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AN EXAMINATION OF COMPETITION IN THE WIRELESS MARKET

HEARING

BEFORE THE

SUBCOMMITTEE ON ANTITRUST,
COMPETITION POLICY AND CONSUMER RIGHTS

OF THE

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AN EXAMINATION OF COMPETITION IN THE WIRELESS MARKET

WEDNESDAY, FEBRUARY 26, 2014

U.S. SENATE, SUBCOMMITTEE ON ANTITRUST,
COMPETITION POLICY, AND CONSUMER RIGHTS,
COMMITTEE ON THE JUDICIARY,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10:04 a.m., in Room SD–226, Dirksen Senate Office Building, Hon. Amy Klobuchar, Chairman of the Subcommittee, presiding.

Present: Senators Klobuchar, Lee, and Flake.

OPENING STATEMENT OF HON. AMY KLOBUCHAR, A U.S. SENATOR FROM THE STATE OF MINNESOTA

Chairman KLOBUCHAR. All right. We are calling this hearing to order. Thank you, everyone, for coming today and for getting through the weather. We consider this minor weather in our two States. But it is good to see everyone here. And also someone told me Ben Affleck is testifying in another hearing, so we consider you guys our Ben Afflecks. Okay? Just remember that. Right, Mike? Exactly.

Thank you for being witnesses. Thank you to everyone here. This hearing highlights an industry that impacts consumers across the country and will continue to change the way that we communicate for years to come.

Mobile phones have revolutionized the way we talk to each other. Today more than 90 percent of adults—and I remember doing this a few years back, and it was not even that high. More than 90 percent of adults own a wireless phone, and that does not even count all the teenagers out there with cell phones, or in the case of my family, multiple cell phones when they lose their cell phone. And today, two in five U.S. homes have a mobile phone but no landline.

Mobile devices are not just telephones anymore. In fact, young people today probably do not even remember when cell phones only made calls. People depend on their smartphones to conduct their everyday lives. Smartphones are the primary way for 34 percent of users to access the Internet, for everything from telehealth to education to Words with Friends. And they are consuming a voracious amount of data to the tune of 1.2 gigabytes per user per month last year. That is double the amount from 2012, and that number will only grow.

That is why we need to make sure consumers are able to reap all of the benefits that come from robust competition: lower prices, high-quality service, innovative devices, and an abundance of choice.

Antitrust has a role to play in this market. As Thurgood Marshall wrote for the Supreme Court, our antitrust laws and the competition that they promote are "the Magna Carta of free enterprise."

The competitive landscape in the wireless industry has gone through remarkable changes since the 1990s when I was in private practice focusing on communications law. Just 10 years ago, consumers had six national wireless carriers and a variety of regional carriers to choose from. As a result, aggressive competition led to declining prices and the rollout of new services and new devices.

In 2005, the number of nationwide carriers went down to four when Cingular merged with AT&T and Sprint acquired Nextel. In 2007, the iPhone was unveiled and revolutionized the way people interact with their mobile phones. In 2011, AT&T and T-Mobile attempted to further consolidate the industry until the Justice Department stepped in and blocked the merger and the parties ultimately abandoned the merger.

Recently, T-Mobile has re-emerged as the maverick it had been before the proposed AT&T merger with its "Un-carrier" emerging markets, which offers consumers free international data roaming, reimburses them for early termination fees, and eliminates long-term contracts. T-Mobile has also boosted its spectrum holdings by acquiring MetroPCS.

Last year, Sprint was acquired by Japanese-based SoftBank, a transaction that was promoted as providing Sprint with capital and expertise needed to deploy its national LTE network. Sprint also took full control of Clearwire.

AT&T is expected to close an acquisition later this year to acquire Leap Wireless. Verizon bought a large swath of spectrum from several cable companies and more recently sold a block of unused spectrum worth $3 billion to T-Mobile. And regional carriers like C Spire continue to expand and offer more and more consumers their competitive 4G LTE service.

A lot has changed in the fast-moving industry, and yet some things remained relatively constant. AT&T and Verizon are still the dominant wireless providers, accounting for roughly 68 percent of all subscribers. But anyone that watched the Super Bowl knows from the ad campaigns going on that there has still been some vigorous competition, especially in recent months, which is why this hearing is so timely.

So now is a good time to assess the future outlook for competition and consumers. We need to ask important questions. Are we seeing the kind of competition we would expect from a competitive market? Are we seeing price wars, competing offers to try to acquire each other's customers, and new and innovative services and choices that differentiate competitors? What barriers to competition remain, and what challenges do competitive carriers face?

What should we be mindful of as we consider spectrum and other policies impacting competition or further consolidation in the wireless market, such as a potential Sprint/T-Mobile merger?

Wireless carriers and their partners innovate and compete on a variety of levels, so we expect to see them trying to win over new customers on everything from Internet speeds to a variety of service plans and the latest handset features to cutting-edge applica-

tions, including safety and security features that will help stem the tide of mobile phone theft. As you know, I am particularly interested in this area, as we have seen an exponential increase in cell phone thefts across the country. One in three burglaries are now the result of cell phone stealing, and I have legislation on this. But the focus is to, of course, reduce these kinds of thefts by actually reducing the value of the phone to the thieves by allowing consumers with new technology to keep their own private information on the cloud but turn it off for the thief that steals their phone.

When we think about competition and antitrust enforcement in this area, we need to acknowledge that the mobile world is quickly evolving. For example, just last week, Facebook bought the mobile phone instant messaging service WhatsApp for $19 billion. New ideas, products, and services are being unveiled this week at the Mobile World Conference in Barcelona, Spain. So you guys got the short end of the stick, huh?

[Laughter.]

But just because technology is moving at a swift pace, the antitrust laws are no less applicable. The wireless industry is a hotbed for new technology, and by ensuring a fully competitive market, we will foster innovation and ensure that consumers will be the ones to pick the winners and losers.

So today we will hear from witnesses who will paint the current picture of competition in the wireless industry and inform us about what Congress should take into account when considering wireless policy and future mergers in the industry.

Again, I thank the witnesses, and I turn it over to my Ranking Member here, Senator Lee.

OPENING STATEMENT OF HON. MIKE LEE, A U.S. SENATOR FROM THE STATE OF UTAH

Senator LEE. The Dirksen Building really is a nice destination even when compared to Barcelona, but I will not say more than that.

Mine is one of those homes where you can find both cell phones and a landline. I am still not sure why we have the landline. It is one of those things that we have been reluctant to part with. It seems irresponsible, almost, as a citizen not to have a landline, even though we never, ever use it. My wife refers to it as "the line that people use to call us that we do not want to talk to."

[Laughter.]

A few years ago, my son, James, commented, when he could not find his phone, "You know, someone really should invent a phone that is connected to the wall with a wire that cannot be removed so you cannot lose it." I told him, "That has been used in the past, but no one wants it."

Today's hearing focuses on competition in the wireless market, and our Subcommittee's hearings often address the competitive state of a particular industry or market, but in some ways today's hearing is unique because, as it is presently constituted, the wireless market is, in fact, very competitive. Indeed, looking back a decade or two, there are perhaps few industries in which the benefits of competition are more readily apparent and pronounced than in the present-day wireless market.

Many of us attending or watching this hearing can remember a time when mobile phones were still something of a novelty, and perhaps all of us can remember the time when a cell phone was little more than that. It was just a phone. Today smartphones are ubiquitous, and they do so much more than allow us just to make phone calls.

In fact, within a few years, a majority of Americans will access the Internet, primarily not through a computer but through a mobile device. These rapid developments are in large part the result of forces of competition. Consumers in the wireless market have benefited from competition not just in the form of low prices, but also in the form of high-quality service, which is the product of innovation and which leads to more innovation.

Consumer demand has pushed carriers to offer better, faster service on better, faster devices. In the last 20 years alone, carriers have paid more than $50 billion for spectrum and have invested well over $300 billion in infrastructure. As the Department of Justice noted last year in its comments to the FCC regarding spectrum, "Competitive forces have been a central driver of innovations that have enabled wireless carriers to expand capacity and improve service quality."

The wireless market is, thus, in many ways a success story that illustrates what can happen when government stays its regulatory hand and allows the free market to respond productively to consumer demand. To again quote the Department of Justice, "Competition generally represents the best method of ensuring that consumers receive low-price, high-quality products and services, greater choice among providers, and important innovation."

Today we have got the opportunity to discuss the government policies that may best ensure that consumers and the wireless industry continue to enjoy the benefits of robust competition. As spectrum is the lifeblood of the wireless industry and a scarce resource administered by the government, some of our discussion will understandably center on that topic. With data use exploding each year within the United States, carriers are aggressively seeking spectrum to fulfill demand.

Indeed, to the extent the wireless industry has consolidated, the need for spectrum may go a long way toward explaining that trend. Although the Federal Government has taken some steps to free up available spectrum for commercial use, I believe additional steps can and should be taken in this regard. Particularly where the government is holding low-frequency spectrum for non-military use, a careful evaluation of measures that may allow for some of that spectrum to be made available for commercial use may be extremely beneficial and may forestall additional attempts at consolidation.

Some have expressed concern that a carrier may seek to accumulate spectrum for anticompetitive purposes. Although the foreclosure value of spectrum makes such an outcome theoretically possible, we must be careful to ground any antitrust analysis in the facts of specific transactions. Absent evidence that a carrier is hoarding spectrum or otherwise seeking spectrum for a purpose other than to serve its customers, it is at best premature to assume

that a carrier's desire to purchase additional spectrum is itself anticompetitive.

Particularly in light of the increasing demand for spectrum, it seems likely that all carriers will, for legitimate commercial purposes and very legitimate reasons that have everything to do with the desire to compete in a competitive marketplace, continue to seek additional spectrum. In that scenario, competitive forces and market valuation will best allocate spectrum to its most efficient and highest-value use.

I have also heard concerns expressed regarding the competitive state of other aspects of the mobile device ecosystem, including the market for operating systems. For example, I have heard concerns expressed regarding the potential for a company with market power to leverage that power to limit competition in mobile services. I have likewise heard concerns expressed from small carriers regarding the availability of the latest and best mobile devices. These are important considerations as we take account of the competitive state of the wireless industry as a whole.

Throughout our consideration of all these issues, we must keep our focus on protecting competition and not protecting competitors. By carefully evaluating the evidence and applying rigorous economic analysis, we can continue to ensure the best outcomes for consumers.

I look forward to hearing from our witnesses today, and I thank them for coming.

Chairman KLOBUCHAR. Well, thank you, Senator Lee.

I would now like to introduce our distinguished witnesses.

Our first witness is Mr. Randal Milch. Mr. Milch is executive vice president and general counsel of Verizon. Previously he was associate general counsel at Bell Atlantic, which merged with GTE to form Verizon in 2000.

Our second witness is Ms. Kathleen O'Brien Ham. Ms. Ham is vice president for federal regulatory affairs at T-Mobile. Before going to T-Mobile, Ms. Ham was at the FCC for 14 years and served in a number of top policy positions, including Deputy Chief of the Wireless Telecommunications Bureau.

Next we will hear from Mr. Jonathan Spalter. Mr. Spalter is the chairman of Mobile Future. Prior to joining Mobile Future, he founded the independent investment research company Public Insight. Mr. Spalter also served as the Associate Director of the U.S. Information Agency during the Clinton administration.

The next witness will be Mr. Eric Graham. Mr. Graham is senior vice president for strategic relations for C Spire Wireless. Prior to joining C Spire in 2007, he practiced law in Jackson, Mississippi, with a focus on public policy, consultation, and public utilities regulation.

Then we will be hearing from Ms. Roslyn Layton. Ms. Layton studies Internet economics at the Center for Communication, Media, and Information Technologies at Aalborg University in Denmark. She has worked with many companies in the IT industry on digital marketing software, Web analytics, platforms, disruptive technologies, and Web development services.

Our final witness will be Mr. Matthew Wood. Mr. Wood is the policy director of Free Press. Prior to joining Free Press, Mr. Wood

worked at the public interest law firm Media Access Project and in the communications practice groups of two law firms in Washington, DC.

Thank you all for appearing at our Subcommittee's hearing to testify. I now ask our witnesses to rise and raise their right hand as I administer the oath.

Do you affirm that the testimony you are about to give before the Committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. MILCH. I do.

Ms. HAM. I do.

Mr. SPALTER. I do.

Mr. GRAHAM. I do.

Ms. LAYTON. I do.

Mr. WOOD. I do.

Chairman KLOBUCHAR. Thank you. We will start with Mr. Randal Milch.

STATEMENT OF RANDAL S. MILCH, EXECUTIVE VICE PRESIDENT & GENERAL COUNSEL, VERIZON COMMUNICATIONS INC., NEW YORK, NEW YORK

Mr. MILCH. Chairman Klobuchar, Ranking Member Lee, thank you for the opportunity to testify, and I would request that my written testimony be entered into the record.

Chairman KLOBUCHAR. It will be entered in the record.

Mr. MILCH. Thank you very much.

U.S. consumers are benefiting from a fiercely competitive and deeply innovative wireless market. That is a key driver for our national economy and for maintaining America's competitive edge in the global economy.

Normally I would not burden you with numbers, but the numbers here are impressive.

First, on the competitive standpoint, the market is indisputably characterized by massive investment, falling prices, and deep rivalry. This is a competitive market by all of these measures.

Capital investment is truly staggering. As Senator Lee noted, in 2013 America's wireless carriers invested more than $34 billion in their networks, and since 2001, it is $300 billion in capital investment in the United States, and that is not including the investment in spectrum that was made.

Lately, this investment has centered on our 4G LTE networks across the board. This was a big bet that Verizon first made in 2008, announcing it was going to go to 4G LTE. And since that investment, all major carriers and regional carriers as well have started investing in 4G LTE, which has been a major transformation in the industry.

Because of that kind of investment by all carriers, the United States has almost 300 million wireless broadband subscriptions, and that is more than double that of any other country in the world. And these broadband subscriptions can provide mobile broadband speeds that are comparable to wireline alternatives. This has been a bright spot in the economy. The wireless industry has gained almost 1.6 million new jobs from 2007 to 2011, and that

is at the same time when, unfortunately, total U.S. private sector jobs fell by 5.3 million.

Our industry generated almost $200 billion in economic activity during the same period, and the projection for continued investment is staggering as well. Over the next five years, it is estimated that there will be more than $1 trillion in additional investment in economic growth—I am sorry, in economic growth and will create almost 1.2 million new jobs.

The results are a great deal of choice for consumers: nearly 200 facilities-based carriers in the United States, more than any nation in the world; more than 90 percent of U.S. consumers have a choice of three or more wireless carriers; there are over 300 different handsets available to U.S. consumers from a variety of manufacturers; and by 2017, 87 percent of connected device sales will be tablets and smartphones, and these are devices that did not exist even exist more than a handful of years ago. And they would not exist without mobile broadband networks.

At the same time, prices are falling. From 2008 to 2012, as data usage skyrocketed, data prices plummeted 93 percent, dropping from 46 cents a megabyte to only three cents a megabyte. And from 2005 to January 2014, the wireless CPI, Consumer Price Index, fell 10 percent while the overall CPI for all items increased almost 19 percent.

All this investment and choice has led to U.S. consumers using far more mobile services than their international counterparts. This is a well-known fact that we have some real experts on the panel who can probably be more evocative on this than I am.

Let me turn, though, to the deep rivalry among the carriers. As Chairman Klobuchar noted, you look at the Super Bowl ads, you look at the ads in any newspaper, there is a huge amount of effort to attract new customers and attract customers away from other carriers. For instance, in nine months alone, from January to September 2013, telecom companies spent almost $7 billion in advertising. That is an 11-, almost 12-percent increase over the same period in 2012. And as we know, this is a period when other consumer segments' advertising spend was decreasing. The wireless market was increasing.

There is a great deal of additional benefit beyond the economic benefit to the Nation from this effort. We believe, and we are trying to lead the way, in ensuring that mobile broadband helps answer questions and our deepest problems in the health care area by the use of distance medical usage and allowing the transmission securely of MRIs and X-rays. In education, in STEM, this is a great effort where Verizon and others are launching programs to ensure that mobile technology is embedded and utilized well in the classroom.

There are a few issues that we should address. Privacy and security are very important as mobile devices become more and more embedded in our everyday lives. This is an area that we believe deserves the greatest attention from the carriers and from policymakers. And we believe it is an area where carriers will strive to differentiate from one another as part of the competitive process.

Finally, spectrum, spectrum, spectrum—the lifeblood of our industry. We need to ensure both that there is a supply, continued

supply of spectrum, as Senator Lee noted, from parts of the government where it is underutilized at the current time and coming up with an auction process and other processes of having that spectrum being made for commercial use, processes that are fair and neutral and encourage all carriers to invest. And, finally, a robust secondary market for spectrum is very important.

Let me close simply by saying Verizon is honored every day to serve 100 million customers around the country, and we attempt to do justice to the investment that our shareholders have allowed us to make, the trust that our customers put into us every day, and to keep alive the innovative spark that is furthering the mobile industry.

Thank you.

[The prepared statement of Mr. Milch appears as a submission for the record.]

Chairman KLOBUCHAR. Thank you very much.

Ms. O'Brien Ham.

STATEMENT OF KATHLEEN O'BRIEN HAM, VICE PRESIDENT, FEDERAL REGULATORY AFFAIRS, T-MOBILE USA, INC., WASHINGTON, DC

Ms. HAM. Thank you. Good morning, Chairwoman Klobuchar, Ranking Member Lee, and Members of the Subcommittee, and thank you for inviting me to testify on the subject of wireless competition. My name is Kathleen Ham, and I have been the vice president of federal regulatory affairs for T-Mobile since 2004.

T-Mobile is headquartered in Bellevue, Washington, employs more than 38,000 Americans, and offers nationwide wireless voice and data services to individual, business, and government customers. We are the fourth largest wireless carrier in the U.S., serving approximately 47 million subscribers.

Since the spring of 2013, T-Mobile has been transforming itself into a more competitive force in the wireless market—the "Un-carrier." We have implemented a series of initiatives to address perennial customer pain points, including eliminating the annual service contract, allowing more frequent handset upgrades, providing free unlimited international data and text roaming, and paying the early termination fees for consumers who switch from another national carrier to us.

T-Mobile has been growing fast in comparison to the other wireless companies. A year ago, we had virtually no 4G LTE network. Today our LTE network covers over 200 million people and is still growing.

We added more than 4.4 million new subscribers in 2013, including 1.6 million in the fourth quarter. That was our third consecutive quarter with more than a million net customer additions, representing a significant turnaround from a year earlier.

Despite its popularity with consumers, T-Mobile faces a number of fundamental challenges that put at risk its ability to maintain its disruptive presence in the marketplace. Our subscriber base is still nowhere near that of AT&T or Verizon, and their great numbers give these carriers significant access to capital and economy-of-scale advantages. Our smaller scale yields lower profit margins,

smaller cash flows, and greater challenges in funding capital expenditures and bold, disruptive innovations.

By contrast, our larger competitors have substantial economy-of-scale advantages in such critical areas as equipment purchasing, handset rollout, business financing, the acquisition of backhaul and roaming services, and national brand advertising. The funding requirements needed for this business, exacerbated by the lack of scale relative to the big two, remain a major competitive challenge to T-Mobile going forward.

As discussed in our written testimony, T-Mobile faces other challenges the U.S. policymakers can impact, including securing access to roaming at commercially reasonable rates to interconnection with the other major carriers as we move to an all-Internet protocol world and to backhaul from our cell sites, especially outside of major metropolitan areas.

One extremely important issue for wireless carriers is low-band spectrum. The broadcast incentive auction represents a critical moment for the wireless industry that will influence the structure of the market for years to come. Like our wireless industry competitors, we believe that Congress and regulators should do all they can to encourage widespread broadcaster participation so that as much spectrum as possible can be released for wireless broadband services.

In addition, there is a general consensus among mobile carriers that the FCC should adopt a band plan for the incentive auction that maximizes the amount of paired spectrum available for licensed wireless broadband services, and we have worked closely with our industry colleagues, including Verizon, in pursuing that goal.

Finally, T-Mobile strongly believes that the FCC should adopt reasonable spectrum aggregation limits to ensure that the two dominant wireless carriers do not foreclose smaller competitors from acquiring low-band spectrum in the auction, as the Department of Justice has warned could happen.

Spectrum below one gigahertz is especially critical. It offers superior building penetration and broader coverage than the higher spectrum T-Mobile currently uses. Reasonable spectrum aggregation limits have been applied in the United States and around the world. In fact, it was the FCC's decision to put reasonable limits on PCS spectrum concentration that led to the development of real competition and mobile services in the late 1990s. The mobile industry would look vastly different today if the FCC had not ensured a procompetitive distribution of spectrum in the PCS auctions.

As the "Un-carrier" in the wireless market, T-Mobile is providing new options for consumers tired of high prices and low levels of innovation. Heightened competition means better service and more options and leads to a virtual cycle of innovation and adoption, with consumers as the ultimate beneficiaries. We all want this industry to be competitively vibrant, aggressively innovative, and economically healthy for years to come, and decisions we make now will determine whether that shared vision becomes a reality.

Thank you, and I look forward to your questions.

[The prepared statement of Ms. Ham appears as a submission for the record.]

Chairman KLOBUCHAR. Thank you very much.

Mr. Spalter.

STATEMENT OF JONATHAN SPALTER, CHAIR, MOBILE FUTURE, BERKELEY, CALIFORNIA

Mr. SPALTER. Chairman Klobuchar and Ranking Member Lee, it is a pleasure to be here before the Senate Committee. I am Jonathan Spalter, chair of Mobile Future, and I am pleased to join you today from the solar vortex of the San Francisco Bay area.

Chairman KLOBUCHAR. Very funny. From the polar vortex to the solar vortex. That is pretty good.

Mr. SPALTER. My organization proudly represents innovators across the mobile ecosystem, those who build apps, networks, devices, and those who also leverage wireless technologies to improve their communities.

This morning, we have heard and we will hear some compelling national data about the choices available to millions of U.S. wireless consumers, but I would like to tell the exciting story of American mobile competition through the eyes of actually just one of these customers—my brother-in-law, Jason Gu.

Jason has lived in the town of Plymouth, Minnesota, for the past eight years. Plymouth, of course, is the lovely home town of our esteemed Chairwoman. Jason lives there with his wife, Jill, and they share their home with two mobile experts—their teenage daughters.

Now, Jason and his family regularly drive past the AT&T and the T-Mobile stores, just located three blocks apart on Vicksburg Lane. Six miles away, at the Ridgedale Mall, they can shop at Best Buy Mobile, at AT&T, Century Link, T-Mobile again, and Shock City Cellular. Across the street is Verizon. Down a few blocks on Wayzata Boulevard is Sprint, and the nearby Target offers prepaid phones from no less than seven competing brands. And the local Walmart offers the chain's Family Mobile Plan alongside service from six additional providers.

Now, that is a lot of choices, not just of providers but also of devices, operating systems, apps, and service plans, and it really is creating tremendous value. We know that the price per megabit for mobile broadband has been declining by more than 93 percent in just five years. And with this abundance of choice and competition, Plymouth has a lot in common with communities across our Nation, including, Senator Lee, those in your home State of Utah and those that your family and your son, James, enjoy in Alpine. And every company in this space competes and innovates in an ecosystem where truly the only certainty is disruption. Just ask Facebook CEO Mark Zuckerberg in Barcelona, who, as you mentioned, Senator Klobuchar, found nearly 19 billion good reasons to like the free text service WhatsApp. And this is just the latest and most powerful reminder that formidable new rivals can emerge in the blink of the eye or the snap of a chat.

Or ask Cisco CEO John Chambers. He sees just around the corner 50 billion devices connecting to the Internet of things, creating a $2 trillion global industry. This is the competition we must win.

The so-called Internet of things encompasses everything from the fitness monitors on our wrist to the thermostat we adjust from our phone, right up to the very edge of science fiction, for example, Google's pursuit of essentially wireless contact lens that can register blood levels, and the wireless sensors my 10-year-old daughter has to implant in her body twice a week to manage her Type 1 diabetes.

Who knows what exciting new business opportunities or new entrants or new life-saving wireless technologies will emerge next? But what we do know is that the appetite of consumers and the vision of innovators should guide the mobile future, and it would be pure folly for anyone, especially for government, to try to predict or to prescribe future market architecture.

In the Bay Area where I reside, technology companies have adopted an approach we call "minimal viable product," or MVP for short. The idea is keep products simple, ship them quickly, and listen very, very carefully to your customers. And in many ways, this same MVP approach has successfully guided our Nation's wireless policy for two decades now, making our mobile ecosystem, I believe, the envy of the world.

So for the sake of Jason's family, and American mobile families everywhere, I truly do hope that past will be prologue, for if so, with a dash of humility and restraint in how we design our products and our policies, I am confident that an even greater phase of our Nation's mobile future lies yet ahead.

Thank you very much.

[The prepared statement of Mr. Spalter appears as a submission for the record.]

Chairman KLOBUCHAR. Thank you.

Mr. Graham.

STATEMENT OF ERIC B. GRAHAM, SENIOR VICE PRESIDENT, STRATEGIC RELATIONS, C SPIRE WIRELESS, RIDGELAND, MISSISSIPPI

Mr. GRAHAM. Good morning, Chairwoman Klobuchar and Ranking Member Lee, and thank you for the opportunity to be here today on behalf of Cellular South, who now provides C Spire Wireless service. Our company has been in the wireless business for over 25 years, beginning in the late 1980s in the era of the duopoly, when there were only two providers in each market nationwide. We continued through the era of competition, which was marked by the introduction of PCS spectrum licenses, where new operators seemingly sprang up overnight, giving customers a dizzying array of choices for their carriers, driving innovation, and spurring competition in a way that has not been seen since.

Following that era of competition, we entered the decade of the 2000s and began the era of consolidation, where we saw the remnants of Ma Bell begin to reconstitute themselves into the wireless Twin Bells—Verizon Wireless and AT&T Mobility. It has carried through today into this era of stratification, where we have two nationwide operators with roughly 100 million subscribers. We have a couple of metropolitan operators in that 40- to 60-million subscriber range. Below that we have a super-regional operator, and

then 100 or so regional and rural, primarily rural, operators throughout the rest of the country.

If you think back over the last four or five years, there have not been that many innovations purely in wireless for the customer. There have been apps that have come on. There have been maybe different devices that the customer does not necessarily touch every day. But think of the form factor of the phone that you use today. It is relatively unchanged from what it was four or five years ago.

If our industry metrics were viewed through the lens of another industry, I do not think we would be quite as comfortable as we are saying that wireless is competitive. So let us take a moment and think about the aviation industry in the United States.

Consider if in airline travel in the United States the two largest airlines controlled 70 percent of the domestic passenger traffic. Consider that these airlines also had the market power not only to demand but to receive exclusive access to the latest and greatest jets, keeping them out of the hands of their competitors.

Further consider that these airlines have the ability to dictate the terms on which connecting passengers could access their routes, charging exorbitant rates that bear virtually no relation to the cost of transporting that passenger or operating that jet.

Let us layer on top of that the government's desire to introduce more capacity into that market through opening up new gates at airports across the country, and position these two airlines with the power to absorb 100 percent of that capacity under the rationale that eventually they will need it, whether they need it today, but certainly with the motivation there that they could foreclose competitors from having that capacity.

I do not think that we would be willing to sit by and let the airline industry operate like that, unfettered and with a purely hands-off approach. I certainly do not believe we would call that a "competitive industry" nor a "healthy industry."

Yet when we transfer that to wireless, my fear is that we have become too complacent and too comfortable in a world where the largest two operators have 70 percent of the wireless subscribers and in 2013 combined to account for 86 percent of the industry's earnings. The largest two have routinely demanded and received exclusivity agreements to be the only provider of particular devices in the market, keeping them out of the hands of their competitors. They dictate the terms on which roaming customers can access their networks, typically at exorbitant rates that have little to no relationship to the cost of providing service for those customers.

We have heard this morning already the statistic that data costs three cents a megabyte. I can assure you rural and regional operators seldom get a rate that approaches three cents a megabyte for data roaming.

Let us layer on top of that now the government's interest in introducing more spectrum that our industry desperately needs, and consider that the largest two operators have not only the ability but certainly the motivation to absorb nearly all of that capacity, not only in the most attractive markets but markets across the country, under the rationale that if we do not need it now, we will certainly need it later. Well, later means that competitors are fore-

closed from having access to that spectrum today when we need it now.

So I would submit to you that as we sit here today, we are in a world where the wireless industry is stratified between the largest two national operators, two metropolitan operators, and a collection of smaller operators who need procompetitive policies to assure us that, as we move forward, we will have access to those inputs to the business that let us serve your constituents and customers who have come to depend on us.

Thank you again for the invitation to be here this morning and be a part of this panel, and I look forward to exploring these and other issues with you.

[The prepared statement of Mr. Graham appears as a submission for the record.]

Senator LEE [presiding]. Thank you.

Ms. Layton.

STATEMENT OF ROSLYN LAYTON, PH.D. FELLOW, INTERNET ECONOMICS, CENTER FOR COMMUNICATION, MEDIA, AND INFORMATION STUDIES, AALBORG UNIVERSITY, DENMARK

Ms. LAYTON. Good morning. Thank you for the opportunity to share my testimony on competition in America's wireless market, and a special thank you to Caroline Holland and Kayla Johnson of Senator Klobuchar's office who did a lot of work to pull together today's session.

My name is Roslyn Layton, and I am a Ph.D. fellow at the Center for Communication, Media, and Information Studies in Copenhagen, Denmark. I am also a visiting fellow at the American Enterprise Institute, and I am a vice president of Strand Consult, an independent consultancy to the mobile industry.

As an American who lives in Europe and studies the international wireless market, I hope to provide an international perspective. Senator Lee and Senator Klobuchar, I believe that we share the same goals. We want all Americans to enjoy the benefits created by the wireless markets, the networks, the devices, the services, and the applications. And, in addition, we want Americans companies, especially those that create American jobs in the mobile ecosystem, to win in the global economy. So I have three points today in relation to these goals.

First of all, competition comes from the level of technology, not from the number of competitors.

Second, Americans get value for money when it comes to mobile products and services.

And, finally, that America's mobile ecosystem and its digital export economy is highly dependent on mobile operators' investments in infrastructure.

So my first point: Competition comes from the level of technology, not from the number of competitors.

We can examine wireless competition by looking at technology development in mobile standards, in infrastructure facilities, in services, handsets, operating systems, and platforms. But, unfortunately, I can only talk about one example today.

As Senator Klobuchar so pointed out already, consumers are increasingly using their mobile subscriptions to access competing

communication services. They are also called over-the-top or OTT services. And the example that we have seen of late is the text messaging service WhatsApp, which Facebook purchased for $19 billion.

With over one billion users, Facebook is actually the world's largest communications provider. It is a wireless platform where people communicate by voice, text, and data, and at $175 billion, Facebook has a larger market cap and a larger market share than any mobile provider in America. I think Mr. Graham certainly points out a number of things about mobile market concentration, but if we look at Internet companies, their industry is more concentrated in terms of the number of competitors.

