted (which is unheard of), and when I upgraded you walked me through the upgrade process. I moved down the street after 7 years in the alley and kept your service, even though I would no longer be splitting the cost with a roommate. Again, I cannot tell you how great you are to work with. Growing up with computers, I always thought I'd know what was going on with the internet... but I've found in my post-college days I am following updates less and less and becoming one of those people who doesn't get it anymore. :) You are patient and work with me, whenever I have issues.

I work in conservation for the Library of Congress. I do not make a lot of money. I am single and have a second job to make ends meet. Sure, I could find a better deal for a year or two and save \$10-\$15 a month but I choose to support you because I value your service and what you stand for as a company.

Wow, this is getting long. Sorry about that... basically this email has to do with the FCC. Today, when I saw the FCC repealed the net neutrality rules today I was disappointed, but not surprised. It just reiterated how important you are as a company. Your email a while ago stating that you will not throttle or speed up internet based on content spoke to me. It encouraged me to call my senators and representatives from my home state and reach out to our DC representative. Also, I believe you. Unlike Comcast and Verizon, I believe in you and what you do for DC residents and business alike. I guess all of this is to say thank you. I am a drop in the water when it comes to revenue. I can't afford much, but please know that you are worth the extra money to me.

All the best,

Xxxxxxx

The FCC does not need to change the rules to benefit small business, it needs to leave the rules as they were so that both small and large business have equal opportunities to serve the citizens of this nation, wherever they may be, with well balance and viable competition . The FCC needs to stand by its word and not regulate **winners and losers**.

Sincerely,

Alex Phillips
CEO
HighSpeedLink.net
WISPA Member since 2008
Past WISPA Board member 2011-2017