So while $19 billion is a staggering sum, four times this amount is lost by the mobile industry worldwide as users are switching from the services they can get from their mobile provider to the over-the-top services. This is a classic example of the innovator's dilemma and demonstrates that the bigger a mobile provider grows, so do the incentives for the upstart to disrupt its revenues. This suggests to me that the market can better discipline than any regulator.

And it is because of this competition in the wireless market that Americans get value for their money with mobile products and services. Americans use five times more voice and twice as much data than Europeans. The current next-generation mobile standard 4G LTE is available to 97 percent of Americans but only 26 percent of Europeans.

The mandated low prices that you have heard about in Europe come at a high long-term cost. Europeans are being shortchanged on the future because operators there cannot afford to invest in investments in next-generation networks. So in practice in Europe, you may have one mobile network being shared by 20 or more resellers. They are frequently owned by the incumbent. So this is not meaningful competition as we have here in the United States where different facilities are actually competing, and we can certainly see this now with new efforts in nomadic WiFi also competing for mobile subscriptions.

If we measure the value that consumers have gotten over time and the improvement in the capability of the mobile ecosystem, it has been a dramatic improvement. To get the equivalent of an iPhone 20 years ago, you would have had to spend $3.5 million. Today your mobile provider subsidizes your handset as part of your subscription.

I want to make a special point for the Chairwoman because I know she cares very much about mobile services being affordable and available, especially for the citizens of her State. In my own home State of Florida, we have many Minnesotans who come to Florida for the winter and seniors from across America. And I think as Mr. Spalter so eloquently described, in Plymouth, Minnesota, the marketplace has a mobile product that suits every budget and every person.

There is one thing we can do to improve the affordability and availability of mobile, and that is to remove the barriers at the local level for deploying mobile infrastructure. In my studies, I have found that mobile operators often pay four times the market

rate to secure the rents to deploy their mobile mass and toward. If we want to have mobile in rural areas, we need to reduce these barriers.

I come to my last point. America's mobile ecosystem and its digital export economy is highly dependent on operators' investments in infrastructure. Facebook's business model is predicated on mobile operators making fundamental investments in infrastructure so they can reach their users. As Mr. Milch so much described about the many tens of billions of dollars that the wireless providers are making, altogether Americans got an investment of $75 billion in networks last year, this means that Americans who are just four percent of the world's population enjoy one-quarter of the worldwide broadband investment. This is twice the rate per capita as Europeans.

Of the world's 25 Internet companies in terms of market cap, 15 come from the U.S. and just one from the EU. This means that Europeans and others around the world are using American-made mobile operating systems, handsets, search engines, social networks, and mobile apps. In fact, America's digital goods and services sent abroad, over $350 billion annually, are now our third largest category of exports. If our wireless networks were not up to speed, there is no way we would realize these numbers today.

America's wireless market is highly competitive, consumers get value for money, and investment in infrastructure by America's mobile providers supports a vibrant mobile ecosystem and a digital export economy second to none.

[The prepared statement of Ms. Layton appears as a submission for the record.]

Chairman KLOBUCHAR [presiding]. Thank you.

Mr. Wood.

STATEMENT OF MATTHEW F. WOOD, POLICY DIRECTOR, FREE PRESS, WASHINGTON, DC

Mr. WOOD. Chairman Klobuchar and Ranking Member Lee, thank you for the chance to testify today on the topic of wireless competition. My name is Matt Wood, and I am the policy director at Free Press, a nationwide, nonpartisan nonprofit with 700,000 members. Free Press works for media and technology policies in the public interest, like promoting affordable wireless access for everyone, because these communications tools are so vital for our free expression, our democracy, and our economy.

The wireless market today does show some signs of improved competition, especially when compared to some other telecom sectors. Positive steps taken by DOJ and the FCC, like blocking the T-Mobile/AT&T merger and encouraging divestiture in the Verizon/SpectrumCo deal, were grounded in the law and common sense, and we have seen good outcomes from those decisions.

Still, the FCC has not done quite enough to follow Congress' command to promote economic opportunity and competition. So the FCC must do more about concentration in the wireless market, which qualifies as highly concentrated still today under DOJ guidelines.

Verizon and AT&T exercise significant market power. That leads to the loss of untold billions of dollars in consumer surplus per

year. A few facts and figures show the impact of this type of concentration on a wireless market that is still top-heavy.

For instance, AT&T and Verizon have more than 68 percent of wireless subscribers, as you noted, Chairman Klobuchar, but they rake in more than 82 percent of the entire industry's profits. Verizon alone enjoys nearly 50 percent of the industry's earnings. With Sprint and T-Mobile, those four companies control 98 percent of the country's wireless customers. This type of concentration is bad for consumers.

For example, many customers today pay more for plans worse than they had when smartphones first came on to the scene. In 2008, for example, an AT&T iPhone customer could buy 450 voice minutes, 200 text message, and unlimited data for $60 per month. Today she would pay $95 for a plan with unlimited voice and texts but just two gigabytes of data. That is a 58-percent rate hike for a comparable plan, and Verizon's similar plan is little better at $90 per month rather than $95.

Wireless customers also shell out an absurd amount for the devices that they buy once you know what they pay back for these so-called subsidies that some carriers still offer. Compared to budget carrier plans with the same allowances on voice, text, and data, that $95 per month AT&T customer might pay an extra $1,200 during the course of a two-year contract, swamping the $450 phone subsidy. In reality, that is not a subsidy. That is a loan, at rates that would make a payday lender blush, with an annual interest rate of 120 percent.

The FCC and Congress also must act to give people more control over these tools we use to stay connected, because when people can do more with the devices they buy, their service choices go up and their prices go down. Unlocked phones that actually work with and roam on to other carriers' networks increase competition by letting customers move around. The bill sponsored by so many Members of the Senate was a welcome spur to the FCC's unlocking measures last year, and your *Smartphone Theft Prevention Act* is welcome news for consumers who pay so much to replace these stolen devices to the tune of $30 billion per year.

Devices should not take away customers' freedom to take their business elsewhere, and that is why we need these steps. Neither should spectrum imbalances that stem from AT&T and Verizon's status as early spectrum recipients. Rather than focusing solely on the upcoming incentive auction, though, Free Press has asked the FCC to restore sensible spectrum limits for all spectrum holdings. The FCC should not and cannot keep anyone out of this upcoming incentive auction, but the agency should recognize the superior value and coverage afforded by the low-band spectrum that will be on the auction block.

There are other imbalances, too, in addition to spectrum, based on AT&T and Verizon's legacy as wireline monopolies. On one of those, the FCC needs to move ahead at last on special access and correct assumptions made nearly 15 years ago, because these mistakes still harm wireless customers and competition today. AT&T and Verizon can and do raise the cost of wireless alternatives by overcharging their rivals to carry traffic from the tower back to the network.

Last, but certainly not least, the FCC must open more spectrum for unlicensed uses like WiFi and other innovations. A study this month estimates that unlicensed contributed almost $230 billion to the U.S. economy in 2013 alone. New entrants and licensed carriers alike use WiFi to benefit consumers.

Wireless competition today does show some signs of life, and that is due in part to smart intervention by antitrust authorities and the FCC. Competition has improved because of, not in spite of, well-timed oversight. That is why the FCC must prevent spectrum concentration, promote unlicensed use of spectrum, and put people in control of their wireless devices.

Thank you very much, and I look forward to your questions.

[The prepared statement of Mr. Wood appears as a submission for the record.]

Chairman KLOBUCHAR. Thank you. Thank you to all of you.

I think one of the themes of this hearing has been some competition that we have been seeing in just the last few months, and I think that followed the breakdown of the proposed AT&T and T-Mobile merger. We could see from the ads we have referenced that T-Mobile has emerged as an aggressive competitor. Last quarter, it acquired 896,000 consumers from its competitors, no doubt a result of the promotions and the offerings.

We have seen Verizon and AT&T respond with price cuts. In fact, just yesterday, AT&T announced it would drop the cost of calls to North America and give customers to its mobile share plans unlimited international text messages for free.

Mr. Wood, do you think that the level of competition we are seeing today is sufficiently benefiting consumers?

Mr. WOOD. Well, I think some of those facts and figures show that it is not good enough yet, it is not effective enough yet to really discipline the prices that consumers pay, especially for the biggest two carriers, and that by making sure all carriers have access to these critical inputs like affordable roaming rates, special access that is not under the control exclusively of AT&T and Verizon, and, of course, spectrum, that we will see more benefits for consumers from this competition rather than the top-heavy market we still have today.

Chairman KLOBUCHAR. Ms. Ham, yesterday T-Mobile announced fourth quarter losses. Is T-Mobile's aggressive discounting and efforts to win over new consumers sustainable? And is T-Mobile in this competitive mode for the long term?

Ms. HAM. Well, T-Mobile is the little engine that could. We come from the position of number four in the marketplace, and in the last year we have been very aggressive. But that comes at a cost, and as I noted in my testimony, we have scale disadvantages to the larger two. And over time, whether that is sustainable, I think, is something that we will have to see in time. But I think, you know, right now we are doing our darnedest to compete, but the scale disadvantages, the costs, the investment that is needed in this industry are very real and something that we have to contend with.

Chairman KLOBUCHAR. Mr. Graham, is C Spire able to provide the same kind of vigorous competition where you operate? What unique challenges do you face?

Mr. GRAHAM. Well, we are able to provide competition in a number of areas in our specific markets, but our struggles stem from the fact that even though we have just a little bit less than a million subscribers these days, when the Leap transaction closes, we will be the sixth largest operator in the country. As I said, there are two nationwide operators with approximately 100 million subscribers each and the scale that that brings. There are two metropolitan operators with 40 to 60 million subscribers and the scale that that brings. Just ahead of us sits United States Cellular at about 5 million subscribers, and then it is us and 100 others smaller than us, sixth, seventh, eighth on down.

And so what we struggle with is ensuring that we have a clear pathway to the latest devices, that we have certainty of access to roaming on nationwide networks or networks in other parts of the country, and access to spectrum. Given those three things, we will compete with anybody, as we have for 25 years. In our market, we compete with the largest four operators every day, and quite honestly, in most of those markets we win. The way that we lose is when we lose access to those critical inputs to our business.

Chairman KLOBUCHAR. Thank you very much.

In a speech a few weeks ago, the Assistant Attorney General for the Antitrust Division, Bill Baer, said that competition in the wireless industry is "driving enormous benefits in the direction of consumers." He went on to indicate that at this time it would be hard to make the case that reducing the number of nationwide wireless competitors from four to three would be good for consumers.

Mr. Wood, again, there have been reports citing talks between Sprint and T-Mobile about a potential combination. Do you have concerns about further consolidation in the wireless market? I think I know the answer. And why is having at least four national wireless networks important for consumers not only in the prices but also for things like service billing practices and cell phone unblocking?

Mr. WOOD. Thank you, Senator. My reputation precedes me.

[Laughter.]

Mr. WOOD. We do have some concerns, although I do think I have to say that not only is the jury still out on this potential deal, it has not even been called yet because it is still speculation at this point in time. Obviously antitrust, as we all know, protects competition and not competitors, but the claim that reducing the number of competitors will increase competition is one that deserves a lot of scrutiny, in our opinion. So we think going from four to three and that Justice found that that was not appropriate in the AT&T/T-Mobile deal, the deal can be considered, but we think that it likely would lead to a reduction in competition because you would have three national carriers with basically the same number of subscribers and not the same kind of disruption and maverick potential we see today from someone like T-Mobile.

Chairman KLOBUCHAR. Ms. Layton, in your testimony you state that competition comes from the level of technology, not the number of competitors. Would two wireless carriers be sufficient to sustain a competitive ecosystem under your analysis? What do you think works?

Ms. LAYTON. Definitely. You can certainly see competitive markets with only two players, and I would say a great example is look at the Internet companies today. Look at our market for search engines. Essentially everyone uses Google. We have heard of Bing and Yahoo, and they are there trying to offer their services.

But, for example, what Google competes on is to constantly outdo itself. How can it continue to make a more innovative experience?

So I, in principle, do not have any problem with seeing fewer carriers, and it is certainly the—you talk about the Mobile World Congress. My colleagues from my company are there today, and what they are talking about is consolidation across all the countries of the world where the third and fourth carrier want to merge. It is very difficult to be the third and fourth carrier, and let alone down the line, certainly as Mr. Graham has explained. So no problems with having more consolidation.

Chairman KLOBUCHAR. Mr. Milch, any views on what the optimal number of carriers is? Do not say one.

[Laughter.]

Mr. MILCH. No, Senator Klobuchar, I do not have any views.

[Laughter.]

Chairman KLOBUCHAR. Okay. I just want to turn to this spectrum issue. One essential element for competition in the wireless industry is, of course, spectrum. Some of you have brought that up. And in a filing with the FCC last year, the Justice Department Antitrust Division pointed out that spectrum is a scarce resource and key input from mobile wireless. Especially important is access to what is known as low-band spectrum that can travel greater distances and penetrate walls and reach consumers inside buildings and homes much better than high band.

Ms. Ham, Mr. Graham, could you explain the importance of access to low-band spectrum for your companies to be able to compete in the wireless market?

Ms. HAM. Yes, thank you. Low-band spectrum, as you note, has unique propagation benefits. You think about your television set and your ability to watch it indoors. As more and more consumers want to watch things indoors and use data indoors, having that type of spectrum as part of your portfolio, I think, is very important to compete.

This is why T-Mobile has been very aggressive in the proceedings at the FCC on this upcoming auction. This auction, as I indicated, is really important to the future structure of the market. Right now AT&T and Verizon overwhelmingly have the majority of that spectrum, about 80 percent of it, as noted by the Department of Justice. T-Mobile recently entered into an agreement, which is pending before the FCC, to acquire some low-band spectrum. That gets us about half a footprint, and it gets us about an additional six megahertz averaged nationwide—I mean not nationwide, but over only half the country.

So we are going to be interested in more of that coming up. That auction is going to be, I think, very important to ensuring that, you know, there is a leveling of the playing field out there, that everybody has an opportunity to get access to low-band spectrum.

Chairman KLOBUCHAR. Mr. Spalter, what do you think the consequences for competition of having so much low-band spectrum controlled by two companies' low band?

Mr. SPALTER. Let me say, Senator, that I think that as the market evolves and as consumer needs are increasingly defined, all carriers need to be able to conform their networks and their spectrum needs to address consumers where they live and to address their needs.

I do not believe that there should be any special weight given to spectrum below one gigahertz. We know, as Ms. Ham has just said, that T-Mobile is acquiring spectrum assets in the secondary market below one gigahertz. We know that there are other competitors that are seeking spectrum above one gigahertz.

Fundamentally what we need to figure—what we need to put into our calculations are consumers' needs regarding the spectrum that they require in communities and the geographies that they live. And carriers for technical and operational reasons need to be able to have the flexibility to be able to acquire spectrum assets and use those spectrum assets, both above and below one gigahertz, to best meet those needs.

Chairman KLOBUCHAR. So then you agree with the DOJ's assessment when the head of the Antitrust Division talked about how regional carriers lack that spectrum they need, the low band, to keep their services competitive and called on the FCC to, in fact, institute auction rules that guard against excessive aggregation of spectrum?

Mr. SPALTER. You know, I believe that the Spectrum Act was very clear in making sure that the auctions that are going to be conducted by the FCC catalyze systemic competition and not privilege one competitor or advantage one competitor's business plan over another. I believe that the fundamental principle of open auctions available to all competitors, both for commonsense reasons but also for the benefit of American consumers, is the appropriate policy architecture for developing and designing spectrum auctions as they have proven to be in virtually every other kind of economic model for auctions that we understand.

Chairman KLOBUCHAR. Okay. Well, I have—Mr. Graham, do you want to respond? Then I am going to——

Mr. GRAHAM. I would, if I might address the low-band spectrum question. You can argue spectrum a number of ways, but you cannot change the physics of spectrum, and it is clear low-band spectrum propagates better and travels further than high-band spectrum. And it is a fallacy to believe otherwise. It propagates better in buildings, and it penetrates vegetation better than high-band spectrum. It is indisputable. And so low-band spectrum will always have a higher value than high-band spectrum will for that very reason.

I mentioned that our business has been—our company has been in the wireless business for over 25 years, so we have some of the original cellular licenses at 850 megahertz, which is low-band spectrum. We also have PCS licenses, higher-band spectrum, in a number of our markets. And if I were to show you a map of our licenses and overlay—or, excuse me, if I were to show you a map with pinpoints where we have customers, I would not have to tell you

where we have cellular spectrum and where we have PCS spectrum. You would see the greatest concentration of customers is in the areas where we have low-band spectrum. The signal is better, and the coverage is better. And as Verizon spends millions of dollars showing everyone on TV, the map matters. The coverage matters.

Chairman KLOBUCHAR. All right. Well, when I am in the next round, I am going to ask you guys about the cell phone theft issue and the technology there, but I will now turn it over to Senator Lee.

Senator LEE. Thank you, Chairman Klobuchar.

I want to pick up on the spectrum issue. I will start with Mr. Milch. You know, as you know, a lot of people have expressed concern about the fact that we have got the two largest carriers who have acquired a lot of spectrum, and some have expressed concerns about this, suggesting that by buying it up, in buying it up, they could be motivated by a desire to box out others, that this acquisition of spectrum could serve as a kind of natural restriction on entry helping to keep the two largest carriers in place as the incumbent big carriers.

In your view, what is the likelihood that a carrier could or would acquire spectrum for this purpose, for the purpose of excluding others rather than for the purpose of using it?

Mr. MILCH. Senator Lee, thank you. To directly answer your question, I find the prospect, while theoretically interesting and certainly an alarmist talking point, to be vanishingly small. Capital dollars are very dear to everyone in a capital-intensive industry, and the notion that you are going to stockpile something that is so capital-intensive and not get a return on it is ridiculous. I think that it is very unlikely as a matter of fact.

You know, I think that there is an example that is worth nothing, so we have noted—there has been noted a number of times—that Verizon has a substantial position in low-band spectrum, the 700 megahertz spectrum. We bought that at an auction, and I would point out in that auction we did not out-muscle T-Mobile for that spectrum, for instance. They did not participate.

So the decisions that companies make about what they need for spectrum at a particular time influenced their future abilities, and they may pay more later, they may pay less later, there may be new things that are available later, like the 600 megahertz—600 band that is coming up for the incentive auction.

I think that the notion that while there is the physics, as Mr. Graham points out, about the propagation characteristics of low-band spectrum, that does not necessarily equate to value. The value that a carrier sees in any particular band of spectrum depends on what they need at the time, whether they need to have—do they need to have a widespread footprint? Do they need to fill in? I mean, just last—just yesterday, the T-Mobile CTO made it very clear that their strength is extremely strong in urban areas, which I believe have a lot of buildings in them, based on the density of their network and our spectrum position in the mid-band. So that was what their CTO said yesterday. They added that when they get the MetroPCS spectrum, which is in the AWS band, which is higher-band spectrum, they are going to be able to bring that

across and will continue to add spectrum in the AWS band and were in a good position and a great position.

So I think that a lot of this depends on what you need at the time. That is what is valuable to you as a carrier in buying spectrum.

Senator LEE. Okay. Thank you.

Let us turn to Ms. Layton. I understand you have done a lot of work studying the wireless markets, both within the U.S. and in Europe. I was wondering what you could tell us about your study, what you can glean from your understanding of the European wireless market, what that can tell us here, particularly what you can tell U.S. policymakers and regulators in the United States that might be helpful from your understanding of Europe.

Ms. LAYTON. Sure. Well, thank you for that question. I think that we have had a 10-year natural experiment with what we might call a European approach and an American approach—the American approach, which is a technology-neutral, market-led approach to the wireless market, and that has been shown to win. Now, I think if you ask around the United States, people will not say that, but if you ask Europeans, they will definitely say that. And if you go—right now Europeans have been involved in a three-year effort to create a digital signal market led by Neelie Kroes, who is the vice president for digital life. And I think probably she, more than anyone, has talked about the successes of the United States. This is largely motivated by Europeans who know they are missing out. They are not winning in the Internet economy. There are only pockets of next-generation access networks in Europe. They do not have the wide footprints that we have here. You know, she is pointing out how carriers can cover the entire United States. There is no carrier in Europe who can do that. There are 28 layers of telecom regulation. Operators cannot consolidate across different states in Europe, so this makes it very difficult.

I think there is one more example that I might want to share, which is that there is a model of a kind of managed-access competition where you have an incumbent provider who will resell services. And I think—you know, the Europeans took the approach of if they could control the reselling and control the end-user prices that this would be fair. But the problem is, if you are the network owner, any investment you make in your network, if you have to give it to your competitors, it is really a disincentive for you to invest.

So that is what we find going on today, and, you know, I will just give you very quick numbers to keep this in mind. Ten years ago, the EU accounted for one-third of the world's broadband investment. That number has fallen to less than one-fifth today. It has absolutely plummeted. And, interestingly, in the United States we have maintained our level of investment at one-fourth of the world's total. Even though the whole pie in the world has been increasing—China is coming online, other nations are investing in their networks—we have maintained our level.

So, you know, as far as that goes, the writing is on the wall. I definitely would say it is challenging if you read the media, lots of reports about, you know, U.S. is falling behind. But if you are in

Europe today, there is no one in Europe who says, you know, Europe is beating the U.S. on these things.

Senator LEE. Right, and we have achieved that because we have maintained competition in part because we have allowed the government to stand back enough to allow competition to exist and continue.

In your testimony, your written testimony, you note how quickly technological markets can develop, and the impact that creative destruction can have on an industry. They can change the makeup of an industry very, very quickly in unexpected ways and in ways that often inure to the benefit of consumers.

Can you give us some examples of how creative destruction can operate in this market and how it could benefit consumers?

Ms. LAYTON. Sure. Well, "creative destruction" is a very loaded term. I think it is an important part of our—it comes from Schumpeter, is an important part of our idea of innovation. Just my own personal example is, you know, my office in Copenhagen, we are in the former headquarters of Nokia. They had an R&D center with 2,000 people, and Nokia actually used to make more phones than Apple and Android put together. They invented the smartphone. But nobody knows that because Apple is the one who brought the iPhone, and finally we could understand what a smartphone was.

So Nokia was a company that did not really know how to market, and it was bought by Microsoft for about $6 billion. It is less than an app company today. But the interesting part about the creative destruction from that perspective is, you know, my university took over that R&D location, and so now they are—Nokia itself is trying to redeploy in different areas and working in networks and in mapping.

But in terms of the United States, we are no strangers to this idea of creative destruction. It is certainly a challenge right now for the mobile industry where the revenues that they have depended on in voice and text message, those are disappearing. They know that they are not coming back, and they have to try to find a way to be interesting and relevant for their customers. And if you are in Silicon Valley, you can definitely make a cooler app than, you know, a number of mobile providers can do.

So that itself is a more potent form of a competition than anyone, you know, sitting in Washington or in a regulator can say we are going to make you, operator, do this or that. The marketplace is exerting the discipline.

Senator LEE. Thank you.

Mr. Spalter, you note that there is an important role that economies of scale can play in many industries, and in this industry in particular. How do you balance that role, taking into account the benefits to the consumer that can flow from economies of scale against the corresponding risk of one or more businesses becoming too big and playing too prominent a role in a particular market? Can those two interests be balanced?

Mr. SPALTER. I do believe, Senator, that those interests can be balanced, and I think that the record shows that consumers have voted conclusively that our market is benefiting not only the evolution in innovation that they are enjoying, but also the kinds of

question of services that mobile consumers in a wide variety of guises have been experiencing.

One of the reasons that we can actually achieve this equilibrium, this balance between scale and also ensuring that market harm does not take place, is because we have a vital and functioning Federal Communications Commission and its Enforcement Division that has a number of safeguards and a number of remedies at its disposal to address market harm. It also has a number of tools at its disposal to ensure on a case-by-case basis that specific issues with regard to—including the question of spectrum, can be evaluated on a transaction and on a case-by-case basis.

I think that that approach, a muscular and nimble Federal Communications Commission that has a long checklist of tools at its disposal to prevent market harm, is a bulwark against any excesses and has proven to be in the past and will continue to be in the future.

Senator LEE. Thank you.

Thank you, Chair.

Chairman KLOBUCHAR. Thank you very much.

Senator Flake.

Senator FLAKE. Well, thank you. Sorry for arriving late. You have plowed a lot of this ground before, so please indulge me.

Ms. Layton, talking about the Europe—all the research that you have done there, I find it very interesting, because the perception is that they are way ahead of us. That is what we hear all the time. But in terms of—and that may be the case in terms of number of users. What is the number of smartphone uses in Europe, generally, compared to the U.S.? I have not seen that comparison in what you have done. What is that?

Ms. LAYTON. Well, I think maybe to get to your larger point, it is an interesting question. You know, why is it persisting in the United States, this idea that Europe is somehow doing better? I think that that is really the interesting question. And I think a lot about that myself. I am actually doing a study of media bias here in the United States, and it is interesting. I think it is difficult as a Member of Congress or member of the public to really understand, because even the leading publications in the United States—*New York Times*, *Wall Street Journal*—print contradictory information every day, on the same day. So it is interesting that certain journalists will have an opinion and look for whichever information to try to support that.

But what I would definitely say is that there is an industry in trying to create a fear about America's falling behind. And I remember this back in the 1980s when it was all about Japan is taking over America, go destroy your Nissan. Then it was India. Then it was China. And now it is broadband.

So there is a whole industry about books and selling magazines and whatnot to try to make us afraid. And I think the ulterior motive is to get the government to take over broadband. There is a general fear that the market cannot do the job. There is a distrust. There is a dislike of companies to earn a profit for a service that is provided to people who they happily pay for.

So in that respect, I think it is unfortunate that we have facts that are maybe manipulated one way or the other.

Senator FLAKE. Okay. Usually the measure that is used in order to justify greater government intervention is investment in basic research, coverage, or whatever else. Mr. Milch, you mentioned in your testimony that the level of investment per person here is significantly higher than it is in Europe. What are those figures?

Mr. MILCH. Senator Flake, as I said earlier, you know, last year alone the wireless carriers invested $34 billion in their networks, which is four times more per subscriber than anywhere in the world. So I do not have to break it down country by country, but as a general overall world level, that is about four times. And since 2001, that investment is $300 billion in their networks. So it is one of the characteristics, I believe, of a competitive market that you have this huge wealth of investment in the infrastructure in order to compete, and if there were no competitive urges, there were no competitive requirements, carriers would not spend so much of their capital, so much of their shareholders' capital, in constant investment in networks and in spectrum.

Senator FLAKE. All right. Mr. Spalter, what are your views there? Would we likely see more investment in broadband coverage and research if we had greater government involvement? If you say that the FCC has an all-ready toolbox to go over this, is that—do we need to tip the balance in that direction?

Mr. SPALTER. Senator, thank you. I think it is both wise public policy and good economic sense for policymaking to proceed as I had mentioned with restraint and with humility regarding the evolution of America's dynamic mobile innovation sector. The last 20 years have shown us conclusively that this approach has engendered more, not less, investment in our infrastructure and innovation, both at its core and at its edges——

Senator FLAKE. I am sorry. Back up for a second. When you say "this approach" that we have?

Mr. SPALTER. Of regulatory restraint, regulatory humility, the idea that we should not be prescriptive in viewing future market problems that have not yet developed, but acknowledging that this is one of the world's most dynamic marketplaces. It is changing all the time. It requires intensive continued and sustained resilience of investment and innovation so that consumers, who really should be at the core of all of our consideration here, can continue to benefit, as they have in the United States and as they will continue to benefit if we can hew to an approach of, as I had mentioned, minimally engineering and not over-architecting our laws and regulations and assumptions about how this market is going to evolve or how it should evolve. Let consumers be in the driver's seat in this regard.

Senator FLAKE. Well, thank you. I have to run to another meeting, but I just want to say in general, in this industry and elsewhere, we have benefited where the government treads as lightly as possible and lets the private sector innovate as long as there is competition. And if you look at the level of investment that is going in right now, it would seem that we have struck a better balance than some other countries have. So I hope that that continues.

I appreciate the testimony and look forward to continuing the discussion.

Chairman KLOBUCHAR. Thank you very much, Senator Flake.

I was going to focus here now on the *Smartphone Theft Prevention Act* and the work that is going on technologically to try to reduce theft of the cell phones. I introduced this bill with Senators Mikulski, Blumenthal, and Hirono, and the bill calls on the wireless carriers and manufacturers to offer a technical function to their consumers that would wipe their data and render the device useless to thieves, therefore devaluing its resale value. We have a situation, as I mentioned, where one out of three burglaries now in the country are cell phone-related. We have seen that all over our State. I know Senator Mikulski has seen it in Maryland, especially in the transit system, and part of that is because the cell phones are fetching between $100 to $500 on the international market.

The fact is that the thieves know a few people might have turned on their iPhone 5 function which allows them to basically wipe the data, but still store—it wipes—it allows the owners of the phone their own right to wipe the data, but keep the data on the cloud for their own use but not the thieves' use. But right now what is happening is the thieves see value in this, of course, because of the market value, because of the fact that they have actually a functioning phone when they sell it to someone on the black market, that they actually have a phone that has stuff in that they can use, not necessarily the data but the phone is ready to go. And one of the reasons we introduced this bill was to try to push other carriers to find this technology.

I guess I would start with Mr. Milch. Verizon has stated publicly that it has no objection to a secure kill-switch type application that is free to consumers and secure. Are you actively as a company engaging with device manufacturers on possible solutions for Verizon so they can offer it to their customers?

Mr. MILCH. Thank you, Senator Klobuchar. Yes, of course we are doing that. We believe that this is—to any extent that our customers are put in danger or could have their phone taken from them—I recently had a theft in my own family of a cell phone, and it is quite alarming to everyone. And we were lucky that in this instance we could turn it into a brick, and we could turn it into a brick from a foreign country where we happened to be at the time.

We are eagerly awaiting secure and free kill-switch capabilities from other phone manufacturers. This is both a manufacturer and an operating system issue. We believe that it is important, as with the Apple ability, that it is free, and we are very, very concerned that it is also secure. We do not want an instance where it is a hackable kill switch. We have spoken before of our children and their phones. I can only imagine that that would be a delightful thing to be able to do to one of their friends' phones if they could do it. So I think that it is—or former friends' phones if they could do it.

So it is very important, and we are actively engaged with both app developers and manufacturers to encourage them to bring forward these options.

Chairman KLOBUCHAR. Yes, and I think that there has been something out there about how well they could all be hacked. Apple developed this for a reason. They saw it as a good thing to have

on the phones. It protects consumers, and it also is something that gives them a competitive edge, clearly. And so for people that say, well, this should never be done because it only could be used by hackers or that somehow the government is going to be getting ahold of it, the whole idea here is to allow individual private users to actually protect their own data.

Mr. Wood, would you agree that consumers are calling for more security functions on their phones in light of this exponential increase in cell phone thefts and that carriers and manufacturers need to listen to these demands?

Mr. WOOD. I would agree, and I think that is the key, is giving people the tools that they want to use, not necessarily saying, "Here, you have to take this application because we, the carrier, have decided that you should have it."

Chairman KLOBUCHAR. Well, yes, but remember that this would still be a choice for them to do——

Mr. WOOD. Oh, of course. I think that is the key, and that is what your bill is aiming toward, is giving people that choice if there has been some road block in between them and getting access to an app that will do that securely and cheaply and easily.

Chairman KLOBUCHAR. Okay. Anyone want to add anything? Ms. Ham.

Ms. HAM. Yes, I would just say that we share your goals. T-Mobile has been very active in this area as well. We are also part of the GSMA global IMEI Data base, where stolen devices are listed on a centralized data base in an effort to prevent their use in another carrier's GSM LTE network.

I would also add that we load on all of our phones an application called "Lookout" that enables the customer to locate, lock, and wipe their phone, and that comes free to the customer, and that is something that we are doing now.

Chairman KLOBUCHAR. Okay. Very good.

Mr. Graham.

Mr. GRAHAM. I would add that we are supportive of the concept also, but, again, we come to that stratification problem where, when you get to carriers our size and below, we do not have the ability to require manufacturers to preload that onto their phones. You mentioned that Apple does offer it. It is a competitive advantage for Apple and for those who can offer that product.

So to the extent Verizon or anyone else develops that with device manufacturers, it will not reach customers in rural areas if those devices, that app, that feature is exclusive to the largest operators. It is the same problem we run into, just from a different perspective.

Chairman KLOBUCHAR. Okay. Well, thank you. I appreciate what you have all said here, and I think you know the reason we introduced this bill is just we feel that this has been taking too long, and the problem is just mounting, and the bill is supported by the Major Cities Police Chiefs as well as a number of Attorneys General from across the country, including New York, the district attorney in San Francisco, and other places.

You mentioned rural, Mr. Graham, so I think that is a good segue into some of these issues. Looking at each carrier's nationwide map, you can see tremendous gaps in coverage in rural areas.

I have talked about this mostly at Commerce Committee hearings on which I also serve. And I have a bill with Senator Fisher, Deb Fisher, the *Rural Spectrum Accessibility Act*, which would incentivize wireless carriers with larger quantities of spectrum to coordinate and work with carriers serving predominantly rural areas in order to expand coverage into our rural areas.

I know Verizon has its Rural America Program, which is already working in parts of rural America. Mr. Milch, since your company has already started partnering with rural carriers, would you agree that rural carriers need to be part of the wireless market to make sure that consumers, no matter where they live or work, that they are able to connect with their families to contact first responders and to do business via wireless devices?

Mr. MILCH. I certainly do agree with that, Senator Klobuchar. I think that we are eager to have as many rural customers as urban customers, indeed, and Verizon is probably the largest rural carrier there is in America. And we have extended that capability by, as you said, our Rural America Program where we have over 20 agreements with rural wireless operators to bring the benefits of our LTE spectrum, our 700 spectrum there.

The networks cover 2.2 million people as of today and more than 58,000 square miles, and over 300,000 people use them every day to do exactly what you said, connect with their loved ones and utilize mobile broadband.

So we are eager to continue that program with rural carriers. It is a cooperative program where we supply the spectrum and we assist them in building out the network in their footprints. And we are eager to continue that program.

Chairman KLOBUCHAR. Well, as you know, 34 percent of smartphone users use wireless almost exclusively to access the Internet, including many in rural areas. Mr. Graham, how is the 600 megahertz spectrum block of particular use to serving rural America and the demand for mobile broadband? Can you touch on the importance of interoperability requirements and if there should be rural buildout requirements for spectrum licensees who purchase spectrum in the upcoming auction?

Mr. GRAHAM. Sure, I would be happy to. Thank you for the question.

Let us back up to the 700 megahertz auction for just a moment, because I think it highlights the problems—or the potential that was there, the problems that came after it, and what we hoped for the 600 megahertz auction, 700 megahertz being low-band spectrum, with spectrum that we acquired, we acquired the licenses throughout our operating footprint and beyond, and intended to deploy service, deploy LTE service throughout our footprint in rural areas, primarily in Mississippi, which, as we all know, is always in the bottom rankings when you look at the poorest of States in the country.

What we were unable to do, though, was deploy that service, the reason being there were separate bands created for that lower 700 megahertz spectrum that allowed AT&T to take its spectrum licenses and deploy, while those who got spectrum licenses in another part of that band were unable to deploy our spectrum. And, indeed, it was only under the leadership of interim Chairwoman

Clyburn at the FCC that we reached an interoperability agreement that will finally allow that spectrum to be put to use.

We talked already about how that spectrum propagates so much better than mid-range or high-band spectrum. If we repeat the same mistakes in the 600 megahertz space, then rural America will once again be left hoping for services that are available to their brothers, sisters, cousins in urban areas but are unavailable in their areas because their spectrum does not—the spectrum covering that area is not interoperable in the larger ecosystem of devices.

Chairman KLOBUCHAR. Okay. Thank you. I will turn it over to Senator Lee.

Senator LEE. Thank you very much.

Mr. Graham, in your testimony you express some significant concerns about contracts for data roaming and for backhaul. Can you tell us a little bit more about those concerns, where they are rooted, and let us know if you have any evidence that data roaming and backhaul contracts are not reasonably available in the marketplace?

Mr. GRAHAM. I cannot get into the specifics of data roaming rates because, unfortunately, those are protected under NDA in the data roaming agreements themselves. In fact, I believe we are prohibited from even saying who our data roaming partners are in most cases.

But what I can tell you is that the rates that were cited earlier in an opening statement of three cents a megabyte, what customers pay, I can assure you that the data roaming rates that operators like C Spire sees are multiples of that. Three cents is not something that we see from those large—the Twin Bells, the wireless Twin Bells.

On backhaul, wireless towers are, of course, connected back to the switch that routes traffic, either by a wireline connection, either copper, these days fiber, or occasionally microwave connections that eventually hit a wireline connection and go back to that switch.

Generally small operators are restricted to the incumbent Bell for that backhaul service, who, of course, have affiliated wireless companies these days. This became such a problem for us roughly 10 to 12 years ago that we created our own backhaul company. It is C Spire Fiber, and it has provided backhaul to us where they could build for years now. We are actually leveraging that and beginning a fiber-to-the-home initiative. But it was such a problem that we had to create our own company and invest that money in order to build our own backhaul.

I am not sure a public company could do that. I think a public company would probably be punished by Wall Street for a move like that. But we are privately held. Our owners take a long-term view of our business and knew that it was in the best interest, and 10 years ago that was a difficult call to make.

I can tell you that there have been a number of instances where we have gone to the incumbent Bell provider for backhaul services looking for a fiber connection to backhaul traffic from our tower back to the switch, and though fiber runs to that location where we are collocated on a tower, we are given a number of excuses on

why it could take months for us to get that faster backhaul connection and why we have to sit on typically a T1 or bonded T1 connections to backhaul that traffic to our switches.

Senator LEE. So in some cases, you have been effectively excluded, and that is one of the reasons why you——

Mr. GRAHAM. Either delayed or excluded. The need was immediate, so in that sense, excluded; but delayed, certainly.

Senator LEE. Okay. Mr. Wood, in your testimony you state that the demand for licensed spectrum may be overstated, and you advocate for more unlicensed use of spectrum. Can you tell us a little bit about how this would work and how this would allow carriers to better accommodate the increased demand for data in the coming years?

Mr. WOOD. Sure. Thank you, Senator. Glad to do it and thank you for the question.

We have seen, I think in the last 10 years alone, a dramatic shift in the conversation about unlicensed. Without impugning their motives, I think 10 years ago or so, carriers thought of unlicensed as some kind of threat to them, and today they use it as a valuable part of their own portfolio to decrease congestion and more efficiently handle their own customers' traffic. You might have seen yourself when you try to download some apps from the Internet or from an apps store, it will say, "Please switch to WiFi. That will be better for you"—and, frankly, better for the carrier as well.

So the numbers, I think, are always growing and always changing, a little bit uncertain as to the present snapshot at this very moment, but I think the estimates now are that something like 37 percent of all U.S. wireless traffic from smartphones goes over a WiFi connection already. And by smartly combining licensed and unlicensed, we can have a more efficient system and a more affordable system for everybody because it is not really an either/or choice. It is something that both new entrants and licensed carriers make use of already today.

Senator LEE. Thank you. I appreciate that.

Let us go back to Mr. Graham for a minute. In your testimony you indicate that the wireless industry went through a period of over a decade of effective competition, but has since shown some signs, some indicia of perhaps returning to kind of a duopoly, a duopoly kind of arrangement. Some have suggested that this might be the product of some unfair competition, or others have suggested that it might just be the product of very good, sound business decisions by a couple of carriers who, as a result of their good business decisions, have achieved more prominence in the industry.

If it is the latter, that is to say, if, in fact, the two largest carriers have achieved that much market share simply as a result of sound business decisions, wouldn't there be some pretty profound implications to our adopting policies that would, in effect, punish those carriers for those sound business decisions?

Mr. GRAHAM. Let me restate the question to make sure I understand it.

Senator LEE. Yes.

Mr. GRAHAM. Under an assumption where sound business decisions led to the growth of the two largest carriers, would policies

that restricted—or that promoted competition then punish them for sound business practices?

Senator LEE. Yes. Would policies that were designed to diminish their market share, in other words, so they have achieved some market share, and if you start from the presupposition that they achieved that market position as a result of sound business decisions, does that present a dilemma for us as policymakers if we are asked to do something specifically designed to undermine their position?

Mr. GRAHAM. Right. I think it would be difficult to justify any policies that would specifically take away market share, intervention by the government to pull market share away.

Having said that, I think the country prospered when Judge Greene broke up Ma Bell years ago. At this stage we saw so much consolidation, unfettered consolidation, which is what led to the size of Verizon Wireless and AT&T Mobility these days. It was not a decade of beating others in the market. It was a decade of buying others in the market, which conceivably had no limits until AT&T tried to go for the one that was too big, acquiring T-Mobile.

If you look back to what happened in 2008 when Alltel was acquired, that sort of closed that period of consolidation. There have been a couple of others—MetroPCS and Leap Wireless Cricket. But I think we could clearly see it has been consolidation, it has been acquisition of companies, not acquisition of customers, that has led to this stratification in the industry these days.

Senator LEE. Okay. Thank you.

Mr. Spalter, I was wondering if we could get you to respond to Mr. Graham's answer to the question I asked two questions ago about backhaul and data roaming. Do you have any particular response to his point about the lack of availability of contracts in this area?

Mr. SPALTER. In 2011 the FCC, working closely and in good cooperation with the American carrier community, evolved a set of protocols, a set of very clear principles regarding data roaming, which included provisioning recourse, a set of very clearly etched tools that are available to any competitor to be able to go to the FCC and bring issues of concern to the FCC.

As far as I am concerned, as far as I understand, Senator, I am not aware of any such complaints that have been brought, and the system that has been architected on a voluntary basis by industry participants working with the FCC seems to be working quite well.

There is an adage, sir, that, "If it ain't broke, don't fix it," and I think in this regard there is some wisdom to that.

Senator LEE. Thank you.

Mr. Graham, do you care to respond?

Mr. GRAHAM. Yes, if I might. We actually went through that process, so we did not—there are two ways you can do this. One is the official filing of a complaint, and then there is also sort of a mediation process, an unofficial process that you can go through. We tried this actually with another panelist, went through the mediation process, and although data roaming rates were able to become somewhat more rational, rational in this respect is relative. And it does not take away from anything I have said earlier about

the three-cent figure that was cited being anything realistic that our customers would see.

Senator LEE. You went through this with another panelist whom you are not going to mention.

[Laughter.]

Senator LEE. We will leave folks to guess.

Ms. HAM. It was not us.

[Laughter.]

Mr. SPALTER. If I could just also just comment, you asked about backhaul and special access. One of the exciting features of this dynamic marketplace that we are experiencing is the evolution and the continued advancement of technology standards in the generations of technologies consumers are being able to use, and that includes the actual technical means for backhaul. We are transiting to a next generation of much higher capacity and much higher-speed backhaul facilities based on the ethernet. The existing special access regime, 95 percent of that marketplace still covers 1.5 megabit per second speeds, which is actually even slower than plain old telephone service. Universal service funds would not even provision speeds at that level.

I think the policy focus going forward should be to migrate beyond legacy regimes and legacy networks and legacy approaches, and thinking about creating abundance and creating advancement by focusing our efforts in the transition toward better, faster, quick, more scalable technology, that should be the policy focus.

Senator LEE. Okay. I am over time, but I see Mr. Wood is itching to——

Mr. WOOD. Well, just to the special access point, we are all for more abundance, but this has been a 15-year struggle in some ways. The FCC actually largely deregulated special access in 1999 based on the promise of—not actual competition but the promise of competition from MCI and from AT&T before it was acquired by SBC. And so you asked about evidence that it is harming competition. There are reams of evidence, but the FCC is still in data-gathering mode here about a decade and a half later. So the FCC definitely does have some tools at its disposal, and we think sometimes it has been too slow to use them, not to try to structure the future in any way that Mr. Spalter or I would not like, but to make sure that carriers have access to these crucial inputs they need to provide service to their own customers.

Senator LEE. Mr. Milch.

Mr. MILCH. Thank you. I, too, am very interested in the details of the mediation between C Spire and Free Press, which would be very interesting.

[Laughter.]

Mr. MILCH. I just want to make two points on this.

Number one, Verizon has over 50 data-roaming agreements in existence right now. If C Spire were uncomfortable with the rates, it could have always taken the formal route. It did not. It made a business decision that it was going to move forward on the rates that it got.

As for backhaul, this is a burgeoning business for us, but it is a very competitive business for us. We see significant entry by the cable companies into this very business of providing backhaul and

providing special access. We are eager and try to look every day to make sure that we provide our backhaul customers with the best service we can provide them. And we are eager for the FCC to complete its data gathering. I, too, agree that it has taken a long time for them to gather the data. The data they have not yet been able to gather is the one from the competitive providers of backhaul services. So when that data is in, we are looking forward to seeing it as well as everyone else. Hopefully there will be significant response to their requests, and we will be able to see what the true lay of the land is on the competitive backhaul issue.

Thank you.

Senator LEE. Thank you.

Thank you, Madam Chair.

Chairman KLOBUCHAR. Thank you. I was actually going to ask some questions on special access, but you pretty much covered the landscape. I will maybe follow up with a few in writing, so I guess I will have to turn to something less interesting: the Comcast/Time Warner merger.

That was a joke.

[Laughter.]

Okay. Last year, Americans consumed double the amount of monthly data than they did in 2012, and demand is expected to increase as more video is available online. With four nationwide carriers, consumers have meaningful competition for wireless broadband, although we are always concerned about that competition and believe that we need to keep it strong.

Now, this is in stark contrast to fixed broadband where a large number of American consumers have only a cable company to choose from. Competition for broadband connectivity will be one of the central focuses, as you know, of our examination of the Comcast-Time Warner cable merger in the hearing coming up shortly.

I guess, Mr. Wood, I will start with you. As more and more consumers use their phones and wireless tablets in a way to connect to the Internet, do you view wireless service as a substitute for fixed broadband provided by cable, DSL, or fiber, such as Verizon?

Mr. WOOD. I would say it is an alternative, but not a perfect substitute, especially when you talk about the prices people pay and the caps they have typically faced from their wireless providers or at least from some wireless providers. DSL may be slower than some LTE offerings today, but in general, wireless is still slower and then more expensive, especially once you take into account potential overages for doing the kinds of things most people expect to be able to do easily with their home broadband connection.

Chairman KLOBUCHAR. Mr. Graham, C Spire has invested in building fiber networks to compete with local cable and DSL. Do you view your wireless service as competing with fixed broadband?

Mr. GRAHAM. If you look purely at Internet connectivity, I think eventually wireless will be able to compete with broadband. But today when most people look for the fastest broadband connection they can find, they want to pair that with video. Eventually we will reach the point where consumers take their video content over the top. That is probably roughly the time that wireless technology will hit speeds that consumers expect today out of their broadband con-

nection. Until that time, I do not think wireless could be a true substitute or competition for landline broadband connection by fiber or, in some cases, even by cable.

Chairman KLOBUCHAR. Mr. Milch, Verizon Wireless offers a wireless broadband Internet product called "home fusion broadband." It markets home fusion in FIOS markets as an alternative FIOS Internet. Do you view Verizon Wireless substitute as a substitute for fixed broadband?

Mr. MILCH. We believe that home fusion, which is a great product and is available not only in the FIOS areas but all across our footprint—Verizon Wireless sells it wherever it can. We do believe that it is a valuable substitute in some circumstances. In other circumstances it is probably better thought of as an alternative. The marketplace is quite varied, so you have to look not only at what the competitive alternatives are in a particular geography as well as what the needs of the customer are.

Customers in some geographies would not want to pay for the extra costs of getting broadband, wired broadband to their homes, particularly if those homes were only being used for certain parts of the year or not—there would be high fixed costs and other costs.

So I think that it is a valuable alternative depending on the circumstances of the customer and of the competitive status in a particular geography.

I also believe that looking forward there will be, as there always are, technological advances that will increase the speed and lower the costs per unit of broadband, wireless broadband, as it has been. There will be advances in compression technologies. There will be advances in all sorts of technologies that will probably increase its competitive force in more circumstances than are currently—where it currently is a competitive, a real competitive alternative.

Chairman KLOBUCHAR. Okay. Anyone want to add anything to this subject?

[No response.]

Chairman KLOBUCHAR. Okay. Another question for you, Mr. Milch. In 2009, Verizon sent a letter to Congress noting a commitment to limit exclusivity agreements with regard to competitive carriers. Can you reaffirm that commitment? And will Verizon continue to work to ensure that market share will not dictate access for smaller carriers to the latest devices?

Mr. MILCH. Our commitment that we made in our July 17, 2009, letter to then-Senator Kerry remains fully in force. We have limited any exclusivities that we have to the six months for all manufacturers and all devices, and there are, you know, a score of handsets that are in this program right now.

I would say, if I could, that—it might be a bit heretical—exclusives have served a significantly pro-consumer purpose, I believe, in the marketplace. I do not believe—it is not clear to me that if AT&T and Apple had not agreed to an exclusivity relationship for the original iPhone whether there would have been the level of investment by both parties to make sure that worked. So it does, I believe, broaden device capabilities and incent innovative efforts for a certain level of exclusivity.

Now, that being said, we recognize the issues that were in front of us, and we did make the commitment in July 2009, and we stand by that commitment today.

Chairman KLOBUCHAR. Okay. I am going to turn now to number portability, which is something I remember from my past in the late 1980s, early 1990s. We actually had an entire hearing on it in Minnesota. Number portability is essential to competition, as we all know, in the wireless industry. At that time, I was representing competitive companies. It was a big deal to us. Without the seamless and fast portability that takes place today, consumers would be more reluctant to switch carriers. The whole system is overseen by a consortium of large telecom companies that solicit bids from contractors interested in running the portability system, and there is currently a new contractor selection process underway. The new cost and process for switching numbers as well as the speed and reliability of that transition will be central to consumers.

Mr. Graham, does C Spire have concerns about changes to the number portability system?

Mr. GRAHAM. Well, the number portability system, as it exists today, is local number portability, meaning numbers can only be ported within the same LATA or to switches that exist within various LATA.

Chairman KLOBUCHAR. Right.

Mr. GRAHAM. So we think the time has come, especially as we get closer and closer to an IP-based world—we are in this sort of hybrid world. The time has come to make true number portability a reality. Do not tie those numbers to LATAs. We see this frequently where students will come from other States to college in Mississippi. They want to become a C Spire customer, but they want to keep their number. And, unfortunately, they cannot port that number to us because we do not have switches where they came from, and we cannot accept that number in our switches where they would live and go to school.

In that case they often decide the number that everyone back home knows is more important than switching carriers. That is not unique to us. That happens across the country with carriers our size and smaller.

Chairman KLOBUCHAR. I am just thinking back to this hearing I did when I remember cell phones were the size of Gordon Gekko's cell phone that too up an entire briefcase in the movie "Wall Street." And I remember then that the arguments were being made that people are going to have cell phones all the time and no one will really know what the area code is. A lot of the groups are going, "No, that is not true. Everyone will care about having the same area code of where they live." And that clearly was not quite the case.

Mr. GRAHAM. That is right. Look at Google Voice, for instance.

Chairman KLOBUCHAR. Yes. Mr. Spalter, are smaller carriers right to worry that larger rivals have an incentive to make the porting process costly and burdensome because it helps protect large user bases against competition?

Mr. SPALTER. I do not believe that to be the case, and I think the FCC has evolved a conduct—rules for that conduct with regard to local number portability, those rules, and it seems to be working.

And the conduct of companies with respect to those rules also seems to be proceeding appropriately.

Chairman KLOBUCHAR. Okay. Any other—someone wants to add anything? Mr. Wood.

Mr. WOOD. We have heard about the tools the FCC has. I think the important thing to remember with the largest carriers is that they have a lot of tools themselves to diminish people's portability, not just for numbers but for devices. So to the point made earlier about capital expenditures and intensive—the intensivity of those capital expenditures, AT&T, when they had that iPhone exclusive, was routinely ranked as one of the worst carriers in terms of service, but people stayed with them because that was the only place they could use their iPhone. Obviously we do not live in that world today, so I would say perhaps there were some benefits to exclusivity, but there were even greater benefits to letting carriers like Verizon and T-Mobile and others have access to those devices. And the exclusivity in all these methods to reduce churn would really be foreign to us in other markets, even in wired broadband, which we say is not as competitive. It does have more device portability in some ways. It would seem outlandish if you could not take your PC or your MacBook from Comcast to Verizon wired broadband.

So I think there are lots of things the FCC can continue to do, not to dictate the technology in any sense but to make sure every customer has access to it, no matter which carrier they choose.

Chairman KLOBUCHAR. Okay. Thank you.

I will have a few more questions in writing. I think we are getting into the weeds. Would you say that now, Senator Lee? And then maybe we will do the rest in writing.

[The questions of Chairman Klobuchar appear as submissions for the record.]

Chairman KLOBUCHAR. Do you have any other questions that you want to ask?

Senator LEE. Yes, I want to go into the weeds just a little bit more.

Chairman KLOBUCHAR. Excellent. You are in Nerd Land up here. We are loving this stuff. Senator Lee.

Senator LEE. So, Mr. Wood, I have heard some concerns expressed regarding the dominant players in the wireless device operating system market. Some have suggested that the dominant players in that market are unfairly leveraging their market power. Are you familiar with those concerns? And if so, do you share them? What do you think of them?

Mr. WOOD. I am familiar with them. I think that the interplay between the operating system manufacturers, the equipment manufacturers, and the carriers are all a matter of some concern, because when those things break down, it can ultimately harm the real people who depend on these devices. I do not know that the FCC or Justice or the FTC is necessarily the appropriate body because I have to say I am not as familiar with some of these concerns. But, of course, there is a lot of market power in all of these different markets. We just see usually that the carriers have more of a shield against this kind of creative destruction that Professor Layton talks about because they have this 100-year head start or decades-long head start when it comes to the inputs that they need

to provide service. But I do not say that to diminish the possibility that an equipment manufacturer or an operating system manufacturer working in conjunction with a carrier could make agreements that are not ultimately to the benefit of competition or to consumers.

Senator LEE. Okay. Thank you very much. I may have some additional questions on other matters in writing.

Thank you, Madam Chair, and thanks to all of you.

Chairman KLOBUCHAR. Well, thank you. Once again I would like to thank our witnesses for testifying today. Your expertise is critical to help us understand the competition in the wireless market. I think that the takeaways today are that while the industry is competitive and benefiting consumers and that we have recently seen a surge of competitive activity, there are still challenges, particularly when it comes to rural areas where the competitive carriers face an uphill battle to be able to offer consumers the benefit of competition. So any further consolidation in this market will naturally raise concerns, and there will be a high bar to meet to show that further concentration will truly benefit consumers.

Our Subcommittee will continue to be involved in these issues. As you know, we have several hearings coming up that touch on these issues, and I want to thank Senator Lee for his continued partnership on this Subcommittee, and I want to thank you all for coming. The record will remain open for one week, and the hearing is adjourned.

[Whereupon, at 12:01 p.m., the Subcommittee was adjourned.]

APPENDIX

Witness List

Hearing before the
Senate Committee on the Judiciary
Subcommittee on Antitrust, Competition Policy and Consumer Rights

On

"An Examination of Competition in the Wireless Market"

Wednesday, February 26, 2014
Dirksen Senate Office Building, Room 226
10:00 a.m.

Randal S. Milch
Executive Vice President & General Counsel
Verizon Communications Inc.
New York, NY

Kathleen O'Brien Ham
Vice President, Federal Regulatory Affairs
T-Mobile USA, Inc.
Washington, DC

Jonathan Spalter
Chair
Mobile Future
Berkeley, CA

Eric Graham
Senior Vice President, Strategic Relations
C Spire Wireless
Ridgeland, MS

Roslyn Layton
Ph.D. Fellow
Center for Communication, Media and Information Technologies
Aalborg University, Denmark

Matthew F. Wood
Policy Director
Free Press
Washington, DC

PREPARED STATEMENT OF CHAIRMAN PATRICK LEAHY

Statement of Senator Patrick Leahy
Chairman, Senate Judiciary Committee
Hearing on "An Examination of Competition in the Wireless Market"
February 26, 2014

Today, the antitrust subcommittee is examining the competitive state of the wireless industry. This is an important hearing that raises a number of critical issues for consumers. As our lives become more and more connected with the Internet, wireless devices like smartphones have become an integral part of the online experience in addition to a tool for voice calls. Ensuring that the wireless market is built on a competitive foundation well into the future should be a priority for policymakers and regulators.

According to 2013 reports from Nielsen, 94 percent of consumers in the United States use a mobile phone and more than 60 percent of those users own smartphones. The near-ubiquity of mobile phone use highlights the importance of competition in the wireless provider market. In an already concentrated market, any further steps towards consolidation should be reviewed carefully. The rapidly increasing market share of smartphones also shows the need for a strong and responsible net neutrality policy that promotes and protects competition in the rapidly growing mobile Internet ecosystem.

An important way to increase competition among providers is to make it easier for consumers to switch carriers. Allowing consumers to "unlock" their devices after they have fulfilled the terms of their contract is common sense and pro-competitive. Smaller wireless providers may not have access to the most up-to-date devices, but if consumers can take their phones with them to a provider that offers terms or services that better fit their needs, they should be able to do so.

I was pleased that the Federal Communications Commission (FCC) and the wireless industry came together to craft a voluntary agreement that will allow consumers to unlock their phones. I will be continuing to monitor the implementation of that agreement. In addition, the House yesterday passed a version of the Unlocking Consumer Choice and Wireless Competition Act, legislation that I authored with House Judiciary Committee Chairman Bob Goodlatte to restore cell phone unlocking rights. I will look closely at the House-passed bill and continue my work with stakeholders to ensure that consumers have the ability to easily switch carriers.

Another key way in which we can promote competition in the wireless market is with our spectrum policy. Mobile broadband use is exploding, and this means that some cities are facing a shortage of scarce spectrum resources. Congress and the executive branch need to do our part to make sure that our spectrum usage is as efficient and forward-looking as possible. The upcoming voluntary auction of broadcast television spectrum is a step in the right direction. I hope that the FCC works within the bounds of the law to use that auction to promote competition in the wireless industry.

The challenge is different in rural areas like Vermont, which do not face a looming spectrum crunch but instead are confronted with spotty coverage and unused spectrum resources. Consumers in Vermont want and deserve the same kind of coverage as people in Minneapolis or Salt Lake City. As more valuable spectrum resources are allocated to mobile broadband use, I

urge regulators and companies to ensure that spectrum is not allowed to lie fallow in rural America.

I thank Senator Klobuchar and Senator Lee for holding this hearing today and looking forward to the testimony of the witnesses.

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PREPARED STATEMENT OF RANDAL S. MILCH

TESTIMONY

OF

RANDAL S. MILCH
EXECUTIVE VICE PRESIDENT AND GENERAL COUNSEL
VERIZON COMMUNICATIONS INC.

BEFORE THE

SUBCOMMITTEE ON ANTITRUST,
COMPETITION POLICY,
AND CONSUMER RIGHTS

COMMITTEE ON THE JUDICIARY

UNITED STATES SENATE

"AN EXAMINATION OF COMPETITION IN THE WIRELESS MARKET"

FEBRUARY 26, 2014

Chairman Klobuchar, Ranking Member Lee, and members of the Subcommittee, thank you for the opportunity to testify about the dynamic, innovative and fiercely competitive U.S. wireless marketplace.

Today's U.S. wireless ecosystem offers consumers remarkable sets of choices – from infrastructure and equipment, to services and software, devices and applications. This broad foundation places us at the forefront of emerging mobile innovations, such as machine to machine connectivity (otherwise known as the "Internet of Things") and cloud-based services. Our U.S. wireless market stands as a global leader in innovation and choice, and is a key driver for national economic growth and maintaining America's competitive edge in the global economy.

By just about every metric, the U.S. wireless industry has exhibited consistent and ongoing dynamism, innovation, and competition.[1]

Perhaps the best indicator of the industry's vibrancy is its stellar capital investment record. In 2013, America's wireless carriers invested more than $34 billion in their networks.[2] This level of investment is, on average, four times more per subscriber than anywhere else in the world, about $104 per subscriber versus $26 per subscriber.[3] Since 2001 wireless carriers have made nearly $300 billion in sustained capital investment in the United States, and that figure does not include investments made in spectrum.[4]

Much of this sustained investment of late has been targeted for deployment of 4G LTE mobile broadband networks, which provide consumers and businesses with true broadband speeds in a mobile environment. As a result of U.S. carriers' investment in 4G LTE, the United States has almost 300 million wireless broadband subscriptions, more than double that of any other country, according to the Organization for Economic Co-operation and Development.[5] While U.S. consumers represent only 5% of the world's wireless connections, they comprise 50% of the world's LTE connections.[6] By year-end 2013, nearly 30% of all U.S. mobile connections were on LTE networks compared to 2% in the EU.[7] We expect that we will maintain this global leadership in 4G technologies for years to come.

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[1] Federal Communications Commission, 16th Mobile Competition Report, FCC 13-34, http://www.fcc.gov/document/16th-mobile-competition-report, released March 21, 2013

[2] Didier Scemama, et al., *2014 wireless capex: BRICs & Europe to pick up the slack*, Bank of America Merrill Lynch, Global Telecom Equipment, Jan. 13, 2014, at Table 2. *See also* Glen Campbell, *2014: The year ahead,* Bank of America Merrill Lynch, Global Wireless Matrix 4Q13, Jan. 8, 2014, at Tables 1 and 2.

[3] Ibid

[4] CTIA – The Wireless Association, Letter To Federal Communications Commission (GN Docket No. 09-51, WT Docket No. 13-135), November 13, 2013

[5] OECD, Total Fixed And Wireless Broadband Subscriptions By Country, June 2013

[6] CTIA – The Wireless Association, http://www.ctia.org/your-wireless-life/how-wireless-works/wireless-quick-facts

[7] Informa Telecoms & Media Group's World Cellular Information System (WCIS) Plus database, subscribers by geography and technology, (last visited Feb. 20, 2014)

LTE has transformed the communications landscape by providing customers with faster and more robust access to the Internet. Verizon was the first national carrier to deploy 4G LTE and this deployment is ensuring that consumers in rural areas have access to this cutting-edge broadband technology. Through its LTE in Rural America Program, Verizon signed 20 agreements with rural wireless operators to bring the benefits of high-speed 4G LTE technology to rural communities.[8] Under the program, rural carriers lease 700 MHz Upper C block spectrum from Verizon and build and operate their own 4G LTE radio networks; their customers can also roam on Verizon Wireless' 4G LTE network throughout the U.S., as well as on the networks of all the other rural carriers, while Verizon Wireless customers can roam on the rural networks. These networks cover 2.2 million people and more than 58,000 square miles, an area larger than the State of Illinois.[9] Today almost 300,000 people make use of these rural networks every day.

Ongoing investment in wireless broadband infrastructure has been a bright spot for the U.S. economy in a time of otherwise slow growth. Between 2007 and 2011, the U.S. wireless industry gained almost 1.6 million new jobs while total U.S. private sector jobs fell by 5.3 million.[10] In that same time, our industry generated $196 billion in economic activity around the world[11] and is driving innovations like the "app economy," which has created 519,000 jobs nationwide since the Apple iTunes and Android Market application stores first opened in 2008.[12] Today, the U.S. wireless industry is larger than the publishing, agriculture, hotels and lodging, air transportation, motion picture and recording, or motor vehicle manufacturing industries.[13]

This leadership in investment and growth is projected to continue. The Wireless Infrastructure Association recently released a study showing that projected capital investment in U.S. wireless infrastructure over the next five years will generate more than $1 trillion in economic growth and create 1.2 million new jobs. [14]

The beneficiaries of this remarkable marketplace are U.S. wireless consumers, who have a wide range of choices in networks, devices and applications, whose appetites for mobile services grow year over year, and who enjoy more and more services at declining unit costs.

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[8] Verizon Wireless, Comments Before The Federal Communications Commission In The Matter Of Implementation Of Section 6002(b) of the Omnibus Budget Reconciliation Act Of 1993, WT Docket No. 13-135, June 17, 2013

[9] Amal Singh, "Is Verizon A Better Option Than AT&T In The Rural Wireless Market?" Seeking Alpha, October 22, 2013

[10] CTIA – The Wireless Association, Letter To Federal Communications Commission (GN Docket No. 09-51, WT Docket No. 13-135), November 13, 2013

[11] Roger Entner, "The Wireless Industry: The Essential Engine Of US Economic Growth," Recon Analytics, April 2012

[12] Dr. Michael Mandel and Judith Scherer, MCP, MA, "The Geography Of The App Economy," CTIA – The Wireless Association and Application Developers Alliance, September 20, 2012

[13] CTIA – The Wireless Association, http://sitefinity.dmz.ctia.org/resource-library/facts-and-infographics/archive/economic-value-wireless-industry

[14] PCIA, "Wireless Infrastructure Investment Will Generate $1.2 Trillion In Economic Activity And Create 1.2 Million Jobs, Press Release, September 19, 2013

Consider that the U.S. now has more facilities-based wireless service providers that own and manage network equipment – with 180 – than any other nation in the world.[15] According to the FCC's last wireless competition report, 97.2% of the U.S. population is covered by three or more mobile voice carriers and 92.8% is covered by four or more mobile voice providers. Regarding mobile broadband, 91.6% of the U.S. population is served by three or more mobile wireless broadband providers and 82% are served by four or more providers.[16] Each of these companies is fiercely competing for customers. Sprint's CEO last year made clear that, "[t]here is no question [that] it's a competitive environment" in the wireless marketplace, as did T-Mobile's CFO, who said T-Mobile is, "[a]bsolutely positioned to, we think, thrive in a highly competitive market."[17]

Another indication of the level of competition in the market is the resources companies spend on marketing to try to win new customers. Between January and September 2013, telecommunications companies spent almost $7 billion on advertising, an 11.7% increase over the same period in 2012, and during a period when other consumer segments' advertising spends were decreasing.[18] These fierce marketing spends reflect the competitive struggle for wireless customers through a wide range of devices, applications, voice and data plans, as well as other innovative services.

The competitive state of the U.S. wireless marketplace has led U.S. consumers to use more mobile services than their international counterparts. When compared to the average European, in 2012, the average American consumer used five times more voice minutes and two times more data per connection than his or her European counterpart. U.S. consumers used 932 voice minutes per month, more than double the number of the next closest country, Canada, with a per capita usage of 381 minutes.[19]

In 2012 U.S. wireless data traffic increased by 70% to 1.468 trillion megabytes, up from 866.9 billion in 2011.[20] Meanwhile, the price trend for wireless data has been dropping dramatically – plummeting 93% from 2008-2012, from 46 cents per megabyte to only 3 cents per

[15] FCC Wireline Competition Bureau, Industry Analysis and Technology Division, Local Telephone Competition: Status as of December 31, 2012, Table 18, http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-324413A1.pdf
[16] Federal Communications Commission, 16th Mobile Competition Report, FCC 13-34, http://www.fcc.gov/document/16th-mobile-competition-report, released March 21, 2013
[17] Braxton Carter, T-Mobile CFO, T-Mobile US, Inc Goldman Sachs 22nd Annual Communacopia Conference, September 25, 2013
[18] Kantar Media, "Kantar Media Reports U.S. Advertising Expenditures Declined In Q3 2013, Due To Comparison Against High Olympics, Election Year Spend In 2012," Press Release, December 16, 2013
[19] CTIA The Wireless Association, Letter To Federal Communications Commission (GN Docket No. 09-51, WT Docket No. 13-135), November 13, 2013
[20] Ibid

megabyte.[21] I would also note that from December 2005 to January 2014, the wireless Consumer Price Index fell 10%, while the overall CPI for all items increased 18.9%.[22]

As customers embed mobile technologies ever more deeply into the way they work and live, the wireless industry is innovating to address these new consumer demands and create new solutions that make use of these powerful wireless broadband platforms.

Today, a number of different device manufacturers offer almost 300 different handsets; consumers also have a wide set of options for tablets and other mobile devices.[23] Over half of the phones in use today are smartphones,[24] and it's expected that 87% of connected device sales by 2017 will be tablets and smartphones – devices that didn't exist 10 years ago and that wouldn't exist without mobile broadband networks.[25]

The U.S. applications market is the global leader, and the number and type of applications available to those consumers have increased at a staggering rate. In 2012, consumers had access to more than 20 independent non-carrier mobile application stores, offering over 3.5 million apps for fourteen different mobile device operating systems.[26] Similarly, many wireless companies, including Verizon, are working with app developer communities to expand that ecosystem and meet consumer needs. Gartner estimates that by 2017 mobile app downloads will grow to more than 268 billion and generate over $77 billion in revenue.[27]

As with other transformative technologies we've seen evolve, mobile technologies are creating massive amounts of disruption and ripple effects across industries, creating new opportunities for productivity and growth. Mobile technologies are transforming the transportation, finance, energy, and agriculture sectors. Smart grids, smart cars, smart homes, and smart fields all take advantage of wireless technology. These mobile platforms are also helping to address some of our nation's most pressing challenges, such as provision of high-quality, affordable health care and access to world-class educational resources.

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[21] Maeghan Ouimet, "Infographic: The Staggeringly Huge Future Of Mobility," Visage Mobile, September 6, 2012

[22] U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index: All Urban Consumers – (CPI-U), U.S. City Averages, Wireless Telephone Services (Series ID CUUR0000SEED03) and Consumer Price Index: All Urban Consumers – (CPI-U), U.S. City Averages, All Items Accessed February 20, 2014

[23] Federal Communications Commission, 16th Mobile Competition Report, FCC 13-34, http://www.fcc.gov/document/16th-mobile-competition-report, released March 21, 2013

[24] Mark Rogowsky, "More Than Half Of Us Have Smartphones, Giving Apple And Google Much To Smile About," *Forbes*, June 6, 2013

[25] Louis Columbus, "IDC: 87% Of Connected Devices Sales By 2017 Will Be Tablets And Smartphones," *Forbes*, September 12, 2013

[26] CTIA The Wireless Association, Letter To Federal Communications Commission (GN Docket No. 09-51, WT Docket No. 13-135), November 13, 2013

[27] Tony Danova, "Gartner: Mobile Apps Will Have Generated $77 Billion In Revenue By 2017," Business Insider, January 23, 2014

By utilizing innovative in-home broadband and Internet-based technologies and mobile solutions, we can change the model for patient care and help eliminate healthcare disparities, improve access and enable better chronic disease outcomes.

LTE mobile broadband can handle the bandwidth demands of transmitting MRIs, X-Rays and CAT scans. Cloud platforms enable safe, private means for patients, doctors, and insurance companies to exchange information and share medical records. Mobile-based health services can monitor blood pressure, medication intake, blood sugar levels, and heart rate, and send the real-time updates to doctors.

These types of technologies offer a great opportunity to make America healthier, while also saving as much as $165 billion a year according to some estimates.[28]

In the field of education, the technology content of every business and every job is rising. Yet interest and proficiency in science, technology, engineering or math – STEM subjects – is stagnant in the U.S. Verizon is leveraging its mobile technologies to empower teachers and students to focus on building proficiency in STEM subjects. We've also launched the first national program for integrating mobile technology into classrooms to improve STEM education for underserved students, and to train teachers to use mobile technology to improve learning outcomes.

Even in these areas of philanthropy, we are seeing competition across our ecosystem, driving new strategies and providing teachers and students with resources toward a shared goal of putting in place a strong, well-educated workforce to sustain U.S. leadership and competitiveness in the global high-tech marketplace.

This fiercely competitive, highly innovative wireless ecosystem has not developed in a vacuum. Public policy has played a part. Back in 1993, when Congress first sought via the Omnibus Budget Reconciliation Act to update the policies for the nascent wireless market, policymakers authorized spectrum auctions for mobile use and pre-empted state regulation of mobile services.

These decisions paved the way for nation-wide mobile products and services and plans rather than a fragmented market, such as the one that is today hindering Europe's mobile broadband market. It also laid the groundwork for a wireless policy framework that focused on meeting consumer demands without onerous rules or regulations that might have hampered innovation and experimentation in the marketplace.

Twenty years later, our industry stands as a testament to that light touch regulatory model. Where issues have arisen, such as number porting, location-based services or mobile phone directories, our industry has worked through consensus with policy makers to address

[28] Benton Foundation, benton.org/initiatives

them.[29] Of course we also should not underestimate the powerful influence of our customers, who make their sentiments clear and very much drive this market.

That said, there are challenges our industry faces. Consumer privacy and security are at the top of the list. If we want consumers to increasingly embed mobile technology in their lives – whether for social purposes, entertainment or for personal finance – they must be confident that their personal information is safe and being protected. Likewise, device security is an issue that our industry has been focused on for some time.[30]

Without question, however, the most important area where continued policy leadership is necessary is access to spectrum. Without the lifeblood of this sector – spectrum – our global leadership in wireless innovation, our sustained investment, and our ability to meet consumers' appetite for faster mobile speeds and increased access for multiple mobile devices, is at risk.

As you are aware, spectrum can't be created, only allocated. And reallocating spectrum is difficult due to restrictions on how the spectrum can be used and sold. As wireless adoption increases and mobile data usage explodes, much more bandwidth is needed to upgrade networks, serve additional consumers and meet demand.

We are appreciative of Congress' efforts with the Obama Administration and the F.C.C. to identify and allocate 500 megahertz of additional spectrum within the next ten years.[31] This would double the amount of available spectrum.[32] But the amounts being brought to auction today and those being discussed for future auctions barely put a dent in the 500-megahertz goal. Large swaths of unused or underutilized spectrum that are currently assigned to federal government agencies aren't being used efficiently and should be identified and auctioned. Given the nine-year lead-time to bring spectrum to market, this must be a priority.

We must also look at the auction process, which should be fair and transparent, open to all bidders, and not weighed down by conditions that might limit the number of bidders or the amount of spectrum brought to market. Finally, we need a streamlined approach that allows those firms already holding underused or dormant spectrum to sell it to those who can best put that spectrum to use for consumers.

A comprehensive spectrum policy, coupled with continuation of the successful light touch regulatory model to address other challenges our industry faces, will serve all players in the wireless marketplace. Competition will continue to flourish, leading to even greater amounts

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[29] CTIA – The Wireless Association, Comments Before The Department Of Commerce In The Matter Of Information Privacy And Innovation In The Internet Age (Docket No: 100402174-0175-01), Washington, DC, September 2010

[30] CTIA – The Wireless Association, http://www.ctia.org/policy-initiatives/policy-topics/cybersafety-and-cybersecurity

[31] U.S. Department Of Commerce, "Plan And Timetable To Make Available 500 Megahertz Of Spectrum For Wireless Broadband," October 2010

[32] Jennifer Martinez, "Wireless Airwaves Would Double Under Obama Plan," Los Angeles Times, June 29, 2010

of investment, more choices and value for consumers from enhanced services and greater levels of innovation, all hallmarks of a wireless marketplace that so demonstrably benefit the American consumer and the U.S. economy.

Thank you again for the opportunity to testify, and I welcome your questions.

PREPARED STATEMENT OF KATHLEEN O'BRIEN HAM

TESTIMONY OF KATHLEEN O'BRIEN HAM,
VICE PRESIDENT, FEDERAL REGULATORY AFFAIRS,
T-MOBILE USA, INC.

on

"AN EXAMINATION OF COMPETITION IN THE WIRELESS MARKET"

before the

ANTITRUST, COMPETITION POLICY AND CONSUMER RIGHTS SUBCOMMITTEE
SENATE COMMITTEE ON THE JUDICIARY

February 26, 2014

TESTIMONY OF KATHLEEN O'BRIEN HAM
VICE PRESIDENT, FEDERAL REGULATORY AFFAIRS,
T-MOBILE USA, INC.

Introduction

Good morning Chairwoman Klobuchar, Ranking Member Lee and Members of the Subcommittee, and thank you for inviting me to testify on the subject of wireless competition. My name is Kathleen Ham, and I have been Vice President of Federal Regulatory Affairs for T-Mobile US ("T-Mobile") since 2004. In my position at T-Mobile I am responsible for managing the company's regulatory activities at the federal level. Prior to joining T-Mobile, I worked for 14 years at the Federal Communications Commission ("FCC" or "Commission") in a number of top policy positions, including Deputy Chief of the Wireless Telecommunications Bureau. I have also served on the Spectrum Management Task Force and was involved in the intergovernmental advisory committee that negotiated the allocation of third generation (3G) wireless spectrum.

Headquartered in Bellevue, Washington, T-Mobile offers nationwide wireless voice and data services to individual, business and government customers. T-Mobile is the fourth largest wireless carrier in the U.S. and serves approximately 46.7 million customers.

T-Mobile has a strong commitment to competition, innovation, and customer service. The most recent J.D. Power survey of satisfaction with customer service in the U.S., for example, ranked T-Mobile as the most improved wireless carrier in the survey, and our pre-paid MetroPCS brand was ranked first in consumer satisfaction among pre-paid wireless carriers.[1] T-Mobile has consistently ranked among the top 100 most military-friendly employers, is cited as one of the 20 best places for college graduates to work,

[1] *See* "2014 U.S. Wireless Customer Care Full-Service Performance Study and U.S. Wireless Customer Care Non-Contract Performance Study—Vol. 1," J.D. Power (Feb. 6, 2014), *available at* http://www.jdpower.com/content/press-release/2rlA1q4/2014-u-s-wireless-customer-care-full-service-performance-study-and-u-s-wireless-customer-care-non-contract-performance-study-vol-1.htm (last accessed Feb. 16, 2014); *see also* Blair Hanley Frank, "T-Mobile Improves in J.D. Power Customer Satisfaction Survey, AT&T Tops Verizon," GeekWire (Feb. 6, 2014), *available at* http://www.geekwire.com/2014/t-mobile-moves-j-d-powers-satisfaction-survey-att-unseats-verizon/ (last accessed Feb. 16, 2014).

and has been recognized in each of the last four years as one of the world's most ethical companies by the Ethisphere Institute.[2]

Over the past year T-Mobile has been competing aggressively to make up for its disadvantages in comparison to AT&T and Verizon. A year ago, T-Mobile had virtually no 4G LTE network; today, our LTE network covers over 200 million people and is still growing. And although built quickly, it is a very high quality network. For example, according to recent speed tests, our network is the fastest in the country in terms of download and uploads speeds and boasts the lowest latency figures in the wireless industry as well.[3] Since 2013 T-Mobile has been growing fast in comparison to other wireless companies. In the fourth quarter of 2013 alone, we added 1.6 million customers, with 869,000 of those being branded postpaid customers.[4] That was our third consecutive quarter with more than 1 million net customer additions, representing a significant turnaround from a year earlier. In 2012, T-Mobile posted a net loss of over 2 million branded postpaid customers, while a year later in 2013, we added 2 million such customers; in total we added more than 4.4 million customers in 2013, compared to losing 256,000 customers in 2012—a positive swing of 4.7 million customers in one year.[5] In the last quarter of 2013 we also delivered our third consecutive quarter of sequential service revenue growth.[6] In the fourth quarter of 2013, T-Mobile's total revenue amounted to $6.8 billion, more than 10% higher than the revenue

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[2] *See* Company Information—Awards, T-Mobile USA, Inc., *available at* http://www.t-mobile.com/Company/CompanyInfo.aspx?tp=Abt_Tab_Awards (last accessed Feb. 15, 2014).

[3] *See* "Customer Data Proves T-Mobile Network Now Fastest 4G in the U.S.," T-Mobile Investor Relations (Jan. 8, 2014), *available at* http://investor.t-mobile.com/mobile.view?c=177745&v=203&d=1&id=1889227 (last accessed Feb. 19, 2014); *See* "3G/4G Wireless Network Latency: How Did Verizon, AT&T, Sprint and T-Mobile Compare in January?" Fierce Wireless (Feb. 20, 2014), *available at* http://www.fiercewireless.com/special-reports/3g4g-wireless-network-latency-how-did-verizon-att-sprint-and-t-mobile-compa-1 (last accessed Feb. 21, 2014).

[4] "T-Mobile US Reports Fourth Quarter and Full Year 2013 Results and Third Consecutive Quarter of Over One Million Net Customer Additions," T-Mobile (Feb. 25, 2014) ("T-Mobile 4Q13 Press Release"), *available at* http://investor.t-mobile.com/Cache/1500056771.PDF?Y=&O=PDF&D=&fid=1500056771&T=&iid=4091145 (last accessed Feb. 25, 2014).

[5] *See* T-Mobile 4Q13 Press Release.

[6] *See id.*

posted for the fourth quarter of 2012 and 2.1% higher than the revenue generated in the third quarter of 2013.[7] At the same time the two largest carriers account for most of the industry's profits.

T-Mobile's recent accomplishments are the more remarkable because we have been operating not only with a scale disadvantage to our larger competitors, but also with virtually no low-band spectrum, which, in the words of AT&T's CEO, "propagates like a bandit," permitting efficient coverage both inside buildings in urban areas and across large suburban and rural areas.[8] In other words, without low-band spectrum, we have been competing with one arm tied behind our back. We need the vigilance of Congress and regulators to ensure that T-Mobile has access to the spectrum resources necessary to remain competitive. Today's consumers expect high speed broadband coverage everywhere they go, and T-Mobile will face increasing challenges satisfying that demand without low-band spectrum. Indeed, today we have about 40% more cell sites than Verizon, but because Verizon has deployed its network using below 1 GHz spectrum, its geographic service footprint is broader. In addition, T-Mobile faces other critical competitive challenges that U.S. policymakers can impact: among them are securing access to roaming at commercially reasonable rates; interconnection with the other major carriers as we move to an all-Internet Protocol ("IP") world; and backhaul from our cell sites, especially outside of major metropolitan areas. The U.S. wireless market is already dominated by the two largest carriers, and absent a realistic opportunity to acquire low-band spectrum and these other, critical inputs, T-Mobile's ability to continue as an effective force in the long term could be threatened.

T-Mobile is a Consumer-Focused Competitor

When our CEO, John Legere, joined the company in 2012, he expressed a desire to fix the broken wireless service business model and make the wireless experience more enjoyable for consumers. To do that, he turned to the people with the clearest ideas about what was wrong—the customers themselves. To identify consumer pain points, he made his e-mail address available publicly, invited consumer comments, and then read every message; sat in on calls to our service centers; and took to social media.

[7] *See* T-Mobile US Q4 and Full Year 2013 Slide Presentation (Feb. 25, 2014).
[8] AT&T's Randall Stephenson on the Network's Strength, CNN MONEY (July 18, 2012), *available at* http://tech.fortune.cnn.com/2012/07/18/randall-stephenson-att/ (last accessed July 19, 2013).

Based on this consumer feedback, last spring we launched our "Un-carrier" campaign, consisting of four major initiatives.[9]

Un-carrier 1.0—Simple Choice Service Plan

First, in March 2013, we eliminated the annual service contract and replaced it with a program we call Simple Choice. The idea was to make wireless simpler for consumers by eliminating long-term service contracts and uncoupling the cost of a mobile device from monthly service charges. Our message to consumers was: If you don't like our service this month, you can drop us. No contracts, no early termination fees ("ETFs"). And our message to our competitors was: we don't need service contracts or penalties to keep our customers loyal. Unlike other providers, who hide the real cost of a handset by including it as part of a monthly contract price and then continuing to charge that inflated price even after the full cost of the device is paid off, T-Mobile embraced a transparent pricing model. T-Mobile customers can bring their own devices to our network; or they can buy a phone from us either upfront in full, or pay for it over 24 months on an interest-free installment plan, with a low or often no upfront payment—and in all cases pay a low monthly fee for service without an annual contract. Once the phone is paid for they enjoy a drop in their monthly charges, while with a traditional two-year contract plan the extra charges embedded in the monthly rate to cover the handset subsidy continue even after the cost of the phone has been fully recovered.

Un-carrier 2.0—JUMP Program

The next step, in July 2013, was to introduce a new device upgrade program: the JUMP—"Just Upgrade My Phone"—program. JUMP was designed to attack what our CEO has described as the "single most offensive practice" in the wireless industry: the imposition of rules severely restricting when a consumer can upgrade to a new phone. Rather than forcing consumers to sit on the sidelines for two years—730 days—watching phones come out that they cannot have under the terms of their wireless contracts, JUMP allowed them to upgrade their devices as frequently as twice a year, with no upgrade fee

[9] For a summary of the ideas behind the Un-carrier initiatives, *see* "Why T-Mobile," *available at* http://www.t-mobile.com/landing/whyt-mobile.html (last accessed Feb. 13, 2014).

after six months. The program lets consumers adopt the newest, most innovative technologies when they want without suffering a financial penalty. It also serves as an extended warranty, allowing them to replace their phones if they are lost or stolen, or damaged. Just this week, we launched a shift in the JUMP plan that removes the annual limit on the number of times a consumer can upgrade his or her device, and adds tablets to the offer, as long as the consumer has paid at least half of the original value of the phone or tablet at the time of the upgrade.[10]

Un-carrier 3.0/3.1—Simple Global/Tablets Un-leashed

Our next Un-carrier initiative, announced last October, addressed one of the major "pain points" for U.S. wireless consumers who travel abroad—the exorbitant cost of international roaming. Consumers want to take their phones everywhere, but often leave their devices off or in airplane mode when traveling overseas because of anxiety about bill shock from international roaming charges when they return home. So T-Mobile added free, unlimited international data and text for U.S. customers on post-pay Simple Choice plans when travelling to over 100 countries. The data available when traveling abroad is 2G, not broadband, but is more than sufficient to allow consumers to send and receive e-mails and texts, do simple web browsing, access most apps (e.g., check the weather) and use social media; plus, higher speed services are available for those who want them in the form of short-term "passes" at a reasonable cost. Our customers can also make inexpensive voice calls while roaming internationally at $0.20 per minute.

For our next Un-carrier offering, T-Mobile took on a problem that prevents 90% of consumers who own tablets in the U.S. from signing up for a mobile data plan: concern that mobile tablet connections could mean very high mobile data charges. To address this concern, T-Mobile launched Tablets Un-Leashed, becoming the first national wireless carrier to offer tablet owners up to 200 MB of free 4G LTE data every month for as long as they own their device. To put this in context, this allows T-Mobile customers to send about 800 Instagram photos, or 2,500 e-mails, or stream 200 minutes of

[10] T-Mobile JUMP (Feb. 23, 2014), *available at* http://www.t-mobile.com/phone-upgrade.html (last accessed Feb. 25, 2014); Mike Sievert, "One-Upping Our Own Industry-Leading Upgrade Program" (Feb. 24, 2014), *available at.* http://multimediacapsule.thomsonone.com/t-mobileusa/blog_one-upping-our-own-industry-leading-upgrade-program (last accessed Feb. 25, 2014).

music—all for free. Customers who need more than 200 MB can sign up for a day or week pass, or add an extra 500 MB of data for $10 a month. Customers on a Simple Choice tablet plan also get unlimited data in over 100 countries internationally at no additional cost.

Un-carrier 4.0—Contract Freedom

In our most recent effort to address consumer pain points creatively, in January 2014 we launched the Un-carrier 4.0 program. This offer provides up to $350 in early termination fees for individuals and families who switch from AT&T, Verizon or Sprint to T-Mobile. It includes an instant additional credit of up to $300 for a trade-in on the consumer's current device, which is also available to T-Mobile customers. We like to think of Un-carrier 4.0 as a "get out of jail free card" for families that have been bound to their existing carrier by staggered contract end dates and high ETFs.

T-Mobile's Pro-Consumer Un-carrier Initiatives Are Proving Popular

T-Mobile's innovative Un-carrier strategy is not just a marketing ploy—it is a commitment to address the real needs of wireless consumers. After a year of fresh takes on wireless services, consumers are responding. As noted above, we added more than 4.4 million new subscribers in 2013, including 1.6 million in the fourth quarter, versus losing 256,000 customers in 2012. In the fourth quarter of 2012, we reported customer churn of 2.5%, which dropped to 1.7% a year later.[11] In just a year, we have come a long way.

Of course, none of the success of our Un-carrier initiative would have been possible without a fast and reliable network. Within the past year we deployed a state-of-the-art LTE network covering more than 200 million people. Due to spectrum constraints, our LTE network deployment started initially with only a 5X5 MHz spectrum block, but now the vast majority of that network operates on at least a 10X10 MHz configuration. We intend to allocate at least 20X20 MHz for LTE in the majority of the top 25 U.S. markets by the end of 2015, and have already started 20X20 MHz LTE service in Dallas, which allows customers to experience top download speeds of up to 150 Mbps. As more of our spectrum has

[11] "T-Mobile USA Reports Fourth Quarter 2012 Operating Results," T-Mobile (Feb. 27, 2013), *available at* http://newsroom.t-mobile.com/phoenix.zhtml?c=251624&p=irol-newsarticle&ID=1802273 (last accessed Feb. 22, 2014); T-Mobile 4Q13 Press Release.

migrated to LTE use, our network data speeds have increased significantly and the service options available to our customers have expanded, although in the long run we can only maintain such a competitive network if we acquire low-band spectrum.

We also have expanded our pre-paid MetroPCS service since acquiring MetroPCS in May 2013. It had taken MetroPCS 10 years to enter 15 markets when we acquired the company. In the mere 10 months since that acquisition, we expanded the MetroPCS brand to an additional 30 markets, bringing this flexible and increasingly popular pre-paid mobile broadband service option to millions more people across the country. Thanks to a migration that exceeded expectations, approximately 3.5 million new and existing MetroPCS customers now enjoy a better wireless broadband experience on the T-Mobile network.[12]

Despite Its Recent Success, T-Mobile Faces Significant Challenges to Remaining a Strong Competitive Force in the Market

Despite its popularity with consumers, T-Mobile faces a number of fundamental challenges that put at risk its ability to maintain its disruptive presence in the marketplace. Among those are the significant scale advantages enjoyed by our two major competitors. Verizon and AT&T have over 96 million[13] and 110 million[14] wireless subscribers respectively. In T-Mobile's case, although our subscriber base is growing, we still have fewer than 47 million subscribers.[15] This smaller scale yields lower profit margins, smaller cash flows, and greater challenges in funding bold and disruptive innovations, and increases the difficulty of meeting the maintenance costs and capital expenditures associated with developing, expanding and supporting a national network. By contrast, our larger competitors have

[12] T-Mobile 4Q13 Press Release.

[13] *See* Verizon Caps Strong Record of Success in 2013 with Fourth Consecutive Quarter of Double-Digit Earnings Growth (Jan. 21, 2014), *available at* http://www.verizon.com/investor/news_verizon_caps_strong_record_of_success_in_2013_with_fourth_consecutive_quarter_of_doubledigit_earning.htm (last accessed Feb. 24, 2014).

[14] *See* AT&T 10-K (Feb. 21, 2014), *available at* http://phx.corporate-ir.net/phoenix.zhtml?c=113088&p=irol-SECText&TEXT=aHR0cDovL2FwaS50ZW5rd2l6YXJkLmNvbS9maWxpbmcueG1sP2lwYWdlPTk0MTM4NDQmRFNFUT0wJlNFUT0wJlNRREVTQz1TRUNUSU9OX0VOVElSRSZzdWJzaWQ9NTc%3d (last accessed Feb. 21, 2014).

[15] T-Mobile 4Q13 Press Release.

substantial economies-of-scale advantages in such critical areas as equipment purchasing, handset roll-out, business financing, the acquisition of backhaul and roaming services, and national brand advertising. The funding requirements needed for this business, exacerbated by the lack of scale relative to the big two, remain a major competitive challenge to T-Mobile going forward. In addition to these structural disadvantages, T-Mobile faces a number of other challenges in areas where important decisions are currently pending before government regulators. These include access to spectrum, and particularly low-band spectrum; dependence on other carriers' networks for roaming, including data roaming; the need to negotiate efficient interconnection agreements in an increasingly all-IP world; and access to broadband backhaul on reasonable terms and conditions.

There are three important issues to consider relating to our need for low-band spectrum. First, we, like our wireless industry competitors, believe that Congress and regulators should do all they can to encourage widespread broadcaster participation in the incentive auction. The need for additional spectrum, driven by explosive growth in the amount of wireless data traffic, has affected all wireless carriers, and the most effective way to address that need is to make as much new commercial spectrum available as possible. Second, it is critical that the FCC adopt a band plan for the incentive auction that maximizes the amount of paired spectrum available for licensed wireless broadband services. While there were originally differences of opinion on this point, the wireless industry is now close to a consensus, with T-Mobile and Verizon jointly leading the way. Finally, the Commission must adopt reasonable spectrum aggregation limits to ensure that the two dominant wireless carriers do not foreclose other competitors, as the Department of Justice ("DOJ") has warned could happen. Again, there is agreement among all major parties that no single bidder should be able to win all of the spectrum offered in the broadcast incentive auction. T-Mobile believes that no two parties should be able to acquire all of the spectrum. No one is trying to exclude any provider from the auction; we simply want to ensure that a reasonable amount of spectrum is available for all bidders.

T-Mobile's dearth of low-band spectrum is a significant competitive disadvantage. Spectrum is the lifeblood of the wireless industry, and spectrum below 1 GHz is especially critical for any wireless

provider to be competitive. There is a reason why low-band spectrum is used for television broadcasting—it offers superior building penetration and broader coverage than the higher band spectrum T-Mobile currently uses. In a recent filing with the FCC, the DOJ reminded the Commission that rules ensuring that smaller carriers have realistic access to low-band spectrum "could improve the competitive dynamic among nationwide carriers and benefit consumers."[16] Internationally, the qualitative difference between high- and low-frequency spectrum has been recognized by analysts and regulators, and formed the basis for policies ensuring that incumbent providers are not able to acquire the bulk of this valuable spectrum and hinder the growth of competitive carriers.[17]

T-Mobile has experienced firsthand the challenges associated with deploying a nationwide network using spectrum above 1 GHz. As noted above, in 2013 T-Mobile completed an aggressive rollout of its nationwide 4G LTE network, ultimately surpassing our goal of reaching 200 million people in forty-three of the top fifty markets.[18] While we are proud of that accomplishment, achieving that level of coverage was significantly more expensive than it would have been had T-Mobile been able to deploy using below 1 GHz spectrum. Having access to low-band spectrum enables other wireless carriers to increase the coverage of their networks, which, among other benefits, provides increased revenue for further network investment. Without access to sufficient low-band spectrum, T-Mobile has been forced to deploy much denser infrastructure, which can add considerable delay and expense to the network deployment process.

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[16] *Ex Parte* Submission of the United States Department of Justice, *Policies Regarding Mobile Spectrum Holdings*, WT Docket No. 12-269 at 1 (filed Apr. 11, 2013).

[17] *See* Letter from Rebecca Murphy Thompson, General Counsel, Competitive Carriers Association to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 12-269, Docket No. 12-228 at 2 (filed Sept. 4, 2013).

[18] T-Mobile USA, Inc. Investor Relations, "Customer Data Proves T-Mobile Network Now Fastest 4G LTE in the U.S." (Jan. 8, 2014), *available at* http://investor.t-mobile.com/mobile.view?c=177745&v=203&d=1&id=1889227 (last accessed Feb. 13, 2014).

T-Mobile has started the process of acquiring low-band spectrum by entering into a spectrum purchase and swap with Verizon for some 700 MHz A Block spectrum licenses.[19] The application for this transfer is pending before the FCC, and T-Mobile hopes the Commission will act promptly and allow it to begin deploying the spectrum. Although our acquisition of 700 MHz A Block spectrum will be helpful if approved, it will not be sufficient to allow T-Mobile to overcome the spectrum advantages of the incumbent providers and satisfy growing consumer demand. If the transaction is approved, T-Mobile will acquire 12 MHz of below 1 GHz spectrum covering roughly half of the U.S. population, increasing our population weighted average holdings of low-band spectrum from 0.3 MHz to approximately 6 MHz. By comparison, AT&T and Verizon each holds about 50 MHz of below 1 GHz spectrum, giving them a significant competitive advantage in terms of network coverage and building penetration.[20] Some experts estimate that AT&T and Verizon hold approximately 75% of the commercial spectrum below 1 GHz, including 86% in the top 10 U.S. markets, and over 80% in the top 50 markets.[21]

The need for growth, fueled by demand for high-quality services that are available inside buildings and over broad coverage areas, will only increase as consumer demand for wireless services intensifies. Consumer demand is not merely limited to smartphone use, but extends to the wide variety of wireless devices available today. Consumers expect to be able to access mobile broadband whenever they want and wherever they are, whether they are a passenger in a car going 60 miles an hour or sitting in their basement family room. Demand on our network is increasing every day, and we need additional low-band resources to satisfy this demand.

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[19] *See* T-Mobile USA, Inc. and Cellco Partnership d/b/a Verizon Wireless Seek FCC Consent to the Assignments and Exchange of Lower 700 MHz, Advanced Wireless Service, and Personal Communications Service Licenses, *Public Notice*, DA 14-163 (rel. Feb. 7, 2014).

[20] *See* Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Mobile Conditions with Respect to Commercial Mobile Services, *Sixteenth Report*, WT Docket No. 11-186, ¶ 118 (rel. Mar. 21, 2013); Verizon and T-Mobile Assignment Applications, ULS File Nos. 0006090675, 0006090661 (filed Jan. 10, 2014).

[21] *See* Comments of Sprint Nextel Corporation, *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268 at 2 (calculating figures based on data in the FCC's Universal Licensing System ("ULS") as of Nov. 28, 2012) (filed Jan. 25, 2013). This number does not take into account the spectrum swap between T-Mobile and Verizon, which if approved by the FCC will slightly increase T-Mobile's national percentage of low-band spectrum.

The FCC has scheduled the incentive auction of this type of "beachfront" sub-1 GHz broadcast spectrum for mid-2015. As noted by the DOJ, however, the other major wireless carriers will have a strong business incentive to bid at supracompetitive levels during the auction merely to keep their smaller competitors, including T-Mobile, from acquiring additional low-band spectrum. The competitive advantage enjoyed by the two largest carriers from their dominant position in low-band spectrum is so significant, that they would arguably be doing their shareholders a disservice if they failed to bid as high as possible to acquire all of the spectrum being made available in the auction. T-Mobile therefore asks you to help ensure that the FCC adopts rules for the upcoming spectrum incentive auction that include reasonable spectrum aggregation limits, to prevent the dominant wireless providers from foreclosing smaller carriers like T-Mobile from acquiring below 1 GHz spectrum. Spectrum aggregation limits of this nature have been successful in the past in promoting and protecting wireless competition. In fact, it was the FCC's decision to put reasonable limits on the amount of PCS spectrum that could be acquired by the two incumbent cellular carriers that led to the development of real competition in mobile services for the first time in the late 1990s. It is fair to say that the mobile industry would look vastly different if the FCC had not made clear that there would be a pro-competitive distribution of spectrum in the PCS auctions. To cite just one example close to home, T-Mobile traces its roots back to the PCS auctions and likely would not exist today but for the pro-competitive spectrum-aggregation limit in effect at the time. Moreover, following those auctions, countries around the world quickly emulated the U.S. both in making more spectrum available for mobile services and in adopting rules to ensure that the dominant mobile carriers in their country could not win all of the licenses.

Other factors critical to T-Mobile's ability to remain competitive include our need to negotiate commercially reasonable rates for data roaming, interconnection, and backhaul agreements with the other major carriers or their affiliates. Data roaming allows wireless customers to automatically receive data services when they are outside of the area covered by their "home" provider's network, while interconnection agreements allow a caller using the service of one network provider to connect to the network of a called party who subscribes to another service provider. Backhaul provides the critical

connection between our cell sites and switches (the gateways to the rest of our network), and in a 4G LTE world, these "pipes" must themselves have broadband capacity or the whole network experience deteriorates for the user. Access to these inputs are critical to competition in today's wireless market, and competitive carriers' ability to obtain critical access to these services could be threatened absent continued vigilance by Congress and regulators.

On roaming, T-Mobile appreciates the FCC's actions to require carriers to offer both voice and data roaming, which the D.C. Circuit Court of Appeals has upheld.[22] While adoption of this requirement was an important first step, difficulties remain in reaching commercially reasonable terms for roaming with the other major wireless providers. Active FCC oversight may well be needed to ensure that carriers have financially realistic access to data roaming services. The other major wireless carriers should not be allowed to continue their practice of making it difficult, time-consuming and expensive to secure commercially reasonable rates for data roaming.

Similarly, T-Mobile's future depends on its ability to negotiate interconnection agreements with other major carriers. Interconnection rules must survive the IP transition, to ensure that all providers are able to offer their customers the ability to connect to the customers of other providers. As the FCC has explained, interconnection is crucial because any given subscriber takes service directly from only one carrier, requiring interconnections to all other networks to reach other carriers' subscribers.[23] FCC Chairman Wheeler has stressed the importance of interconnection during the IP transition by including it as part of the interlocking basic rights of consumers and responsibilities of network providers he has dubbed the "network compact."[24] The FCC should clarify its rules to ensure that interconnection is mandatory between all providers and technologies, to ensure that incumbent providers are not able to shut

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[22] *See* Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services, *Second Report and Order*, 26 FCC Rcd 5411 (rel. Apr. 7, 2011); *aff'd sub nom. Cellco Partnership v. FCC*, 700 F.3d 534 (D.D.C. 2012).

[23] *See* Connect America Fund *et al.*, *Report and Order and Further Notice of Proposed Rulemaking*, 26 FCC Rcd 17663, 18123-24 ¶ 1336 (2011).

[24] *See* Prepared Remarks of Tom Wheeler, Computer History Museum, Mountain View, California (Jan. 9, 2014), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0117/DOC-325054A1.pdf.

out smaller carriers and innovative technologies that offer consumers options that may be superior to the status quo.

Finally, access to reasonably priced backhaul is necessary to allow T-Mobile to provide its customers with a fast, reliable connection to the global communications network. Reasonably priced backhaul is especially critical in rural and suburban areas, where incumbent providers have a significant market share and often no reasonable alternatives are available. For T-Mobile to successfully expand its network into less densely-populated areas where coverage can be sparse, it must have access to backhaul at reasonable rates.

Conclusion

As the Un-carrier in the wireless market, T-Mobile is providing new options for consumers tired of high prices, low levels of innovation and inflexibility among their service providers. Heightened competition means better service and more options, and leads to a virtuous cycle of innovation and adoption, with consumers the ultimate beneficiaries. T-Mobile plans to continue to bring fresh ideas and much-needed competition to the wireless sector, but faces significant challenges, including its lack of low-band spectrum, which not only increases the cost of network deployment, but also increases our dependence on negotiating commercially reasonable rates for roaming. While we will certainly continue to fight hard in the marketplace and compete aggressively for business with the asset base we have, our lack of low-band spectrum makes it difficult and much more expensive for us to provide the network coverage and capacity necessary to meet exploding consumer demand and really change the game for consumers in a lasting way.

Competition in the wireless market is threatened by the dominance of the two largest wireless providers, and absent an appreciation of these challenges and vigilance from Congress and regulators, the disparities in low-band spectrum, scale and financial resources will inevitably lead to higher prices, lower levels of innovation, and slower economic growth. Congress and the FCC have a tremendous opportunity to promote a more competitive marketplace which would provide significant benefits for the U.S.

economy. We all want this industry to be competitively vibrant and a strong driver of economic growth—and decisions we make now will determine whether that shared vision becomes a reality.[25]

[25] In 2012, the White House Council of Economic Advisors noted that "the wireless industry is an important source of investment and employment in the U.S. economy." *See* "The Economic Benefits of New Spectrum for Wireless Broadband," Executive Office of the President, Council of Economic Advisors (Feb. 2012), at 16, *available at* http://www.whitehouse.gov/sites/default/files/cea_spectrum_report_2-21-2012.pdf (last accessed Feb. 16, 2014).

PREPARED STATEMENT OF JONATHAN SPALTER

TESTIMONY OF JONATHAN SPALTER

CHAIR, MOBILE FUTURE

on

"AN EXAMINATION OF COMPETITION IN THE WIRELESS MARKET"

before the

Subcommittee on Antitrust, Competition Policy and Consumer Rights
Committee on the Judiciary

UNITED STATES SENATE
WASHINGTON, D.C.

FEBRUARY 26, 2014

TESTIMONY OF JONATHAN SPALTER

Chairwoman Klobuchar, Ranking Member Lee and members of the subcommittee, thank you for this opportunity to testify on behalf of Mobile Future and its members. Thank you also for your leadership in holding this hearing on the state of wireless competition at such a critical time. With the FCC now considering rules to govern upcoming spectrum auctions, this is an important moment for mobile innovation and the millions of American consumers and businesses that value and rely on strong and fast wireless connectivity.

My name is Jonathan Spalter, and I am the Chair of Mobile Future, which represents innovators across the wireless ecosystem – from application developers to mobile service providers to companies that create and build the tools that wirelessly connect our devices – as well as a range of non-profit organizations that depend on them. We are united in our commitment to advancing policies that encourage the profound mobile investment and innovation we see all around us today.

* * *

Summary

At Mobile Future, we are very focused on how we as a nation can ensure that innovators and entrepreneurs have the opportunity and constructive policy environment they need to invest in, develop and deploy new services, applications and technologies and continue to leverage world-class infrastructure as they grow our economy and advance U.S. wireless leadership globally. It is also critical that American citizens reap the benefits of this innovation.

We've come a long way since the first cellular call was made 40 years ago. Our mobile future is indeed bright, although – equally true – it is fragile. While today's mobile story is one

of tremendous success and promise, there are real capacity issues on the horizon – specifically regarding the availability of spectrum needed to expand the mobile Internet. The time is now for policies that make additional spectrum resources available, so we are able to advance the mobile future from a place of abundance versus a defensive crouch of scarcity.

Innovators know that in our wireless world, consumers are very much in the driver's seat. The market dynamic in this sector moves so quickly that established players that hesitate to innovate and invest often face the harsh consequences of creative destruction, powered by the choices – and the wisdom – of American consumers.

The trend toward mobility is inescapable. Increasingly, it will be our mobile devices – not our PCs – that will be the primary entry point to the Internet for most Americans by 2015. Already today, more than one-third of adult cell phone users go online mostly using their mobile devices.[1] Indeed PC shipments last year plunged by nearly 10%.[2] That's their deepest annual dive on record. The world of Internet technologies continues to change rapidly, and those companies and institutions that fail to keep pace suffer for it.

This is one key reason why there has been so much investment – historic levels – in U.S. mobile networks, making U.S. service providers global leaders. The nation's leading wireless providers have invested hundreds of billions of dollars to keep their networks competitive with one another – and state-of-the art for American consumers and businesses. Last year alone, U.S. wireless carriers invested more than $34 billion in their networks, accounting for 24% of

[1] Pew Research, Mobile Technology Fact Sheet, 12/27/2013.
[2] "Global PC Shipments Fell 10% Last Year, Gartner and IDC Say," *Wall Street Journal*, 1/9/2014.

the worldnetworks, accounting for 24% o.[3] That is more investment than in any other industrial sector. As a result, over half of the world's 4G LTE subscribers are here in the U.S. despite our nation having only 5% of the world's wireless subscribers.[4] And, over 97% of the world's smartphones sold last year run on operating systems developed by U.S. companies – a giant leap in market share from less than 25% just four years ago.[5]

Is the past prologue? That depends on the continued appetite of consumers – the vision and capacity of mobile innovators – and wise decisions by our nation's policymakers.

To date, the U.S. government has relied substantially on restraint, simplicity and economy when it comes to regulatory and legislative engagement. And, in no small measure because of this approach, our nation's vibrant mobile ecosystem is the envy of the world.

In fast-moving technology development circles, we have a popular concept known as MVP, "minimal viable product." It's the notion that, from an engineering and design perspective, companies should ship products that have simple and minimally engineered attributes, so that their customers can be directly engaged in the ongoing evolution and improvement of products. The thinking is that consumers – not our engineers – create the most effective feedback loop that allows a company's product to reach its full potential.

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[3] *See* Didier Scemama, et al., *2014 wireless capex: BRICs & Europe to pick up the slack*, Bank of America Merrill Lynch, Global Telecom Equipment, Jan. 13, 2014, at Table 2. *See also* Glen Campbell, *2014: The year ahead,* Bank of America Merrill Lynch, Global Wireless Matrix 4Q13, Jan. 8, 2014, at Tables 1 and 2.

[4] *Id.* (citing Informa Telecoms & Media Group's World Cellular Information System (WCIS)).

[5] Remarks of FCC Chairman Julius Genachowski at Vox Media Headquarters, Winning the Global Bandwidth Race: Opportunities and Challenges for the U.S. Broadband Economy, 9/25/2012; Gartner, "Gartner Says Annual Smartphone Sales Surpassed Sales of Feature Phones for the First Time in 2013," 2/13/14.

This principle has its policy corollary: Time and again, it is American consumers and their decisions in the marketplace, not overwrought government regulations and mandates, which have guided mobile innovation to its globally competitive greatness today.

Our job is to help safeguard this consumer-driven innovation and investment that have allowed the mobile ecosystem to deliver so much progress to our nation. In doing so, we lay the groundwork for a bright mobile future for our country.

How do we do this?

The virtuous cycle of investment in the mobile ecosystem – from networks, to handsets and tablets, to applications – provides an unparalleled foundation for U.S. innovation. First and foremost, we need to ensure our nation's consumers, innovators and businesses can count on having the wireless spectrum and advanced networks required – now and in the future – to support these powerful and promising new applications.

And, mobile enterprises need the regulatory restraint, certainty and speed that are essential to support the massive private capital investment needed to keep the nation's wireless infrastructure sufficiently strong and scalable to keep pace with fast-rising demand.

The core task for the government is to provide a predictable regulatory framework that promotes access to mobile broadband spectrum for all operators and the consumers they serve by: (1) providing a known pipeline of licensed spectrum available through auction in the coming years; (2) repurposing additional spectrum from government to commercial use; (3) facilitating, not second guessing, secondary market transactions to allow providers to optimize their spectrum holdings; and (4) encouraging in parallel longer-term research and development in complementary spectrum sharing, efficiency and optimization technologies.

Our World is Going Wireless

Wireless connectivity is increasingly a central part of our everyday lives – from how we work and learn, to how we stay connected to friends and family, to our professional lives and our personal health. Overall, wireless innovation supports approximately 3.8 million American jobs and contributes nearly $200 billion to the economy.[6] Our nation was the first to reach a significant mobile milestone: Since 2012, a majority of Americans are now smartphone owners.[7] And the average U.S. mobile user today spends 127 minutes per day using the mobile applications on his or her smartphone.[8]

Overall, wireless innovation is transforming each facet of our daily lives from healthcare, education and energy to public safety and civic engagement. Smart grids, mobile health devices and digital textbooks allow us to re-imagine entire sectors of the economy and civil society – with improved efficiencies and exciting opportunities. In parallel, the Internet of Things – with machine-to-machine connectivity – is enabling our homes, cars and devices to talk directly to us and to each other, streamlining our lives and opening doors to even more potential opportunities.

Perhaps nowhere is the untapped potential of mobile innovation more apparent than in the progress wireless is making possible in the ongoing digital health revolution that is transforming American medicine. The growing sophistication and ubiquity of smartphones and tablets – among both patients and caregivers – is helping close the gap between urban and

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[6] The Wireless Industry: The Essential Engine of US Economic Growth, Roger Entner, 5/2012.
[7] Nielsen as cited in "Smartphone owners now a majority of US mobile market, a multicultural feast for advertisers," *The Verge*, 5/7/2012.
[8] "Flurry Five Year-Report: It's an App World. The Web Just Lives in It," *Flurry Blog*, 4/3/2013.

rural quality of care and making possible timely, cost-effective treatment of common ailments – such as sore throats and sinus infections – from the convenience of home or the office.

A piece on Minnesota Public Radio[9] documented the experience of Dr. Douglas Smith, a family physician in Plymouth, MN. Dr. Smith serves as the Chief Medical Officer of Consult A Doctor, a network of more than 300 physicians available for routine medical consultations via phone or videoconference. "The mobile revolution has changed how this can be delivered," Smith said. "The idea that you can get an almost crystal clear image of someone's rash when they're sitting up at their cabin and you're sitting up at your cabin—and you can make a medical diagnosis based on that—is a revolution."

And, the importance of mobile connections extend beyond person-to-person interaction.

Already, in the United States there are more wireless subscriptions than people. But this is only the beginning of what the mobile future holds. It is expected that as many as 50 billion devices will be connected to the Internet globally by 2020,[10] accounting for nearly $1.9 trillion in economic value.[11] One of the greatest opportunities before us is to find the right path – and the appropriate policy framework – to ensure America can continue to lead – and succeed – in this fresh wave of innovation, as we have in the past.

Last year alone, global mobile data traffic grew 81%. To put the demand curve in context here in this country, Cisco reports that in 2013, 4G networks generated 14.5 times the

[9] "Telemedicine gives rural doctors immediate access to help," MPR News, 8/22/2012.
[10] Cisco Visual Networking Index Global Mobile Data Traffic Forecast Update, 2/5/14. Morgan Stanley estimates the number will be higher – 75 billion devices. *See,* Morgan Stanley: 75 Billion Devices Will Be Connected To The Internet Of Things By 2020," *Business Insider*, 10/2/13.
[11] "Gartner Says Personal Worlds and the Internet of Everything Are Colliding to Create New Markets," *Gartner*, 11/11/2013.

data traffic of non-4G networks.[12] And yet, today, 4G accounts for less than 3% of all mobile connections. So facilitating this growth is a significant challenge that requires "all hands on deck."

Competitive Dynamic Defines Mobile Ecosystem

One defining characteristic of the mobile ecosystem in the U.S. is the intense and ever evolving competitive dynamic.

In its most recent wireless competition report, released almost one year ago, the FCC found that nine out of ten U.S. consumers now have at least three options, and four out of five U.S. consumers have at least four options when choosing a wireless broadband service provider.[13] And, competition among service providers has never been more intense. In fact, according to Nielsen, the wireless industry spent $2.75 billion in advertising in 2012, further demonstrating the fierce competition between carriers to earn subscribers.[14] Companies are spending billions to deploy next-generation 4G LTE networks to provide high-quality service to ever more discriminating customers, making America the worldwide leader in the deployment of the next generation of mobile networks.

With insatiable consumer demand for all things mobile, the market continues to evolve in unexpected ways. More than ever before, wireless consumers today enjoy countless choices at virtually every level of the mobile experience. For example, services like calling, texting and video conferencing – once the sole purview of traditional wireless providers – are now available at no charge via a wide array of new mobile apps and services. Last year alone, an estimated

[12] Cisco Visual Networking Index Global Mobile Data Traffic Forecast Update, 2/5/14.
[13] 16th Mobile Competition Report, FCC, 3/21/2013.
[14] "Nielsen Tops of 2012: Advertising," *Nielsen Newswire*, 12/17/2012.

102 billion applications were downloaded and a predicted 139 billion will be downloaded this year.[15]

We're seeing big changes on the carrier front, as well. Sprint has been acquired by Softbank and has secured control of Clearwire, giving it access to substantial financial resources and abundant spectrum holdings. T-Mobile and MetroPCS have merged. Verizon Wireless and AT&T have swapped some spectrum to make more efficient use of existing capacity. More recently, T-Mobile struck a deal to purchase 23 lower 700 MHz A Block licenses from Verizon Wireless in exchange for $2.365 billion and T-Mobile's AWS and PCS licenses in Los Angeles, San Francisco, Dallas, Atlanta, Detroit as well as other markets. The deal will provide T-Mobile with 12 megahertz of 700 MHz spectrum "in geographic areas with an aggregate population of approximately 150 million people... [ ] ... Following these transactions, ... T-Mobile will hold low-band 700 MHz licenses in 9 of the top 10 and 21 of the top 30 markets in the U.S...."[16] Using T-Mobile's population estimates, this translates into 1.8 billion MHz/POPs. DISH Network acquired 40 MHz of spectrum in the 2 GHz band from operators DBSD North America, Inc. and TerreStar Networks, Inc.[17]

The expanding choice of service provider is only one of many decisions that empower our nation's mobile consumers. Price, quality and composition of service plan span an ever-widening gamut of consumer preferences – and hardly all come from "the usual suspects." Consumers today can look to retailers, such as Best Buy and Wal-Mart, to shop for phones and plans. T-Mobile has announced several initiatives aimed at disrupting traditional mobile

[15] "Gartner: 102B App Store Downloads Globally In 2013, $26B In Sales, 17% From In-App Purchases," *TechCrunch*, 9/19/2013.
[16] *Id.*, Ex. 1 p. 5.
[17] "Dish Network acquires DBSD, TerreStar Networks assets," *The Denver Post*, 3/12/13.

service, for example – uncoupling device costs from service costs, offering unlimited texting and 2G data in 100 countries, and offering to pay up to $350 in early termination fees for customers who switch to their service. AT&T has since run a month-long promotion offering T-Mobile customers up to $450 in credit to switch to AT&T.[18] Also, Verizon recently launched the "MORE Everything Plan," offering more data, cloud storage, and international access to consumers at reduced fees.[19] Finally, Sprint has launched a "Framily" plan, under which friends and family can share customizable family plans and be separately billed.[20] Who benefits from the competitive jostling? Consumers.

Thanks to evolving consumer expectations in a highly competitive market, service providers of all sizes now allow customers to add devices and/or family members to their plans for a fraction of the monthly fee.

In the meantime, new consumer options including prepaid service came to market more than 10 years ago through Mobile Virtual Network Operators ("MVNOs") including Boost, Tracfone and Virgin. One – Straight Talk Wireless – even touts in its television ads that because it doesn't invest in infrastructure, it can offer "the same great nationwide coverage for half the cost."

All of this intensive competition fuels new choices for consumers. In its most recent competition report from 2013, the FCC found that more than one in five mobile users now choose no-contract services. And, pricing options continue to multiply as new providers – from Ting to FreedomPop, Solavei to Karma – offer even more new approaches to incentives, service

[18] "AT&T ends $450 promotion aimed at wooing T-Mobile customers, cuts Aio prices," *FierceWireless*, 2/4/14.
[19] "Verizon's More Everything plan takes on T-Mobile with increased data, unlimited international messaging from the US," *endgadget*, 2/13/14.
[20] "Sprint's new 'Framily Plans' offers big savings," *CNET*, 1/7/14.

plans, and cost structures while prices for wireless consumers continue to decline.[21] Sprint recently announced that its prepaid brand Boost Mobile is launching a promotion that cuts the price of LTE service down to $35/month for the first six months for unlimited voice, texting and unlimited data, with the rate going to $50/month after that.[22] AT&T's prepaid brand Aio introduced a new $40/month plan that includes unlimited voice, texting and data, and a new $50/month plan that supports more high-speed data.[23]

Competition also extends to the 266 wireless handsets now being sold in the U.S. market by 23 different manufacturers – nearly three times the number of device makers in our market just six years ago.[24] Those devices run on multiple different operating systems, and consumers can choose from more than 1 million applications for their iOS devices and 675,000 for Android devices.[25]

And more changes and rivalries lie ahead. Just last week, Facebook announced the company will purchase mobile messaging service What's App for as much as $19 billion. All of this genuine renaissance in mobile innovation powerfully drives home the point that it is sheer folly, as this subcommittee well understands, for policy to try and predict future market architecture.

The acknowledgement by our government of what is well understood by America's consumers – that competition throughout our nation's mobile ecosystem is real, relentless and

[21] 16th Mobile Competition Report, FCC, 3/21/2013.
[22] "Sprint launches Boost Mobile LTE promotion, cuts price to $35/month from $55/month," *FierceWireless*, 2/2/14.
[23] "AT&T ends $450 promotion aimed at wooing T-Mobile customers, cuts Aio prices," *FierceWireless*, 2/4/14.
[24] 16th Mobile Competition Report, FCC, 3/21/2013.
[25] *Id*.

rapidly evolving – must be an important foundation of common understanding for virtually all innovation policy.

Recognizing the spectrum challenges ahead for all Americans is equally critical. With more advanced networks carrying exponentially growing traffic from data-hungry devices, U.S. wireless networks are already running close to peak capacity and well above the global average. Achieving the goals set forth by President Obama's Wireless Innovation and Infrastructure Initiative therefore must remain a key and enduring priority for our government.

A Forward-Looking Regulatory Approach

I commend this Subcommittee for its focus on the upcoming spectrum auctions. Chairwoman Klobuchar and Senator Schumer were among those making efforts to convey spectrum to support an interoperable public safety network for first responders, and Senator Schumer has spoken in favor of broad auction participation to promote auction receipts that will fund FirstNet. Ranking Member Lee has aptly noted that imposing auction participation limits would be akin to subsidizing smaller wireless companies. Designing and executing open and successful spectrum auctions will help ensure that market forces – and the consumer demand that drives them – remain a primary focus of these auction proceedings.

Time is of the essence in terms of government adopting a timely, sure-footed, consistent and tech-forward stance. Here, too, Congress has shown great leadership with the Middle Class Tax Relief and Job Creation Act of 2012 and related efforts like the Federal Spectrum Incentive Act to help unlock additional spectrum for commercial use.

Some, however, have suggested that the government should restrict access in future spectrum auctions or set artificial caps, restrictions or set-asides for particular competitors.

Such "thumb-on-the-scale" policies have proven unwise in the past and would harm competition by benefitting only certain companies at the expense of tens of millions of mobile consumers who have chosen one of the leading national carriers as their service provider of choice. If specific carriers are singled-out and excluded from or limited in their auction participation, it would potentially harm the mobile ecosystem and almost certainly impede the success of the auction process itself. Doing so also would adversely impact the many tens of millions of Americans who have chosen to subscribe to their services, substituting regulators' judgment about market choices for that of American consumers. The impact would likely be measured by fewer auction participants, fewer spectrum resources for American consumers and less revenue for the Treasury. The national interest dictates, therefore, that the FCC should design and conduct an open auction that allows all providers to pursue the capacity they need to best serve their customers, with participants' spectrum holdings ultimately being subject to the FCC's existing spectrum aggregation and competitive review process.

Observing the lessons of history, there is no evidence to suggest that auction participation restrictions are needed or effective. Mobile Future recently submitted a white paper[26] analyzing the distribution of spectrum resources through FCC wireless service auctions conducted between 2003 and 2013 – a period during which the FCC conducted open auctions and evaluated proposed spectrum holdings on a case-by-case basis using a spectrum screen as opposed to a cap. Mobile Future found that, when carriers large and small chose to participate in the auction process, they successfully secured spectrum. In the nine auctions offering

[26] "FCC Spectrum Auctions and Secondary Markets Policies: An Assessment of the Distribution of Spectrum Resources Under the Spectrum Screen," available at http://mobilefuture.org/resources/fcc-spectrum-auctions-and-secondary-markets-policies-an-assessment-of-the-distribution-of-spectrum-resources-under-the-spectrum-screen/.

spectrum for terrestrial mobile broadband services conducted between 2003-2013, non-nationwide operators and small businesses won nearly half (46%) of the aggregate spectrum offered (on a MHz/POPs basis). In the 2006 Advanced Wireless Service ("AWS") auction – the one spectrum auction conducted between 2003 and 2013 in which all four nationwide operators participated (either directly, through wholly-owned or controlled subsidiaries or via minority investments)[27] – T-Mobile acquired more spectrum (26% of all MHz/POPs acquired) than AT&T and Verizon Wireless combined (25%). Obviously, when carriers elect to sit out an auction, they can not win the offered spectrum. For example, neither Sprint nor T-Mobile participated in the FCC's last auction of below 1 GHz spectrum (the 700 MHz auction in 2008). Sprint has been absent from several auctions – the most recent being for H Block spectrum adjacent to Sprint's nationwide 5 MHz block of PCS spectrum.

Still others have suggested that the Commission artificially weigh some spectrum in its spectrum screen or limit some providers' access to low-band spectrum. This too is the wrong approach as it relies on inaccurate technical assumptions about the engineering value of certain spectrum swaths to different network operators. Both lower band and higher band spectrum offer efficiencies in expanding wireless coverage or enhancing much needed capacity based on geography, topography, existing spectrum holdings and use, and other factors. Indeed, in dense urban areas most likely to experience spectrum constraints, carriers need high-band spectrum to augment capacity. It should be operators and their engineers – not the government – that determine the optimal technical combination of spectrum assets that best

[27] For example, Sprint was a minority (5%) investor in SpectrumCo, a new entrant to the wireless arena. SpectrumCo acquired 20.62% of the total MHz/POPs won in Auction 66.

meet the needs of their customers based upon company-specific factors including existing spectrum holdings and network infrastructure.

The secondary marketplace is working to enable competitors to get access to the low-band spectrum they need. While T-Mobile did not participate in the 700 MHz auction, it has since acquired 700 MHz spectrum in post-auction transactions. T-Mobile already has acquired more than 95 million MHz/POPs of 700 MHz spectrum from non-nationwide carriers and, as mentioned above, has a pending deal in which it will acquire more of this spectrum from Verizon Wireless.

The international community's experience with spectrum auctions also cautions against imposing restrictions on participation. Mobile Future filed a white paper with the FCC exploring this very issue. The paper, entitled "The Case for Inclusive Spectrum Auction Rules: How Failed International Experiments with Auction Bidding Restrictions Reveal the Strength of Inclusive Rules that Put Consumers and Innovation First"[28] reflects the experiences learned from several less-than-successful auctions held outside of the U.S.

For example: Of the six European countries that used preferential auction rules in 2000 and 2001 in an effort to enhance competition, not one has a single additional carrier in their market today. The new market entrants, artificially propped up by undoubtedly well-intentioned regulators, failed to succeed in the marketplace. By contrast, here in the U.S., every significant new entry into the wireless sector since the mid-1990s arrived via the proving

[28] "The Case for Inclusive Spectrum Auction Rules: How Failed International Experiments with Auction Bidding Restrictions Reveal the Strength of Inclusive Rules that Put Consumers and Innovation First," available at http://mobilefuture.org/new-paper-the-case-for-inclusive-spectrum-auction-rules/.

ground of a market-based transaction – a vital test of sustainability in such a capital-intensive industry.

These experiences show that restricting the participation of bidders will lead to poor outcomes for consumers as well as reductions in innovation and in much-needed public revenues. The FCC should conduct open spectrum auctions.

Encouragingly, this is an issue that has the government's attention – both in the Administration and at the FCC. Here are a few specific priorities essential to continued progress:

- *Advancing Spectrum Auctions.* The FCC must continue its time-sensitive efforts to craft rules and regulations to advance a well-executed broadcast spectrum incentive auction with a goal of clearing at least 120 MHz of spectrum for mobile broadband. With spectrum exhaust already impacting cities around the country, delay simply is not an option. Freeing up underused broadcast spectrum for mobile must remain a top FCC priority – one worthy of concrete action and meaningful progress in the coming months. While we certainly applaud parallel efforts to explore greater spectrum sharing at 3.5 GHz and enhanced unlicensed access at 5 GHz, time is of the essence to auction additional spectrum for licensed use. With the exception of the H Block, the FCC has not auctioned any new spectrum for mobile broadband usage in almost six years.

- *Support for Secondary Market Transactions.* Equally important is consistent, clear and vocal support for pragmatic market solutions that allow spectrum to flow to its best and highest use in a timely way. This can help alleviate the consumer impacts of spectrum exhaust in the near-term. Secondary market transactions, and other new business combinations, have

emerged as mission-critical to keep pace with fast-expanding consumer and business demand. FCC review of secondary market transactions must be timely and predictable.

- *Continued Efforts to Repurpose Federal Spectrum.* As Americans turn to their wireless devices for everything from managing their health to enabling their businesses, large swaths of prime spectrum capacity held by various U.S. government agencies still go underutilized. The federal government must deliver on President Obama's commitments to identify and reallocate government spectrum for commercial use. As the largest holder of U.S. spectrum, the federal government plays a key role and has a central responsibility to help ensure the continued growth, speed and connectivity of U.S. mobile networks and the innovation and economic benefits they deliver to us all. I am encouraged by the Administration's and the FCC's efforts to repurpose spectrum in the 1695-1710 MHz and 1755-1780 MHz bands, and support the FCC's efforts to adopt rules to govern the licensing of this spectrum. The Administration and the FCC also should continue their efforts to make the 1780-1850 MHz band available for commercial use. Additionally, we urge the government to not become overly reliant on spectrum-sharing solutions when repurposing and relocating are viable options.

- Enable Investment and Innovation. Ultimately, it will be government policies employing regulatory restraint, simplicity and certainty that will best sustain the intensely competitive dynamic of our wireless innovation ecosystem, encourage the necessary private investment to ensure its ongoing strength and the continued flow of innovation it offers our nation.

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Thank you again for the opportunity to testify today. I look forward to your questions and the continued opportunity to work together to unlock all the promise that mobile innovation holds for American consumers and our economy.

PREPARED STATEMENT OF ERIC B. GRAHAM

Testimony of
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before the

Senate Committee on the Judiciary
Subcommittee on Antitrust, Competition Policy and Consumer Rights

regarding

"An Examination of Competition in the Wireless Market"

Wednesday, February 26, 2014

INTRODUCTION

Chairwoman Klobuchar, Ranking Member Lee, and members of the Subcommittee, thank you for inviting me to testify before you today regarding the very poor state of competition in our nation's wireless industry.

Cellular South, the provider of C Spire Wireless service, has been in the wireless business for over twenty-five (25) years. We are the nation's largest privately owned wireless carrier and today, despite serving just under 1 million customers in all of Mississippi and portions of four other southeastern states, we are the sixth largest wireless operator in the U.S. Let me say that another way: in terms of subscribers, we are less than 1/100th the size of either Verizon or AT&T yet, we are now the 6th largest wireless operator in the U.S.

The acute lack of sustainable competition in the wireless industry has forced C Spire and many other smaller wireless operators to maintain an active role in Washington. Today, we do that through the Competitive Carriers Association or CCA. CCA's more than 100 wireless operator members include nearly every one of the nation's wireless operators, except for the wireless Twin Bells – Verizon and AT&T.

To fully appreciate the harm that a lack of competition has inflicted on the wireless industry, it is important to reflect on the industry's history. When C Spire (then offering service as Cellular South) entered the wireless business in the late-1980s, there was a local duopoly in every market. The FCC divided a total of 50 MHz of cellular spectrum in each local area between just two providers, one of which was the incumbent wireline telephone company. In that era of local-market duopolies, consumers had just two choices for wireless service. In a duopoly, the market can quickly reach equilibrium and, if both providers are reasonably happy with their position, innovation stagnates and prices rise. In the late-1980's carriers typically had little market incentive to innovate or improve service offerings. As a result, that period was marked by large, brick-sized phones and even larger wireless bills.

The industry changed for the better in the mid-1990s. In 1994, Congress broke-up the duopoly system by authorizing auction of PCS spectrum licenses for commercial wireless service. A substantial number of competitive carriers entered the market launching a new, healthy competitive era of wireless in the U.S.

For over a decade (from approximately 1995 to about 2009), the wireless industry was a shining example of robust competition. During that period, customers across much of the nation could choose from among multiple operators at the national and regional level competing to deliver the best services at the lowest price in highly competitive ecosystems. Once an operator chose an over-the-air technology (e.g., GSM or CDMA), devices were broadly available, reciprocal roaming agreements were easily and quickly negotiated with operators of compatible networks at economically sensible rates, and, network equipment could be deployed using common standards of compatibility. From 1995 to 2009, in the FCC's first 13 reports on the state of competition in the wireless industry, the agency concluded that the industry was characterized by either growing competition or "effective competition." Policymakers hailed the wireless industry at the time as "one of the great success stories" resulting from Congress's and the FCC's efforts to establish and maintain a regulatory framework in which competition could thrive.[1]

As the newer PCS licensees built networks and began acquiring customers, the incumbent cellular licensees were forced to respond to competitors with lower priced services and devices, new and larger coverage areas, better customer service, and more innovative offerings. C Spire had to do both – build new networks in some markets and respond to new competition in others.

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[1] *See* CTIA, Interview with Kevin Martin, at 6, Wireless Wave (Fall 2005), *available at* http://www.ctia.org/advocacy/index.cfm/AID/10522.

In the markets where C Spire was an original cellular licensee, we had to develop creative strategies and new products to compete with the new PCS entrants. As a PCS licensee in other markets, we were the new carrier offering new products and services to take market share from the cellular incumbents. C Spire launched several offerings that were groundbreaking at the time, including "Free Nights and Weekends," "Free Incoming Calls," and, later, some of the nation's first "Unlimited" plans. During this period, carriers competed on a relatively level playing field and attracted and retained customers by offering some combination of superior coverage, pricing, or customer service. Consumers – and the nation's economy – were the primary beneficiaries.

But this all began to change in the middle of the last decade. Since at least 2006, Ma Bell has been rapidly reconstituting herself into the Twin Bells of the wireless industry: AT&T Mobility and Verizon Wireless. AT&T (with just one failed attempt out of dozens) and Verizon have gobbled up and continue to acquire numerous competitive carriers and potential new entrants, including ALLTEL, Dobson, Centennial, Rural Cellular Corporation, SpectrumCo, Leap and a long list of others.

Now, the Twin Bells have nearly succeeded in dragging the industry back to a complete duopoly with the same lack of competition that existed in the 80's. Today, we do not even have, as some have suggested, four national wireless operators. You only need to see the 4G LTE maps featured in a recent Verizon commercial to understand today's U.S. wireless industry is really composed of just two national operators (AT&T and Verizon), two metropolitan operators (Sprint

and T-Mobile), a few regional providers (such as C Spire, U.S. Cellular and nTelos) and dozens of smaller, typically rural, operators.[2]

HARMS OF TWIN BELLS' MARKET POWER

As the wireless Twin Bells have grown, the ability of others to compete effectively has been substantially reduced. The concentration of market power into the hands of the wireless Bells has led to fewer choices for consumers and the routine abuse of market power in an effort to prevent competition at every turn. Specifically, the Bells have leveraged their enormous market power to (1) restrict competitive carrier and consumer access to devices and operating system updates, (2) withhold or delay implementation of data roaming and backhaul agreements at economically reasonable rates, (3) concentrate valuable low-band spectrum nationwide, and (4) leverage their control over device and infrastructure vendors to Balkanize new spectrum and slow the deployment of new technology (e.g., 4G LTE) by competitors. In each case, the Bells have an incentive and ability to foreclose competition.

This consolidation has had harmful, concrete consequences that prevent the sort of healthy, open "wireless ecosystem" that can support competition and that thrived during the era of wireless growth. Just like a healthy biological ecosystem needs a combination of atmosphere, organisms, and nutrients functioning together to make for a sustainable, healthy, vibrant system, a wireless

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2 *Verizon Commercial 2013 | Map Gallery |Verizon Wireless*, (Pub. Nov. 4, 2013) - http://www.youtube.com/watch?v=gFUUybc_M40

ecosystem needs three key inputs to function well. A healthy, sustainable wireless ecosystem provides operators with reasonable access to (1) spectrum, (2) devices and network equipment, and (3) other networks, including voice and data roaming on wireless networks and backhaul on wireline networks. To the extent access to any of these three key components is limited, or eliminated by consolidation of market power among just two enormously dominant players, the health of the ecosystem is diminished and competition is reduced or eliminated.

According to the FCC's latest competition report, the Twin Bells together account for an astounding 67 percent of industry revenue;[3] including 86% of the total industry EBITDA in 2013. This is a far greater share of industry revenue than the combined shares for the top two firms in other "consolidated" industries, like the automotive industry (top two firms hold only a 35% share of total revenue), the oil industry (top two firms hold only a 24% share of total revenue), or the banking industry (where the top two firms hold a 20% share of total revenue).[4] The last time the FCC was able to conclude that there is "effective competition" in the wireless industry was January 2009 – it has been unable to do so in any of its last three wireless competition reports.

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[3] *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No. 11-186, Sixteenth Report, FCC 13-34, ¶ 52 (rel. Mar. 21, 2013) ("*16th Mobile Wireless Competition Report*").

[4] *See* Free Press, *Why the AT&T-T-Mobile Deal Is Bad for America*, Mar. 22, 2011, at 1, *available at* http://www.freepress.net/sites/default/files/fp-legacy/ATT-TMobile.pdf.

Equally concerning is the risk of market stagnation that can result from intense concentration of market power among just two firms. When just two firms control or can exercise market power over nearly all of an industry's key inputs, competition and innovation suffer. And when one of those inputs is a taxpayer owned asset (spectrum), taxpayers suffer, too. Here, AT&T and Verizon have gained such large market share, that they nearly have become "the wireless market." They can now benefit from simply maintaining the status quo and encouraging policymakers to, essentially, "do nothing."

But, the status quo is harming consumers and the nation's economic growth. And, in the form of reduced spectrum auction revenues, it will harm taxpayers. Unless policymakers take steps now to reduce the Twin Bells' duopoly control over the wireless market, there will be little incentive for competitive operators to compete in future spectrum auctions and the revenue generated by those auctions – which could be used to fund important public safety initiatives and reduce federal budget deficits – will be at significant risk.

In summary, what remains of competition is increasingly in jeopardy in today's U.S. wireless industry. Even when competitive operators have made modest advances at the consumer retail level, these small successes have been short-lived and required devotion of disproportionate resources because of deep-rooted, structural defects to the competitive ecosystem wrought by the Twin Bells. For years, C Spire and other competitive operators have been telling policymakers about our concerns over the lack of competition – the lack of access to key inputs necessary for a competitive wireless ecosystem (of spectrum, devices, and networks). The industry, unfortunately,

remains on a glide path toward a *de facto* wireless duopoly of AT&T Mobility and Verizon Wireless – an outcome unchanged by temporary and unsustainable inroads at the consumer retail level that AT&T and Verizon point to as illustrating vibrant competition. In the meantime, the wireless Twin Bells have used the enormous scale they gained through acquisitions to control device and infrastructure vendors, limit or eliminate data roaming and backhaul, slow the deployment of new technologies in the U.S., and maintain artificially high price points for their services.

COMPETITIVE ECOSYSTEM VS. HEAVY-HANDED REGULATION

Policymakers now have a choice to make: they can either (1) allow the wireless industry to continue down a path toward a total duopoly made up of the behemoth wireless Twin Bells – a path that will eventually require intensive regulation of the wireless industry; or (2) reverse course with policies that promote sustainable competition in the wireless industry and encourage an environment in which competition is able to regulate the industry.

We think that choice is objectively simple: At a time when the American economy is struggling to get back on its feet, our priority should be on preventing the emergence of a duopoly that would require heavy regulation in one of the nation's largest and most critical industries. Instead, policymakers should act to preserve competitive, innovative markets that use private capital to create jobs while providing consumers with robust choices of products and services.

Policymakers must work to ensure that our nation has a wireless industry that encourages as much competition and access as possible.

Specifically, policymakers must promptly take three fundamental actions, each of which is a necessary element to a vibrant and open wireless ecosystem. First, they should adopt rules to safeguard competitive carriers' access to spectrum – both by updating the "spectrum screen" used to evaluate wireless acquisitions, and by structuring auction-related spectrum limits in a way that encourages and rewards participation by a broad range of operators, particularly for critical, limited low-band spectrum such as the 600 MHz band to be auctioned in 2015. Next, policymakers should promote access to devices by ensuring interoperability across future spectrum bands and by working with both operators and device manufacturers to ensure consumer devices are not contractually or technologically "locked" to any particular operator's network. Last, they must ensure that the FCC's rules preserve competitive operators' interconnection with the Twin Bells' networks, by enforcing economically reasonable data roaming requirements and ensuring reasonable access to backhaul or "special access" lines. These measures would help to ensure the sort of healthy ecosystem needed to foster sustainable competition in the nation's wireless industry.

ACCESS TO SPECTRUM

Policymakers must ensure spectrum is allocated and licensed efficiently and that it enables wireless competition. Time and again, the FCC has made clear that access to spectrum is a

"precondition to the provision of mobile wireless services" and is "critical for promoting the competition that drives innovation and investment."[5] The Department of Justice echoed this sentiment in a recent submission to the FCC, where it stated that soaring demand for mobile broadband in recent years has "made spectrum a critically scarce resource" for wireless carriers.[6] Both DOJ and the FCC also have recognized that access to low-frequency spectrum – which can provide "the same geographic coverage, at a lower cost, than higher-frequency bands"[7] – is especially important for new entrants and smaller carriers.

DOJ has urged the FCC to adopt rules ensuring that competitive carriers have the opportunity to acquire spectrum, particularly in low-frequency bands – a measure DOJ says would "improve the competitive dynamic" in the industry and "benefit consumers."[8] Today, the Twin Bells control around 75% of sub-1 GHz spectrum available for mobile broadband nationwide.[9] As the DOJ noted, the Bells have the incentive and the ability to acquire additional spectrum –

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5 *Policies Regarding Mobile Spectrum Holdings*, Notice of Proposed Rulemaking, 27 FCC Rcd 11710 ¶ 4 (2012).

6 Ex Parte Submission of the U.S. Dep't of Justice, WT Docket No. 12-269, at 9 (filed Apr. 11, 2013) ("*DOJ Ex Parte Submission*").

7 *16th Mobile Wireless Competition Report* ¶ 122.

8 *DOJ Ex Parte Submission* at 1.

9 Estimate based on Federal Communications Commission Universal Licensing System (ULS) data as of 12/31/2013.

particularly competitively important low-band spectrum – based not simply on its utility value but rather in part on the value of foreclosing competitors' access to it.[10]

The upcoming incentive auction for the 600 MHz spectrum presents an excellent opportunity to begin to restore sustainable wireless competition. The industry will be pushed further towards a duopoly if policymakers miss the opportunity to ensure that all carriers have a meaningful opportunity to participate in the auction for low-band spectrum. Similarly, the FCC's current review of its spectrum screen offers a valuable opportunity to ensure that future spectrum acquisitions by the Twin Bells do not do further harm to competition.

The FCC must structure the 600 MHz auction in a manner that promotes sustainable competition. All wireless operators, including smaller operators, must have an opportunity to bid, win, and integrate much needed low-band spectrum into their existing networks. In particular, and consistent with last year's Spectrum Act, the FCC should ensure that the two largest carriers have an opportunity to bid on spectrum where needed, but not in a way that allows them to "corner" the market for available 600 MHz spectrum and further concentrate the most valuable low-band spectrum in the hands of the Twin Bells.

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10 *DOJ Ex Parte Submission* at 14.

ACCESS TO DEVICES

Another critical component of a healthy, competitive wireless ecosystem is access to devices. The FCC has recognized that "devices are a central part of consumers' mobile wireless experience, and a key way by which providers differentiate their offerings."[11] For many years, the largest carriers have used exclusivity agreements with major device manufacturers to gain an edge over competitive carriers. AT&T was particularly successful at securing exclusive rights over popular handsets, most notably the iPhone which AT&T had exclusively for several years. With respect to CDMA devices, Verizon had numerous exclusivity agreements of its own for CDMA devices, and only after DOJ opened an investigation into handset exclusivity agreements – with the AT&T/iPhone arrangement reportedly "at the center" of the inquiry[12] – did Verizon begrudgingly agree to limit its period of exclusivity to allow smaller operators to offer these formerly exclusive handsets. While contractual device exclusivity seems to have lessened in recent years, the Twin Bells have pursued other strategies to frustrate competitive carriers' access to devices.

For example, for over four years, and until the FCC under interim Chairwoman Clyburn threatened regulatory intervention, AT&T utilized its market power over device and equipment

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11 *16th Wireless Competition Report* ¶ 2.

12 *See,* Andrew Ross Sorkin, *Justice Department Said to Weigh Telecom Inquiry*, N.Y. TIMES, Jul. 7, 2009, *available at* http://dealbook.nytimes.com/2009/07/07/justice-deptartment-eyeing-telecom-probe-report-says/.

makers to implement and defend industry standards that prevented the development of interoperable devices in the Lower 700 MHz band. Device interoperability is a prerequisite to a well-functioning wireless marketplace; it encourages innovation, gives consumers more choices, and reduces costs to end users. Interoperability also makes roaming technologically possible; non-interoperable devices simply cannot function on other carriers' networks, even though those networks utilize the same technology and spectrum band.

Because of the lack of interoperable devices in the Lower 700 MHz spectrum, over $2 billion of the taxpayers' wireless spectrum remained stranded for years, unable to generate economic benefits for its licensees or consumers. Fortunately, and thanks in large part to the leadership of Commissioner Clyburn, that obstacle has been overcome and that spectrum, much of which is now in the hands of T-Mobile, can be used to increase the availability of 4G LTE in many markets across the country.

It is equally important for policymakers to ensure that both the Twin Bells and device manufacturers supply wireless devices that are not technologically "locked" to any particular operator's network. Wireless consumers must be able to move from one operator to another within a common ecosystem after satisfying all of their contractual obligations to their current carrier. Without both interoperability and unlocked devices, this critical component of competition will remain unachieved.

ACCESS TO NETWORKS

A competitive ecosystem also requires that operators have economically reasonable and reciprocal access to other, compatible wireless networks as well as reasonable access to wireline networks for backhaul in order to offer the level of service that consumers expect. Except for the Twin Bells, wireless operators lack a national coverage footprint, so their subscribers must roam on other compatible networks to receive service when outside their provider's service area.

AT&T and Verizon control (or are affiliated with) ubiquitous wireless and wireline networks, and play a dominant role in the market for roaming, as well as in the provision of "backhaul," which is the wire that connects an operator's tower, ultimately, to the public switched telephone network or the internet. Preserving economically reasonable access to these key network-related inputs is critical to competition. It enables competitive operators to provide a service that can compete with the vertically and horizontally consolidated scale of AT&T or Verizon.

With regard to roaming, the FCC's adoption (and the D.C. Circuit's affirmation[13]) of rules requiring wireless carriers to offer data roaming on commercially reasonable terms was a good first step toward economically reasonable access to reciprocal data roaming agreements. However, as the FCC notes in its most recent competition report, "the ability to negotiate data roaming

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13 See, *Cellco Partnership v. FCC*, 700 F.3d 534 (D.C. Cir 2012)

agreements on non-discriminatory terms and at reasonable rates remains a concern."[14] Competitive operators, like C Spire, will continue to find it difficult to negotiate with the Twin Bells for economically reasonable roaming rates utilizing the latest technology when those agreements cannot be measured by the FCC against the backdrop of all such agreements between the Twin Bells and other carriers. The FCC must continue to evaluate whether data roaming agreements offered in the market are fair and economically sustainable and encourage access to data roaming for consumers who expect to be able to use their devices anywhere there is an available, compatible network.

CONCLUSION

There is much innovation left to be done in the wireless space. Many people of all socioeconomic backgrounds and geographic locales have yet to benefit fully from the wireless experience. And that is why we face a critical decision point in the wireless industry.

Policymakers have to decide: Should we continue down the path toward a nationwide wireless duopoly, or should we take the steps necessary to restore a sustainable competitive ecosystem for our nation's wireless industry?

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14 *16th Wireless Competition Report* ¶ 210.

The question, I think, answers itself. American business is appropriately built on the notion that healthy competition breeds innovation that fosters economic growth and benefits consumers. That notion must certainly apply to the wireless industry, which cannot exist without the devices and networks that utilize the spectrum owned by and for the benefit of the American taxpayer.

Thank you again for the opportunity to be here today. I appreciate your time and your interest in these issues. I look forward to discussing them here this morning.

PREPARED STATEMENT OF ROSLYN LAYTON

Testimony of Roslyn Layton
for the U.S. Senate Subcommittee on Antitrust, Competition Policy and Consumer Rights
Hearing on An Examination of Competition in the Wireless Market
February 26, 2014

Chairwoman Klobuchar, Ranking Member Lee, and Members of the Subcommittee, it is an honor for me to present today. Thank you for the opportunity to share my testimony on issues relating to competition in America's wireless market. I appreciate the time you and your staffs take to investigate this topic and to solicit different perspectives.

As an American who works abroad and studies the international mobile market, I hope to provide an international perspective. I am a Ph.D. Fellow in Internet Economics at the Center for Communication, Media and Information Studies at Aalborg University in Copenhagen, Denmark. I am also a Visiting Fellow at the American Enterprise Institute's Center for Communication, Technology, and Internet Policy. I am also a Vice President of Strand Consult, an independent consultancy which over its 18 year history counts 170 mobile providers in 100 countries as clients. This testimony reflects my own views.

I believe we share the same goals. We want all Americans to have the opportunity to enjoy the benefits created by wireless networks, services and applications. And we want America to maintain its preeminence in these areas. I have three points which are informed by experience and learning about the wireless sector both in the US and abroad which bear on these two goals.

1. Competition comes from the level of technology, not the number of competitors;
2. Prices in the mobile market reflect the value of America's state of the art next generation networks. Americans get value for money;
3. America's mobile digital economy is highly dependent on operators' investments in infrastructure and handset subsidies.

So, my first point: **Competition comes from the level of technology, not the number of competitors.**

We can examine competition by looking at technology development in mobile standards, infrastructure facilities, services, handsets, operating systems, and platforms. Mobile operators may use different standards, such as GSM, CDMA or LTE, and they compete on a range of features and benefits such as coverage, utility, and value as delivered by these standards. Americans should be especially proud that 4G/LTE networks are available to 97% of the population. Only 26% of Europeans can say the same. Indeed the rest of the world is trying to catch up to this standard which is widely available in the US.

Not only do we have competition between mobile providers, for many consumers and applications, nomadic Wi-Fi appears to compete to mobile wireless.

Handsets, operating systems and platforms are another area that creates competition in the mobile industry. Mobile providers compete to offer the phones, systems, and platforms that consumers want.

We can also observe competition through the development in mobile services. Though mobile operators provide their customers a package of voice, data and SMS, consumers increasingly use their data subscriptions to access competing communication services such as Skype and Facebook Messenger—also called over the top or OTT services, because they exist on top of the network infrastructure and are not provided by network operators. An example in the news of late is Facebook's acquisition of WhatsApp for $19 billion, which is by far the most popular of the OTT messaging services, with 450 million users.

Indeed at $310 billion and $175 billion, respectively, both Microsoft and Facebook have larger market caps that any mobile provider in America, including AT&T and Verizon. While $19 billion is a staggering sum, as estimated by Informa and Analysis Mason, four times this amount is lost by the mobile industry worldwide every year as users switch to OTT services. This is a classic example of the innovator's dilemma and demonstrates that the bigger a mobile provider grows, so do the incentives for an upstart innovator to disrupt its revenues. This suggests that the market can better discipline the large players than any regulator.

So technology itself is a form of competition through standards, infrastructure facilities, software, and services. These innovations tend to flourish when market actors follow opportunity, not from government decree.

This brings me to my second point: **Prices in the mobile market reflect the value of America's state of the art next generation networks. Americans get value for money.**

A number of studies demonstrate that the volume of Internet consumption in the US is one of the highest of the world. Americans use 5 times more voice and twice as much data than their European counterparts. Further, Americans tend to have faster connections and more advanced devices.

But a more important issue is that mandated low prices in Europe come at a high long term cost. Europeans are being shortchanged on the future because operators there can't afford to make investments in next generation networks, and furthermore, why should they want to? If you have a managed access regime, any investment you make means you have to share it with your competitors. It's not a system that creates an incentive for competition in infrastructure. So in practice in Europe, you may have one mobile network being shared by 20 or more resellers. This is not the way to go if America wants to lead in the development of next generation mobile networks.

Looking at prices and value over time shows how things consistently improve in America's mobile market. Compared to 30 years ago, the value of mobile experience today with improvement in phones, speeds, data and price has improved by a factor of 6 million. To get the equivalent of the iPhone twenty years ago, would have cost you $3.5 million. Only ten years ago it took about a week and $1200 to download the equivalent of a CD of music. Today that service is standard in many mobile subscriptions.

I want to make a special point for the Chairwoman because I know that she cares about mobile services being affordable and available for everyone. In my home state of Florida we have many Minnesotans

who come for the winter, and my own parents who are seniors, sometimes struggle with mobile technology that is evolving faster than they can keep up with it.

The marketplace has a mobile product that suits every budget. But we can do a better job to help seniors adopt mobile technologies. This is something that has happens at community centers, libraries, churches, and homes. In the best scenario, grandchildren will teach grandparents about mobile technologies. In fact, some of the people who can benefit most from mobile technologies are seniors, who use phones and tablets to play bridge, share family pictures on Facebook, and check health information. Technology adoption is a social, not an economic, process.

The other thing we can do to improve the availability of mobile is to remove the barriers at the local level for deploying mobile infrastructure. This is a problem in the US and around the world which I have studied in detail. And whether by design or accident, municipalities often hinder the deployment of mobile infrastructure. They may insist on exorbitant rents; they may require unreasonable conditions and fees; they may oppose masts and towers for a variety of reasons. Similarly private property owners who may have land or buildings where mobile infrastructure needs to be deployed, often exploit the process as a way to enrich themselves. I have found in certain markets, that rents paid by mobile providers are often 4 times higher than the market rate. If we want to ensure that all of America's rural areas have sufficient mobile infrastructure, then we need to remove these barriers and standardize the process for rolling out mobile infrastructure. The Federal Communication Commission has launched a process to do this, and my company Strand Consult has participated with its knowledge about this topic.

Realizing the benefits of wireless in our society requires a collective effort. It's not just the responsibility of the carriers. We have to ensure that the conditions are right so that infrastructure is deployed and that everyone has the education they need to take advantage of wireless services. When we take care of these two things, the existing mobile products and services can serve the many needs at fair prices.

Now I come to my final point, **America's mobile economy is highly depending on operators' investments in infrastructure and handset subsidies.**

While mobile operators and OTT providers compete, they are highly dependent on each other. This is what's called co-opetition, a portmanteau of the words competition and cooperation. As these companies grow, innovate, and serve an increasingly global user base, they need to be increasingly capitalized.

In 2012, according to the Progressive Policy Institute, AT&T and Verizon were the top two U.S. firms in terms of capital investment, investing nearly $35 billion between them. Along with other fixed and wireless providers, some $75 billion was invested in the US economy in networks. This is twice the rate per capita as providers invest in Europe. This investment has been ongoing in the US, even though the financial crisis. It not only drives jobs, it fuels the mobile ecosystem with valuable infrastructure and ensures that companies such as Facebook reach their users in every more innovative ways.

But let's be clear. To make investments of this magnitude requires economies of scale. While it's a quaint idea of having dozens of little mobile providers, it's inefficient and it doesn't create scale required to compete in the global economy. It was a European notion, tried and failed, and now even EU leaders themselves have admitted doesn't work. The situation is so bad in Europe that operators now invest outside of Europe; it's the only way they can earn any profits.

American mobile operators also play an important role by subsidizing the cost of popular handsets. In 2007 AT&T and Apple made an exclusive deal to launch the iPhone. As most consumers would not pay $700 outright for a phone, AT&T subsidized the handset to get consumers to adopt the device. Today it's available across the board. It's hard to overestimate the impact of the iPhone in the imagination of its users and how it has stimulated the development of mobile applications. To the extent that Apple is a rich company today, much of its success can be attributed to a wealth transfer from mobile operators to Apple in the form of device subsidies.

By investing in in next generation networks and subsidizing handsets, mobile operators have created the foundation for a larger mobile ecosystem to flourish. Mobile is changing the way we do everything from commerce to transportation to health to education—even government. In fact, it's the OTT providers that benefit even more from the network investments than mobile operators.

As I mentioned in my editorial in *Roll Call* on February 25 the silos defined in America's Communications Act from 1934 no longer reflect reality. We can see with the emergence of over the top technologies, the communications are more diverse, and our legal framework for regulating communications and ensuring consumer protection needs an update.

While the telecom industry is in ruins from its earlier glory in Europe, the Internet industry never got off the ground in the first place. The barriers for the development of the broadband market have also hindered the development of Europe's Internet industry. Of the world's 25 top Internet companies, 15 come from the US, just 1 comes from the EU. This means that Europeans use American-made operating systems, American-made search engines, American-made social networks, and American-made mobile apps such as WhatsApp, now Facebook.

With 28 nations, 17 languages and 11 currencies, the EU may never be able to create the true single market enjoyed by the US today. In fact America's greatest asset as we enter the wireless future is something we must credit our forebears: our large federal country with a common language and currency, and to policy decisions that have ensured that Internet access remains a national market. This feature allows not only mobile providers to get scale, but all the startup mobile applications that piggyback on top of those networks.

As we meet today here in Washington, 70,000 mobile professionals gather in Barcelona for the Mobile World Congress. They want to know how to get the success that America enjoys in mobile today, but they will also talk about the future of the web---which is mobile. The new battleground is next generation mobile for developing countries, and we want to ensure that those countries use our American made mobile products and services. In fact, America's digital goods and service sent abroad, over $350 billion annually, are our third largest category of exports.

But we can't rest on our laurels. The US may have the lead today, but this can change. Chinese, Korean and Japanese firms want to win these markets. For that reason we need to ensure that our mobile innovations are best. Creating strong, highly capitalized American companies in networks, handsets and applications is good for America and it ensures our global competitiveness.

In summary, America's success and leadership in the wireless sector is dependent on a variety of competing mobile technologies. Americans benefit from this competition through a wide range of mobile services, applications, and devices provided with network subscriptions that offer value for money. Finally the mobile ecosystem is complex and highly dependent on operators' investments in infrastructure and handset subsidies.

Thank you for the opportunity to testify today.

PREPARED STATEMENT OF MATTHEW F. WOOD

Written Testimony of

Matthew F. Wood
Policy Director
Free Press

before the

United States Senate Committee on the Judiciary
Subcommittee on Antitrust, Competition Policy and Consumer Rights

regarding

"An Examination of Competition in the Wireless Market"

February 26, 2014

INTRODUCTION

Chairman Klobuchar, Ranking Member Lee, and esteemed members of the Subcommittee, thank you inviting me to testify for "An Examination of Competition in the Wireless Market."

My name is Matt Wood, and I am the Policy Director for Free Press, a nationwide, nonpartisan and nonprofit organization with more than 700,000 members in the United States and around the world. Free Press promotes public interest media and technology policies, working to strengthen democracy by strengthening the tools we use for free expression and economic activity. We advocate for diverse media ownership and quality journalism. We focus especially on promoting open, universal and affordable Internet access and communications platforms.

Competition in the wireless market is key to providing that type of access for everyone. The truth is that the United States' wireless market today does exhibit a greater level of competition than some other telecommunications industries. If that sounds like a back-handed compliment, it is – considering the dire state of competition for wired broadband.

The U.S. wireless market has displayed some positive trends recently. Yet those have not carried us far enough, and the pace of progress to this point has been too slow. Even the most proactive and pro-competitive steps taken by the Department of Justice ("DOJ") and the Federal Communications Commission ("FCC") have, at times, seemed laborious and beset by controversy.

In reality, these agencies' positive actions have been grounded in the law and common sense – and, if anything in the Commission's case, have not yet done enough to implement Congress's directives. The FCC is charged with promoting the "rapid deployment of new technologies" and "economic opportunity and competition" by preventing "excessive concentration of licenses"[1] and other anticompetitive practices. And that agency is in fact the only bulwark communications customers have against such practices in most contexts other than mergers and acquisitions, due to the limitations of antitrust enforcement after *Verizon v. Trinko* in putatively regulated markets.

In this testimony, we first present some facts and figures illustrating the current performance of the wireless market. Despite some positive DOJ and FCC actions over the past two years, such as the denial of the AT&T/T-Mobile merger and the encouragement of spectrum divestitures in the Verizon/SpectrumCo acquisition, the wireless sector continues to show signs of excessive concentration and market power exercised by a more and more entrenched duopoly. This leads to the loss of untold billions of dollars per year in consumer surplus.

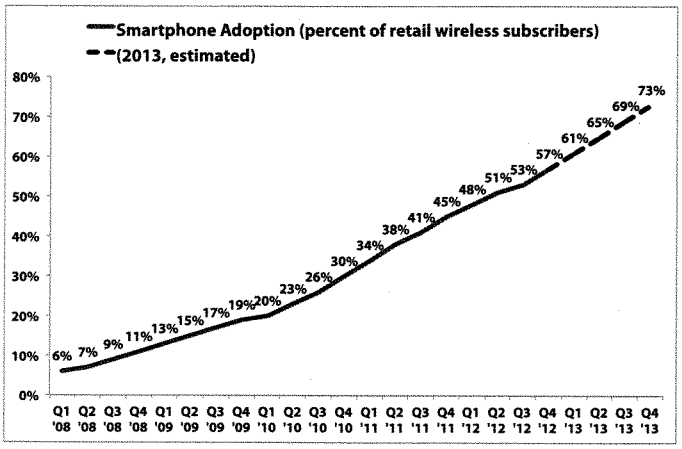
The problems allowing the "big two" carriers to cement their lead are many, but the solutions to these problems can be grouped into three categories. The FCC, along with Congress and antitrust enforcement agencies when necessary, must do more to (1) give customers control over their own devices, (2) remove barriers in the input markets for wireless services, and (3) open space for innovation by opening more spectrum to shared and unlicensed use, rather than supposing that a "spectrum crunch" dictates clearing and auctioning every frequency we can.

[1] *See, e.g.*, 47 U.S.C. § 309(j)(3).

THE U.S. MOBILE WIRELESS INDUSTRY IN THE SMARTPHONE ERA

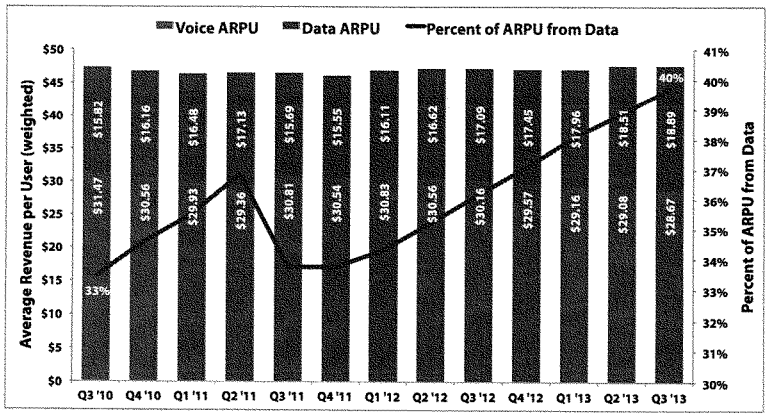
When Apple Inc. introduced the first model of the iPhone in 2007, it heralded the start of the smartphone era for the U.S. mobile wireless market. The strong consumer demand for mobile connectivity that followed reshaped the wireless industry, moving it from a voice-centric market to a data centric one in a half-decade's time.

Figure 1: The Rapid Adoption of Smartphones



Source: SNL Kagan; Free Press Research

Figure 2: U.S. Wireless Industry Average Revenues per User – Voice/SMS vs. Data



Source: SNL Kagan; Free Press Research

Continued Concentration in the Mobile Wireless Market

The wireless market has become substantially more concentrated. According to data derived from the Numbering Resource Utilization Forecast, a decade ago the industry's Herfindahl-Hirschman Index ("HHI") stood at 2,450, below DOJ's current threshold for a "highly concentrated market." With the acquisition of several regional and pre-paid carriers by the national carriers, we estimate wireless industry HHI *today* at approximately 3,000.[2]

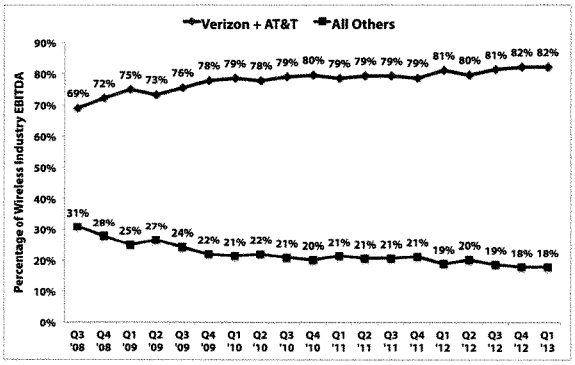
Industry-wide, AT&T and Verizon control more than 68 percent of the subscribers and bring in more than 82 percent of the profits. Verizon alone enjoys nearly 50 percent of industry profits.[3]

Figure 3: The U.S. Wireless Market — Subscriber Market Share (Q3 2013)

Carrier	Market Share (Subscribers, Q3 2013)	Cumulative Share
Verizon*	35%	35%
AT&T^	34%	68%
Sprint	16%	85%
T-Mobile	13%	98%
US Cellular	1%	99%
All Others	1%	100%

Source: SNL Kagan; Free Press Research.
** Includes estimate of Verizon's wholesale connections. ^Includes Leap Wireless Subscribers*

Figure 4: Duopoly Market Power — AT&T and Verizon's Share of Profits vs. All Others



Source: SNL Kagan; Free Press Research.

[2] This estimate derives from 2011 NRUF data, accounting for changes in market share through September 2013. As with the profitability estimate below, it assumes that AT&T will close its acquisition of Leap Wireless.

[3] Free Press research based on SNL Kagan Industry Update Q4 2012 (Apr. 2013) and company reports, including estimate for Verizon Wireless' wholesale lines. Profit defined as Earnings Before Interest, Taxes, Depreciation and Amortization ("EBITDA").

Even though other national carriers, T-Mobile USA and Sprint, attempt to innovate in their plans and service offerings to attract customers, AT&T and Verizon's profit margins continue to increase as their churn declines. This is a strong indication that the U.S. mobile wireless market functions as a duopoly, in which the two largest carriers enjoy and exercise market power.

Paying More for Less – Excessive Concentration and Parallel Conduct

As more and more Americans connect to the mobile Internet, our use of traditional mobile voice minutes and text messaging services is in steep decline. But this change in consumption is not saving consumers any money, as the major carriers have eliminated plans offering a certain number of voice minutes in favor of unlimited-only offerings. This means many post-paid users are no longer able to switch to a less expensive plan with a smaller amount of minutes and texts.

Returning to the beginning of the smartphone era, for example, in 2008 an AT&T iPhone customer could purchase a plan with 450 voice minutes, 200 text messages and unlimited mobile data for $60 per month. Today that AT&T user must pay a base rate of $95 per month for unlimited voice and texts, with just 2 gigabytes (GB) of data. If the user does not need unlimited voice and texts, this equates to a whopping 58 percent rate-hike.

Figure 5: Less is More for AT&T Customers — 2008 vs. 2013 Smartphone Plans

Monthly Plan	Price ($/month)	Voice Minutes	Texts	Data	Excess Data Charge
AT&T (original iPhone)	$60	450	200	Unlimited	N/A
AT&T (current entry-level offering)	$60	Unlimited	Unlimited	0.3 GB	$20 for 0.3 GB
AT&T (current offering, 1 GB data)	$85	Unlimited	Unlimited	1 GB	$15 for 1 GB
AT&T (current offering, 2 GB data)	$95	Unlimited	Unlimited	1 GB	$15 for 1 GB

Source: Free Press Research; based on historical data and current plans as of January 2014

A Verizon Wireless plan similar to this AT&T offering – with the same unlimited voice and text messaging, and the same 2 GB data allotment – costs $90 per month. The other two national carriers offer similar plans that are less costly, though still not priced as low as budget options.

It is worth noting that unlimited data was and is a useful feature, as the upward bound on the amount of data any single customer may use in a month depends entirely on the size of the files that this user sends, downloads or streams. Unlimited voice calling, on the other hand, is limited in its utility by the number of hours in the day any customer can possibly spend on the phone – no matter how much one likes to talk.

Wireless carriers have realized, quite obviously, that their growth in usage and revenues is in data, not voice. (*See* Figure 2, above.) Fewer and fewer individuals today use their devices primarily to make and receive voice calls. That's why many carriers have flipped their model, making low-bandwidth and low-cost voice an unlimited service (despite the declining demand for it) while imposing new limited data plans to generate more revenue from data usage. The elimination of unlimited data plans along with steep overage fees for additional data usage also means that many users may be subjected to potential "bill shock" and surprise charges.

Leading the Way in High LTE Prices, Not Performance

The U.S. wireless industry and some regulators have claimed that the United States is the world leader in the deployment of 4G, Long Term Evolution ("LTE") mobile wireless services.[4] Whatever the validity of statistics showing U.S. leadership in terms of the number of LTE subscribers or amount of traffic, a report released last week shows that U.S. carriers delivered LTE download speeds nearly two to three times slower than providers in other countries.[5] The resulting LTE prices are 50 percent higher or more on a Megabits per second ("Mbps") basis than rates from carriers in Canada, Germany, South Korea and the United Kingdom.[6]

Handset "Subsidies" – Another Case Study in Hidden Costs and High Prices

The smartphone market (both for handsets and the services those devices use) is approaching maturity. Yet most hardware vendors, carriers and consumers remain hopelessly locked into the market's original "subsidy" business model. While many consumers would balk at paying $650 up front for an iPhone (the full "unsubsidized" price), economically the "subsidy" amounts to nothing more than a 2-year *loan* – at rates that would make a payday lender blush.

For example, Tracfone (a mobile virtual wireless network operator, or "MVNO") sells a $45 monthly service package that includes unlimited voice and texts along with 2.5 GB of data. This service uses AT&T's network, and does not include any so-called subsidy for the phone. Thus we can assume that this price point is close to what we'd see in a more competitive market without device subsidies. An iPhone user would save $50 per month in service fees by purchasing an unsubsidized device for $649 and using a Tracfone-issued AT&T SIM card, versus paying AT&T $199 for the device under a 2-year contract. As Figure 6 shows, the cost for AT&T's device subsidy amounts to an annual interest rate of *120 percent.*

AT&T has begun offering a lower price point for users who bring their own devices under the "Next" program. However, this "unsubsidized" offering is still vastly over-priced relative to what a competitive market should produce, as AT&T's monthly service charge for these plans far exceeds the Tracfone price for a plan that offers 500 MB more data.

Figure 6: The True Cost of Carrier Device Subsidies

Carrier	Plan	Contract Length	Device Purchase Price	Device Subsidy	Monthly Service Plan Cost	Monthly Price Difference Relative to Tracfone	Effective Interest Rate vs. Tracfone
AT&T	Unlimited voice/SMS, 2 GB data	24 months	$199	$450	$95	$50	120%
AT&T (Next)	Unlimited voice/SMS, 2 GB data	no contract	$649	$0	$80	$35	69%
Tracfone (AT&T network)	Unlimited voice/SMS, 2.5 GB data	no contract	$649	$0	$45	$0	0%

Source: Free Press Research; based on current plans as of January 2014

[4] *See, e.g.*, Julius Genachowski, "Winning the Global Bandwidth Race: Opportunities and Challenges for Mobile Broadband," Oct. 4, 2012, http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-316661A1.pdf.

[5] *See* Dante D'Orazio, "American wireless customers pay more for less speed," *The Verge*, Feb. 21, 2014, http://www.theverge.com/2014/2/21/5434450/cost-of-american-wireless-data-speed-compared-to-the-world; *see also* Open Signal, "The State of LTE," Feb. 2014, http://opensignal.com/reports/state-of-lte-q1-2014/.

[6] *See* D'Orazio, "American wireless customers pay more for less speed."

Furthermore, neither the price that the carriers themselves reportedly pay nor the retail price for an unlocked iPhone has changed since 2008. This is a classic example of the problems that arise in a market where true costs are hidden from consumers and shielded from market forces. If U.S. carriers got out of the subsidy business completely, it is likely that device prices would drop dramatically, as they have in the rest of the computing hardware industry.

POLICY SOLUTIONS TO PROMOTE MORE EFFECTIVE COMPETITION

Giving Wireless Customers More Control Over Their Devices and Device Costs

If wireless users could do more with devices they buy – unlocking them, taking them to other carriers, using them easily on those networks, and protecting them against theft – consumers would see their service choices increase and their out-of-pocket expenditures go down.

T-Mobile's efforts to break the so-called "subsidy" model described above, begun in March 2013 and continued with announcements at the January 2014 Consumer Electronics Show, may provide some hope for customers seeking to avoid lengthy contracts and usurious interest rates.

The other national carriers have moved to match some of these innovations. This proved yet again the wisdom of DOJ's and the FCC's decision to block the AT&T/T-Mobile acquisition and preserve at least four national wireless carriers, among them a noted "maverick" firm that has a history of innovating and competing aggressively to win customers away from its larger rivals.[7] The decline in the subsidy model for post-paid plans, and the hidden prices this model entails, may then be attributed in part to structural antitrust remedies effectuated by DOJ and the FCC.

FCC Data Roaming, Interoperability and Unlocking Decisions Should Spur Competition

The FCC has moved in the last three years – often too slowly, but more steadily of late – to increase wireless customers' freedom to use smartphones and other devices for which these customers pay so much. The jury is still out on three FCC measures in particular – data roaming, 700 MHz interoperability, and phone unlocking commitments made in December 2013 by several wireless carriers – not because of any flaw in the principles the FCC adopted, but because the market has yet to see as many tangible benefits as it eventually should realize.

In May 2011, after a lengthy delay, the FCC extended to data traffic the reasonable roaming negotiation requirements it had maintained for voice traffic, promoting national, regional and smaller competitive carriers' ability to offer service and coverage plans comparable to the big two carriers' offerings. The FCC's data roaming order was upheld by the D.C. Circuit, over Verizon's challenge, in that court's December 2012 *Cellco v. FCC* decision. Despite the victory on the merits, competitive carriers continued to report as recently as 2014 that 4G data roaming agreements with AT&T and Verizon were essentially non-existent.[8]

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[7] *See* Joint Petition to Deny of Center for Media Justice, Consumers Union, Media Access Project, New America Foundation, and Writers Guild of America, West, WT Docket No. 11-65, at 19-28 (filed May 31, 2011).

[8] *See* CCA Written *Ex Parte* Presentation, WT Docket No. 13-193, at 2 (filed Jan. 3, 2014) ("CCA is unaware of AT&T having entered into *any* 4G LTE roaming agreements with U.S. carriers to date.") (emphasis in original).

The FCC's October 2013 700 MHz A Block interoperability order[9] contains a resolution, brokered by the Commission and Acting Chairwoman Clyburn, in which AT&T will finally begin rolling out devices that will work on spectrum licensed to carriers other than AT&T itself. This should signal the end of proprietary band classes that severely hampered competitors' ability to obtain devices. AT&T's commitment, however, is to begin placing such devices in service by mid 2015, meaning once again that FCC resolution was too long delayed for a technical and commercial dispute that continues to harm competition for mobile broadband.

Finally, in December 2013, FCC Chairman Wheeler obtained commitments from the five largest U.S. wireless carriers to more readily "unlock" customers' phones, at least after those customers had fulfilled any service contract or paid any early termination fee to the original carrier.[10] The Chairman's focus on unlocking was welcome, and clearly spurred by legislative efforts to address this problem undertaken by Senators Leahy, Klobuchar, Lee, Blumenthal, Franken, Grassley, and so many others. Yet the FCC's acceptance of voluntary commitments leaves the enforceability of such rights in question, and its focus on unlocking only *after* a customer has fulfilled her contract begs the question of the reason for permitting locking in the first place. Wireless consumers must honor the contracts they sign and may incur early termination fees for breaking those contracts; but there are any number of uses that an owner might make of an unlocked device during the term of the service contract, without breaching that contract.

"Kill Switch" Legislation Could Help to Prevent Device Theft and Consumer Losses

In December 2013, Chairman Klobuchar and others began asking salient questions about wireless carriers' apparent refusal to provide their customers with more effective theft deterrent measures. She was joined by other Senators and Representatives, and by elected officials ranging from the Attorney General of New York to the District Attorney of San Francisco.

Citing estimates that peg wireless phone thefts at a $30 billion loss to consumers each and every year, as well as statistics reporting that 1 in 3 robberies now involve a smartphone or other wireless phone, she introduced the "Smartphone Theft Prevention Act," S. 2032, co-sponsored by Senators Hirono, Mikulski, and Blumenthal. The bill would ensure consumers have the capability to wipe personal information from a stolen device and render the phone inoperable remotely – discouraging theft by making the target devices far less useful and resaleable.

Removing Barriers in the Input Markets for Mobile Wireless Services

Many current competitive problems in the mobile wireless market stem from incumbency advantages decades in the making. Because of their inherent advantages as legacy wireline monopolists and early cellular spectrum recipients, it is wholly unsurprising that the former "baby Bell" companies dominate the wireless market. These advantages are many, but their dominance in spectrum and in special access are especially noteworthy.

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[9] *Promoting Interoperability in the 700 MHz Commercial Spectrum*, Report and Order and Order of Proposed Modification, WT Docket No. 12-69, 28 FCC Rcd 15122 (2013).

[10] *See* Brendan Sasso, "FCC, cellphone carriers agree to 'unlocking' policy," *The Hill*, Dec. 12, 2013, http://thehill.com/blogs/hillicon-valley/192998-fcc-cellphone-carriers-agree-to-unlocking-policy.

The FCC Should Adopt Meaningful, Industry-wide Spectrum Aggregation Limits

AT&T and Verizon have parlayed their early lead in spectrum holdings, built by these companies and their predecessors, into a position of spectrum dominance that continues to this day. Those advantages have been perpetuated by FCC polices that do little to promote the efficient allocation of this valuable public resource. As a result, AT&T and Verizon in many markets control almost all "beachfront" spectrum below 1 GHz. This gives the twin Bells substantial advantages in terms of network quality and deployment costs relative to their rivals.

The upcoming 600 MHz incentive auction provides one opportunity to promote a more competitive outcome. Instead of focusing solely on this admittedly important auction, however, the FCC should adopt broad and sensible safeguards against excessive concentration of licenses that apply to all spectrum holdings.

Mobile wireless broadband providers simply cannot exist without adequate access to spectrum. Competition cannot exist if a few providers control too much of the public airwaves. Congress gave the FCC the responsibility of allocating and assigning spectrum in a manner that protects competition and promotes the public interest, but the FCC has too frequently abdicated this responsibility.

As shown above (see Figures 3 and 4), concentration in wireless industry is high. It stands at a level that stifles meaningful competition in the mobile services market. One reason for such concentration in the wireless market overall is concentration in the spectrum input market, and the problem could continue to worsen. DOJ argued convincingly in an April 2013 filing at the FCC that spectrum at auction may have a high "foreclosure value" to wireline and wireless incumbents – such as AT&T and Verizon – that can bid to prevent rivals from obtaining additional capacity and improving their wireless services. In other words, the upcoming incentive auction could exacerbate excessive concentration of spectrum in two companies' hands, and will not promote competition without proper spectrum aggregation limits and auction design in place.

Some parties commenting in the FCC's incentive auction docket, in advance of the planned forward auction of recovered TV band spectrum, have proposed intra-auction limits on how much a single carrier could obtain in this auction.[11] Others have proposed spectrum weighting systems[12] or dynamic auction structures[13] intended to ensure that some spectrum will be available at auction to carriers other than AT&T and Verizon.

Without rejecting any of these proposals out of hand, Free Press has called for the FCC to reinstitute industry-wide spectrum aggregation limits in the Commission's Mobile Spectrum Holdings proceeding.[14] This approach fully complies with the incentive auction statute's grant of authority for the FCC to "adopt and enforce rules of general applicability, including rules

[11] *See, e.g.*, Comments of United States Cellular Corporation, GN Docket No. 12-268, at 30 (filed Jan. 25, 2013).

[12] *See* Sprint *Ex* Parte Presentation, WT Docket No. 12-269 (Feb. 11, 2014).

[13] *See* T-Mobile *Ex Parte* Notice, GN Docket No. 12-268 (June 21, 2013).

[14] *See, e.g.*, Comments of Free Press, WT Docket No. 12-269, at 14-19 (filed Nov. 28, 2012).

concerning spectrum aggregation that promote competition."[15] This also would bring to a welcome close the "spectrum screen" chapter of the FCC's history – a screen that has been full of holes allowing excessive concentration of licenses in the hands of the two largest carriers.

The FCC's screen is partly to blame for the sorry state of competition in America's wireless market. This is a relatively recent policy failure, brought on by the agency's unwillingness and inability to remain a vigilant antitrust enforcer, and a misguided belief that competition in naturally uncompetitive markets will thrive in the absence of clear regulatory oversight. Free Press suggests that the FCC rectify this failure by returning to sensible spectrum policies based on antitrust theory and practice.

The FCC should determine if a proposed license acquisition (at auction or on the secondary market) would result in an applicant controlling more than 35 percent of spectrum suitable and available for mobile broadband in a given local market. A higher cap specific to sub 1 GHz spectrum might also be appropriate, limiting carriers to no more than 40 percent of that spectrum. Even if an applicant's holdings would not exceed these amounts, the FCC should also consider the impact of a proposed license acquisition on the concentration of spectrum holdings in a given local market, measured by the well-established standards described in DOJ's *Horizontal Merger Guidelines*.

Under the framework Free Press proposes, applicants or outside parties could petition to overcome presumptions in favor of or against an acquisition measured under these standards. An applicant might still attempt to show that an acquisition would promote competition and not increase the applicant's market power. On the other hand, an acquisition that did not put the applicant above these clear limits or lead to an excessive increase in market concentration would be presumed to be in the public interest and would receive expedited treatment.

The FCC Should At Last Move Forward on Reforming the Special Access Market

AT&T's and Verizon's legacy wireline operations also form the basis for continued dominance in the special access market, in which these wireless duopolists are able to impose higher costs on their rivals' "backhaul" transport of traffic from wireless towers to the public switched telephone network or the Internet. If anything, the FCC has been even less effective monitoring – much less regulating – market power in this crucial mobile wireless services input market than it has in the licensed spectrum input market.

The Commission embarked on an unfounded and ultimately unsuccessful path in 1999 to deregulate incumbent local exchange carrier ("ILEC") provision of these services, based on the expectation of competition that did not actually materialize. That expectation should have been revisited at the very latest in 2005, after ILECs SBC and Verizon acquired their chief potential rivals for provisioning of such services, AT&T and MCI. Though in truth, that expectation was flawed from the outset, because mere collocation of facilities by a potential competitor in an ILEC's wire center ever should not have been considered an indication of actual and effective competition.

[15] 47 U.S.C. § 309(j)(17(B).

Nearly 15 years after the FCC first granted dominant incumbents a great degree of pricing flexibility for such special access services, wireless carriers (and other large scale enterprise users) continue to pay the price for that decision, with prices invariably "flexing" upwards. The Commission's hesitance to correct course, or until recently even to stop the bleeding from this mistake, has been baffling.

In an August 2012 order, in perhaps the understatement of that year by the agency, the FCC concluded that "that these rules, adopted in 1999, are not working as predicted."[16] Citing "significant evidence" that the purported relief crafted by the agency in 1999 was in fact hindering competitive wireless carriers' ability to invest in their networks, and otherwise "causing real harm to American consumers and businesses," the FCC determined that "the Commission's existing collocation triggers are a poor proxy for the presence of competition sufficient to constrain special access prices or deter anticompetitive practices."[17] Yet the Commission remains frozen to this day. In July 2013, it once again extended the deadlines for its data gathering efforts by more than half a year, to dates in March and April 2014.

Opening Space for Innovation by Opening More Spectrum to Shared and Unlicensed Use

While there is still a vital role for use of spectrum licensed to wireless carriers, unlicensed use of airwaves throughout the entire spectrum band promotes innovation by allowing new entry as well as the growth of new technologies and business models. It also promotes competition and efficiency by allowing for the "offload" of traffic from licensed networks to spectrum available for shared use, diminishing the purported "spectrum crunch" and allowing licensed carriers to make better (and more sparing) use of expensive cellular networks and infrastructure.

Projections chronically overestimate the amount of data that licensed spectrum will need to carry in the U.S. and worldwide over the next several years. Recent analysis by tech and telecom analyst Tim Farrar suggests that the Cisco Visual Networking Index: Global Mobile Data Forecast – a projection widely relied upon to predict the amount of newly licensed spectrum necessary to solve the alleged crunch – may overstate by more than 1200 times the total cellular data traffic to be expected in the year 2020.[18] Farrar concludes that "a more realistic analysis" might show "that we don't need to allocate more spectrum to accommodate future traffic or that unlicensed spectrum bands will be best suited to handle expected growth."[19]

Our wireless ecosystem need a mixture of licensed and unlicensed spectrum across all spectrum bands, to allow for greater coverage with low-band frequencies and greater capacity with high-band frequencies. Calls to auction off as much spectrum as possible in the upcoming incentive auction, or to preclude availability of spectrum for unlicensed use in lower bands such as the 600 MHz band, fail to appreciate the technical and economic value of unlicensed use.

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[16] *In the Matter of Special Access for Price Cap Local Exchange Carriers*, Report and Order, WC Docket. No. 05-25, 27 FCC Rcd 10557, ¶ 1 (2012).

[17] *Id.* ¶¶ 3-5.

[18] *See* Tim Farrar, "Note to the telecom industry: Beware of false models," *GigaOm*, Feb. 22, 2014, http://gigaom.com/2014/02/22/note-to-the-telecom-industry-beware-of-false-models/.

[19] *Id.*

A study commissioned by the new WiFiForward coalition, which includes some of the largest cable and Internet companies, estimates the annual value of unlicensed spectrum to the U.S. economy at a figure of nearly $230 billion in 2013 alone.[20] That study by Dr. Raul Katz recounts earlier ones estimating the annual value of unlicensed to the U.S. economy to be as "little" as $16 billion per year in 2009, or $50 billion per year in 2012. Wherever the number lies in that range, however, it is roughly equivalent to the value to the U.S. Treasury of the 700 MHz auction in 2008, as often as once a year (on the low end of the range) or once a month (on the high end).

The FCC Should Preserve Unlicensed in 600 MHz and Other Current Unlicensed Bands

These types of benefits show the wisdom of statements like Commissioner Rosenworcel's last week, in her piece published by *re/code*. Commissioner Rosenworcel explained the benefits of growing unlicensed spectrum availability to grow the U.S. wireless economy – and the economy overall. She called for opening spectrum such as the 5 GHz band to greater unlicensed use, and the FCC has an ongoing proceeding for this band just as it has for the 3.5 GHz band. Commissioner Rosenworcel also called on the FCC "to use guard bands in the 600 megahertz spectrum now used by broadcasters [in order to] help extend the reach of Wi-Fi even further."[21]

Free Press has joined other public interest groups, Internet innovators, and large cable companies in calling for continued unlicensed use of the 600 MHz band for unlicensed operations. That should include continued use of TV "white spaces" between broadcast channels even after the band is repacked for the incentive auction, along with unlicensed use of "technically reasonable" guard bands in the portion of the band reclaimed from TV broadcasters and ultimately devoted to wireless broadband. Free Press called for the preservation of at least 20 megahertz of contiguous spectrum for unlicensed use in the reconstituted band, joining stakeholders such as the National Cable Television Association and the Wireless Internet Service Providers Association.[22]

CONCLUSION

An examination of the mobile wireless market in the United States shows that this vital sector exhibits a greater level of competition than some other telecommunications industries. Recent trends have been encouraging. Contrary to the opinions of some incumbent carriers, however, these signs of life are directly attributable in part to smart oversight and appropriate intervention by antitrust authorities and the Federal Communications Commission. Competition in the wireless market has improved *because of* – not in spite of – well-timed regulation. The Department of Justice should remain vigilant in its review of market structure. The FCC must continue to implement policies that give consumers greater control of devices, prevent spectrum concentration and other anticompetitive practices, and promote unlicensed use of spectrum.

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[20] *See* Raul Katz, Telecom Advisory Services, LLC, "Assessment of the Economic Value of Unlicensed Spectrum in the United States," at 8 (Feb. 2014), http://www.wififorward.org/wp-content/uploads/2014/01/Value-of-Unlicensed-Spectrum-to-the-US-Economy-Full-Report.pdf.

[21] Commissioner Jessica Rosenworcel, "Growing Unlicensed Spectrum, Growing the Wireless Economy," *re/code*, Feb. 21, 2014, http://recode.net/2014/02/21/growing-unlicensed-spectrum-growing-the-wireless-economy/.

[22] Reply Comments of Free Press, GN Docket No. 12-268, at 4 (file June 28, 2013).

QUESTIONS SUBMITTED BY SENATOR KLOBUCHAR FOR RANDAL MILCH

Senator Klobuchar's QFRs
"An Examination of Competition in the Wireless Market"

Randal Milch, Verizon

According to news reports, Verizon's CEO says that Verizon Communications is in talks with content providers to deliver web-based TV services to mobile platforms. What challenges does Verizon face in creating such a service? Could this service have the potential to compete with traditional MVPD service in areas where Verizon does not offer FiOS?

The Justice Department's filing to the FCC about mobile spectrum last April raised concerns about the potential risk of market leaders acquiring spectrum for the "foreclosure value" as opposed to "use value." When Verizon makes decisions about spectrum allocation has it ever taken into account the foreclosure value of spectrum?

QUESTIONS SUBMITTED BY SENATOR KLOBUCHAR FOR KATHLEEN HAM

Senator Klobuchar's QFRs
"An Examination of Competition in the Wireless Market"

Kathleen Ham, T-Mobile

For smaller networks data roaming agreements are critical to commercial success. A small, regional carrier won't attract many customers if their mobile phones only work in the small geographic area where the company has cell towers. When customers travel outside their service area, their phones must be able to "roam" on competitors' networks. In 2011, the FCC released rules mandating that carriers give competitors access to their networks on "commercially reasonable terms." Roaming has been a major issue for small carriers, but how about a larger carrier like T-Mobile? What are your views on the FCC rulemaking that requires "commercially reasonable" prices?

Questions submitted by Senator Klobuchar for Jonathan Spalter

Senator Klobuchar's QFRs
"An Examination of Competition in the Wireless Market"

Jonathan Spalter, Mobile Future

In your testimony you credit the government's approach to regulation in the wireless space, characterized by "restraint, simplicity and economy," with the tremendous success of our mobile ecosystem. At the hearing T-Mobile and C Spire expressed concerns about their ability to offer competing service due to challenges posed by special access and data roaming, two fixed costs for which they pay to their competitors. Do think the FCC has a role to play in preserving competition by addressing special access and data roaming concerns?

Questions submitted by Senator Klobuchar for Eric Graham

Senator Klobuchar's QFRs
"An Examination of Competition in the Wireless Market"

Eric Graham, C Spire Wireless

In addition to being the largest wireless carriers, Verizon and AT&T are also the two largest wireline providers. Competing wireless carriers rely on access to Verizon and AT&T's wireline networks through "special access" to connect calls from their own cell towers to the intended recipient. Does the fact that your competitors control wireline facilities that you need access to have any impact on your ability to provide wireless services? Do they have any incentive to increase your costs of providing wireless service? Have you seen increasing costs for this service?

QUESTIONS SUBMITTED BY SENATOR KLOBUCHAR FOR ROSLYN LAYTON

Senator Klobuchar's QFRs
"An Examination of Competition in the Wireless Market"

Roslyn Layton, University of Aalborg

The Justice Department's filing to the FCC about mobile spectrum last April raised concerns about the potential risk of market leaders acquiring spectrum for the "foreclosure value" as opposed to "use value." Can there be economic benefits for firms to buy up a limited resource, such as spectrum, in order to prevent a rival from obtaining this scarce resource?

QUESTIONS SUBMITTED BY SENATOR KLOBUCHAR FOR MATTHEW WOOD

Senator Klobuchar's QFRs
"An Examination of Competition in the Wireless Market"

Matt Wood, Free Press

Critics say the Justice Department's FCC filing about spectrum was all about picking winners and losers by favoring smaller carriers. They say that limiting auction participation in any way would result in spectrum being sold for much less, which could mean less money for the first responder network and for paying down the deficit. Should we be concerned about this?

Consumers deserve to keep and use cell phones they have already bought—it's just common sense. That is why I introduced the Wireless Consumer Choice Act with Senators Lee and Blumenthal. This bipartisan legislation directs the Federal Communications Commission (FCC) to take action to ensure consumers can "unlock" and keep their phones when they switch carriers. If they are deterred from switching carriers because they would have to buy a new phone, it is not true competition. Competition can lead to lower prices, new innovations and improved service. In December, the FCC came to a voluntary agreement with the wireless carriers to improve policies for unlocking prepaid and postpaid devices for current and former customers. Do you agree that this was a positive step for consumers? What should we continue to watch for as this voluntary agreement is implemented to make sure consumers are getting the benefits?

QUESTIONS SUBMITTED BY SENATOR FRANKEN FOR RANDAL MILCH

Senate Judiciary Committee Hearing
Antitrust Subcommittee
"An Examination of Competition in the Wireless Market"
Questions for the Record Submitted by Senator Al Franken

Question for Randal Milch

Question 1. How has Verizon responded to T-Mobile's "uncarrier" strategy, and how has that response impacted consumers?

Question 2. We need a comprehensive strategy for fighting mobile device theft, which is a growing problem in my state. Part of that strategy is the "blacklist" of stolen phones, which the wireless industry created in cooperation with the federal government. But the black market for stolen phones extends beyond state and national boundaries. The black market is global, but the blacklist is not. What role did your company play in the creation of the blacklist, and how do you think it can be improved?

QUESTIONS SUBMITTED BY SENATOR FRANKEN FOR KATHLEEN HAM

Senate Judiciary Committee Hearing
Antitrust Subcommittee
"An Examination of Competition in the Wireless Market"
Questions for the Record Submitted by Senator Al Franken

Questions for Kathleen O'Brien Ham

Question 1. T-Mobile's "uncarrier" strategy has been a clear win for consumers, and a valuable lesson in why the market needs antitrust enforcement. When I opposed AT&T's failed bid to purchase T-Mobile three years ago, I said that T-Mobile was an important maverick player in the industry. T-Mobile's strategy over the past year is freeing consumers from the shackles of harsh contracts, reducing prices, and it's forcing the other carriers to compete for the first time in at least a decade. Why did T-Mobile embark on this "uncarrier" strategy now? What prevented T-Mobile from doing this three years ago?

Question 2. Although T-Mobile's business strategy has clearly benefited consumers, I am also concerned about T-Mobile's respect for employee rights. Over the past 12 years, the National Labor Relations Board has issued multiple complaints and settlements regarding allegations that T-Mobile has terminated, harshly punished, and inappropriately monitored employees for union activity. How does your company plan to ensure compliance with the National Labor Relations Act going forward?

Question 3. We need a comprehensive strategy for fighting mobile device theft, which is a growing problem in my state. Part of that strategy is the "blacklist" of stolen phones, which the wireless industry created in cooperation with the federal government. But the black market for stolen phones extends beyond state and national boundaries. The black market is global, but the blacklist is not. What role did your company play in the creation of the blacklist, and how do you think it can be improved?

QUESTIONS SUBMITTED BY SENATOR FRANKEN FOR ERIC GRAHAM

Senate Judiciary Committee Hearing
Antitrust Subcommittee
"An Examination of Competition in the Wireless Market"
Questions for the Record Submitted by Senator Al Franken

Question for Eric Graham

Question 1. We need a comprehensive strategy for fighting mobile device theft, which is a growing problem in my state. Part of that strategy is the "blacklist" of stolen phones, which the wireless industry created in cooperation with the federal government. But the black market for stolen phones extends beyond state and national boundaries. The black market is global, but the blacklist is not. What role did your company play in the creation of the blacklist, and how do you think it can be improved?

QUESTIONS SUBMITTED BY SENATOR FRANKEN FOR MATTHEW WOOD

Senate Judiciary Committee Hearing
Antitrust Subcommittee
"An Examination of Competition in the Wireless Market"
Questions for the Record Submitted by Senator Al Franken

Questions for Matt Wood

Question 1. The aftermath of the failed AT&T/T-Mobile merger is an important lesson in why we need antitrust enforcement. However, just as consumers are beginning to reap the benefits of that merger's collapse, there is talk of another merger: Sprint is reportedly considering a bid to acquire T-Mobile. I'm very concerned this deal would stifle competition and reverse the competitive dynamic of the past year. How would a Sprint/T-Mobile impact consumers?

Question 2. The Justice Department and the FCC are currently considering AT&T's bid to acquire Leap Wireless, a small pre-paid carrier that does business under the brand name Cricket. Do you think they should approve the deal? If so, what sorts of conditions should be attached to ensure that consumers are protected?

Question 3. Comcast recently announced its plans to acquire Time Warner Cable. What are your views of this proposed deal?

RESPONSES OF RANDAL MILCH TO QUESTIONS SUBMITTED BY SENATORS KLOBUCHAR AND FRANKEN

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March 25, 2014

Electronically Delivered to Melanie Kartzmer

The Honorable Patrick Leahy
United States Senate
437 Senate Russell Office Building
Washington, DC 20510

Dear Chairman Leahy:

In response to questions from the Senate Committee on the Judiciary, Subcommittee on Antitrust, Competition Policy and Consumer Rights hearing entitled "An Examination of Competition in the Wireless Market", I respectfully submit the following answers.

Responses to Questions for the Record from Senator Klobuchar:

According to news reports, Verizon's CEO says that Verizon Communications is in talks with content providers to deliver web-based TV services to mobile platforms. What challenges does Verizon face in creating such a service? Could this service have the potential to compete with traditional MVPD service in areas where Verizon does not offer FiOS?

Response: Consumers' interest in access and watching video where, when, and how they want, is strong and growing. By some measures, about half of Internet traffic at peak times is video programming (mostly from Netflix and YouTube). Verizon currently provides access to some programming to our FiOS TV customers on a mobile basis over the Internet, where we have permission from content owners to do so. Currently, our FiOS TV customers have access to more than 30 linear channels and tens of thousands of on-demand titles using the FiOS Mobile application. Likewise, we are part of a joint venture with Coinstar to offer a subscription, on-demand video service called Redbox Instant by Verizon, which is accessible over any broadband connection.

As distributors seek to offer video services in non-traditional ways, they face certain challenges that may affect their ability to provide a video service to compete with traditional pay-TV services. In the mobile context, one such challenge is the availability of sufficient spectrum to support a robust video offering. The delivery of high-quality video programming consumes substantial amounts of network capacity, and on mobile networks this requires that a provider have sufficient spectrum to provide that capacity. While some technological steps – such as multi-casting or compression – may help facilitate video services over mobile networks, ultimately there is no substitute for spectrum if a provider seeks to offer high quality broadband and video services that will satisfy consumers.

Another challenge for potential mobile or online distributors is obtaining the needed content rights from the owners of programming. Like all video programming distributors, Verizon must negotiate and contract for the right to distribute content in various ways, including the right to distribute content outside of the home or over the Internet. The amount of programming that content owners are willing to sell for online and/or mobile distribution continues to increase, but, at this stage, getting such rights on reasonable terms can be a challenge. That said, this is a dynamic marketplace and the business models and arrangements to obtain the rights to deliver programming over mobile networks or online will continue to shift over time, and there's every reason to believe that online video services will increasingly be seen as a competitive alternative by many consumers.

Congress can play an important role in encouraging additional video competition, including over mobile networks. First, it must continue to ensure a robust supply of spectrum to enable commercial providers' ability to meet consumers' skyrocketing demands for broadband and video services. Second, it is time for Congress to update the statutory framework that applies to video services to ensure that it encourages – and doesn't stand as a barrier to – continued innovation and the availability of competitive alternatives for consumers, including from mobile and online video providers.

The Justice Department's filing to the FCC about mobile spectrum last April raised concerns about the potential risk of market leaders acquiring spectrum for the "foreclosure value" as opposed to "use value." When Verizon makes decisions about spectrum allocation has it ever taken into account the foreclosure value of spectrum?

Response: No. Verizon Wireless' priority for spectrum auctions is filling its anticipated spectrum requirements based on our customer needs. We spend a great deal of time and resources forecasting how much and where we will need additional spectrum. Any attempt to foreclose rivals would be costly, difficult, and unlikely to succeed. In the case of the 600 MHz auction, the auction design itself discourages foreclosure because higher bids produce more available spectrum, increasing costs of foreclosure. In addition, because the FCC has adopted anonymous or "blind" bidding in recent auctions, bidders can't target rivals because they don't know the identity of other bidders. Auction rules also generally include build-out

requirements, which ensure that bidders can't simply purchase and hold spectrum; they must make significant investments to deploy the spectrum. It would be extremely costly for any carrier to attempt to foreclose all others (including at least three other national carriers). In short, concerns about foreclosure are simply a distraction from the real issue of ensuring an adequate supply of additional spectrum to meet consumers' skyrocketing demands.

Responses to Questions for the Record from Senator Franken:

How has Verizon responded to T-Mobile's "uncarrier" strategy, and how has that response impacted consumers?

Response: The U.S. wireless industry has always been very competitive, and this competition is driving tremendous benefits to consumers. This is true whether looking at the reliability and speed of available services, the price paid by consumers, the investment and innovation by wireless providers, or the innovative devices, applications and services that consumers now enjoy. In the past several quarters, we have seen competitors introduce new offers, new pricing, and some aggressive advertising. Further, competitors are increasing investment in their networks, which is good overall for the industry. We remain confident in the competitive advantage provided by our network leadership, which is built on years of consistent investment in the technologies that enable the products and services that customers want.

We completed our nationwide 4G LTE coverage build halfway through last year and since then have been adding capacity and depth to our network. We are also rapidly deploying our AWS spectrum throughout the nation, starting with our most dense urban markets to handle the tremendous usage growth we are experiencing. We have also recently introduced our new More Everything pricing, which provides an enhanced value proposition for the customer through simplified data allowances and more choice, including the option of two-year contract device pricing, or Edge device pricing with service access discounts, 25 gigabytes of cloud storage per device, unlimited international messaging, and new lower entry points to encourage basic to smartphone upgrades and to address the lower end of the single line market.

We need a comprehensive strategy for fighting mobile device theft, which is a growing problem in my state. Part of that strategy is the "blacklist" of stolen phones, which the wireless industry created in cooperation with the federal government. But the black market for stolen phones extends beyond state and national boundaries. The black market is global, but the blacklist is not. What role did your company play in the creation of the blacklist, and how do you think it can be improved?

Response: Verizon Wireless and the industry are concerned about wireless phone thefts that harm both our customers and our company. We have worked diligently ourselves

and together with CTIA, policymakers and law enforcement to develop the proactive, multifaceted approach of databases, technology, fraud prevention, criminal prosecution, consumer education, and legislation to stop thefts and remove the aftermarket for stolen phones. We encourage consumers to use currently available apps and features that can remotely wipe, track and lock their devices in case they are lost or stolen. We also support Senator Schumer's legislation that would impose tough penalties on those who steal devices or illegally modify the unique device identifiers since it would help dry up the market for those who traffic in stolen devices.

Last Fall, Verizon Wireless began participating in the GSM Association's global database for stolen devices. This database keeps track of the devices reported by participating carriers as stolen using unique device identity numbers knows as IMEIs. The GSMA database, in combination with equipment in our network, also enables Verizon Wireless (and other participating carriers) to prevent those devices reported as stolen from activating or receiving service on participating networks. Verizon Wireless has been doing the same for years with devices reported to us by our own customers, but the database provides additional value by casting a wider net due to the other participating carriers. Verizon Wireless worked closely with GSMA and other providers in the development of processes and procedures to allow for the efficient and secure exchange of stolen device data. While the major U.S. carriers participate in the GSMA database, so too do many other carriers around the world. Global participation continues to grow with over 90 participating carriers in more than 40 countries around the world. We agree that additional global participation can reduce the number of black market destinations where stolen wireless phones can be used. Verizon Wireless also remains active through CTIA and the GSMA to find additional ways to reduce the value of stolen devices.

Sincerely,

Randal S Milch

RESPONSES OF KATHLEEN HAM TO QUESTIONS SUBMITTED BY SENATORS KLOBUCHAR AND FRANKEN

T··Mobile···

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March 25, 2014

VIA ELECTRONIC FILING

Sen. Patrick J. Leahy
United States Senate
Committee on the Judiciary
Washington, DC 20510-6275

Dear Senator Leahy:

Thank you for the opportunity to testify at the Senate Committee on the Judiciary, Subcommittee on Antitrust, Competition Policy and Consumer Rights hearing entitled, "An Examination of Competition in the Wireless Market," which was held on February 26, 2014.

In your letter of March 11, 2014 you attached written questions from Senators Klobuchar and Franken that follow up on my testimony. T-Mobile USA, Inc.'s ("T-Mobile's") responses to these questions appear below.

Senator Klobuchar

Question 1. *For smaller networks data roaming agreements are critical to commercial success. A small, regional carrier won't attract many customers if their mobile phones only work in the small geographic area where the company has cell towers. When customers travel outside their service area, their phones must be able to "roam" on competitors' networks. In 2011, the FCC released rules mandating that carriers give competitors access to their networks on "commercially reasonable terms." Roaming has been a major issue for small carriers, but how about a larger carrier like T-Mobile? What are your views on the FCC rulemaking that requires "commercially reasonable" prices?*

Obtaining access to data roaming on commercially reasonable terms is critical to T-Mobile's ability to provide customers with seamless access to nationwide data coverage and effectively compete in today's marketplace, in which wireless service has become an essential part of everyday life for customers who rely on ubiquitous networks. Accordingly, T-Mobile has been a strong supporter of the Federal Communications Commission's ("FCC's") rules requiring carriers to provide data roaming on commercially reasonable terms and conditions. In our comments in the FCC proceeding that led to the adoption of those rules in 2011, T-Mobile expressed concern that absent an FCC-mandated data roaming obligation, AT&T and Verizon would have an incentive to deny data roaming services to smaller carriers, or to allow data roaming only on unreasonable terms and conditions.

Roaming has been a major issue for small and regional carriers, but nationwide carriers like T-Mobile also continue to have difficulty obtaining data roaming agreements from the two largest wireless carriers on commercially reasonable terms. T-Mobile faces especially difficult challenges in reaching commercially reasonable data roaming agreements because our legacy network is based on GSM, a technology of which AT&T is the dominant provider and that Verizon utilizes in only a handful of legacy markets. Our data roaming negotiations with AT&T and, to a much lesser extent, Verizon have been protracted and drawn out affairs during which the two largest wireless carriers seek to place unreasonable terms and conditions on our access to data roaming services. Because the networks of other major U.S. carriers utilize CDMA technology, T-Mobile has no option other than to negotiate with AT&T and (to a lesser extent) Verizon. Perhaps in recognition of this reality, these carriers have sought to charge T-Mobile exorbitant rates for data roaming that cannot be characterized as commercially reasonable under any industry standard.

Moreover, the utility of roaming agreements is limited if carriers are unable to provide their customers with handsets that can operate on the spectrum used by other carriers' networks. T-Mobile was therefore a vigorous champion at the FCC for the application of interoperability requirements for handsets operating in the 700 MHz band, and will continue to fight to ensure that all future mobile devices can roam seamlessly between our network and the networks of other carriers.

The two largest wireless carriers should not be allowed to continue their practice of making it difficult, time-consuming and expensive to secure commercially reasonable rates for data roaming. Today's consumers expect high-speed broadband coverage everywhere they go, and active FCC oversight and aggressive enforcement of its roaming rules is needed to ensure that all wireless carriers have access to data roaming services.

Senator Franken

Question 1. *T-Mobile's "uncarrier" strategy has been a clear win for consumers, and a valuable lesson in why the market needs antitrust enforcement. When I opposed AT&T's failed bid to purchase T-Mobile three years ago, I said that T-Mobile was an important maverick player in the industry. T-Mobile's strategy over the past year is freeing consumers from the shackles of harsh contracts, reducing prices, and it's forcing the other carriers to compete for the first time in at least a decade. Why did T-Mobile embark on this "uncarrier" strategy now? What prevented T-Mobile from doing this three years ago?*

T-Mobile was in a very different position three years ago than we are today. There are a couple of reasons why we did not initiate our "Un-carrier" strategy prior to 2013. First, in 2011 AT&T attempted, and then abandoned, a takeover of the company, after facing opposition from the FCC and Department of Justice. That takeover attempt, understandably, consumed a great deal of the attention of T-Mobile's senior management at the time. Second, we experienced a setback in our relationship to Apple, and specifically a delay in acquiring the iPhone. In 2012, John Legere joined T-Mobile as our CEO, bringing new vision and energy to the company, inviting significant consumer input regarding our service offerings and the customer experience, sitting in

on calls to our service centers and using social media to better engage our customers. Based on this consumer feedback, we launched our "Un-carrier" campaign.

T-Mobile's rebranding as the "Un-carrier" has been very successful, and we are pleased that consumers have recognized the value we bring to the wireless marketplace. However, as noted in my written testimony, T-Mobile's subscriber base is still nowhere near that of AT&T or Verizon, and their greater subscriber numbers give these carriers significant access-to-capital and economy-of-scale advantages. Our smaller scale also yields lower profit margins, smaller cash flows, and greater challenges in funding capital expenditures and bold, disruptive innovations. Our "Un-carrier" campaign, while popular with consumers, is costly. While we remain committed to addressing the real needs of wireless consumers and competing aggressively in the market for as long as we can, if we are unable to increase significantly our overall scale, our "Un-carrier" position may not be sustainable over time.

Question 2. *Although T-Mobile's business strategy has clearly benefited consumers, I am also concerned about T-Mobile's respect for employee rights. Over the past 12 years, the National Labor Relations Board has issued multiple complaints and settlements regarding allegations that T-Mobile has terminated, harshly punished, and inappropriately monitored employees for union activity. How does your company plan to ensure compliance with the National Labor Relations Act going forward?*

T-Mobile works hard to provide rewarding career opportunities and competitive pay and benefits to our employees, and to strengthen our 'open door' culture of trust and respect. We work equally hard to diligently follow all applicable U.S. workplace laws and regulations. T-Mobile respects the rights of unions to exist and recognizes and respects employees' rights to organize, or to refrain from organizing.

In furtherance of its campaign against T-Mobile, which has included a litany of misstatements and falsehoods, the Communication Workers of America ("CWA") has filed numerous charges with the National Labor Relations Board ("NLRB"). The vast majority of these charges have been dismissed by the NLRB or withdrawn by the union. Some of the charges have been settled. However, this does not imply wrong-doing on the part of T-Mobile. Like most employers, T-Mobile sometimes settles legal matters to avoid the cost and distraction of defending against the charges. The settlements into which T-Mobile has entered specifically provide that they do not constitute any admission of unlawful or inappropriate conduct. While the NLRB has issued complaints in a small number of cases that are currently pending, it has never found after a hearing that T-Mobile violated the National Labor Relations Act ("NLRA").

Going forward, T-Mobile will continue our practice of requiring that all supervisors and managers follow the NLRA, and will maintain our training program to ensure that they do so.

T-Mobile provides rewarding career opportunities for 38,000 employees across the United States. To monitor the satisfaction of our employees, we retain an independent third party to conduct a regular Employee Perspectives Survey that ensures the anonymity of all respondents, and is based on scientific analysis and statistical significance. The most recent such survey

shows that over 85% of current T-Mobile employees say they are proud to work at T-Mobile, and 80% of employees would recommend working at the company to their friends and family. These results belie the allegations made by the CWA and place T-Mobile in the top 25% of all U.S. companies surveyed. Our work sites are routinely recognized as great places to work, and, as mentioned in my written testimony, we have been cited as one of the best employers for military veterans and their spouses, one of the twenty best places for college graduates to work, and one of the "World's Most Ethical Companies" as awarded by the Ethisphere Institute for the fifth straight year.

Question 3. *We need a comprehensive strategy for fighting mobile device theft, which is a growing problem in my state. Part of that strategy is the "blacklist" of stolen phones, which the wireless industry created in cooperation with the Federal government. But the black market for stolen phones extends beyond state and national boundaries. The black market is global, but the blacklist is not. What role did your company play in the creation of the blacklist, and how do you think it can be improved?*

T-Mobile is committed to working to end the risks posed to our customers by device theft and we agree that a comprehensive strategy, employing numerous tools, is required. For this reason, we currently participate in a public/private initiative led by the FCC and the industry's main trade association, CTIA, which aims to mitigate the damage caused by cell phone theft. As part of that initiative, we first established connectivity in October 2012 to the GSMA's Global IMEI Database ("Database") (which we understand is international in scope), where stolen devices are listed on a centralized database in an effort to prevent their use on another carrier's GSM/LTE network. Additional wireless carriers, both within the U.S. and abroad, have since signed up for the Database – with each of the four largest national U.S. carriers reporting connectivity by the end of 2013. Although our work with the Database is ongoing and it is too early to reach any final conclusion about the effectiveness of this initiative, as widespread adoption continues we believe this program may potentially serve as an effective deterrence for handset theft, in the U.S. and abroad. The GSMA, with its international membership and deep industry ties and experience, is an appropriate body for administering this important tool in the fight against handset theft.

Another key component of our comprehensive strategy to deter handset theft involves software that is currently available for all handsets sold by T-Mobile. In partnership with our vendor Lookout, Inc., we offer our customers a variety of features that protect their handsets against theft. Currently, Lookout's Automatic App Security comes preloaded on many of our devices, securing smartphones and tablets right out of the box at no cost to the consumer. Lookout's pre-installed service allows T-Mobile customers to locate and lock a stolen or missing wireless device, to generate a loud alert to locate the device, and to remotely wipe personal data from the device.

In addition, T-Mobile continues to explore other tools and technologies that may help deter mobile device theft, including a "kill switch" type of solution. Our goal is to empower our customers by enabling an effective and usable solution that deters theft and helps them to better

protect their devices. To that end, we are working with industry, law enforcement and others on additional measures that can be taken to address this problem.

T-Mobile welcomes the opportunity to respond to your colleagues' questions, and looks forward to working with you on the important issue of wireless competition.

Respectfully submitted,

/s/ Kathleen O'Brien Ham

Kathleen O'Brien Ham
Vice President, Federal Regulatory Affairs

cc Senator Amy Klobuchar
Senator Al Franken

RESPONSES OF JONATHAN SPALTER TO QUESTIONS SUBMITTED BY SENATOR KLOBUCHAR

March 25, 2014

Via electronic mail: Melanie_Kartzmer@judiciary-dem.senate.gov

Senator Patrick Leahy, Chairman
Committee on the Judiciary
United States Senate
Washington, D.C. 20510-6275

Attn: Ms. Melanie Kartzmer, Hearing Clerk
Senate Judiciary Committee

Re: Senate Committee on the Judiciary
Subcommittee on Antitrust, Competition Policy and Consumer Rights hearing entitled "An Examination of Competition in the Wireless Market"
Response of Jonathan Spalter, Chair, Mobile Future, to Committee Member Question

Dear Senator Leahy:

It was an honor to testify before the Senate Committee on the Judiciary, Subcommittee on Antitrust, Competition Policy and Consumer Rights at its hearing entitled "An Examination of Competition in the Wireless Market" on February 26, 2014. Thank you for the opportunity to provide additional information in response to the question posed by Senator Klobuchar.

Senator Klobuchar noted that "At the hearing T-Mobile and C Spire expressed concerns about their ability to offer competing service due to challenges posed by special access and data roaming, two fixed costs for which they pay to their competitors" and asked whether Mobile Future thinks "the FCC has a role to play in preserving competition by addressing special access and data roaming concerns." Mobile Future does not believe that additional FCC regulation is needed in the context of special access or data roaming arrangements.

With respect to special access, the FCC can best preserve competition by ensuring that its regime continues to promote facilities-based competition by incumbents, competitive fiber providers, cable companies, fixed wireless providers, and others. Mobile Future is focused on special access insofar as it relates to the backhaul of mobile wireless traffic. We see a marketplace in

which the legacy services over which incumbent local exchange carriers were once dominant have become less and less relevant. As 4G LTE replaces 2G and 3G mobile services, data consumption is growing dramatically, and the DS1- and DS3-capacity backhaul facilities that incumbent LECs used to provision for mobile backhaul are being replaced by fiber-optic cables and high-capacity wireless links. Indeed, Ethernet now accounts for at least half of total high-capacity bandwidth, and is expected to account for more than 75% of total global business bandwidth by 2017.[1] In this environment, the former "incumbents" have no special advantages over their competitors, and it would be misguided for the FCC to impose new restrictions that constrain one set of providers but not their equally well-placed competitors.

With respect to roaming, the FCC has established a provisioning requirement and a set of standards for the negotiation of data roaming arrangements. To our knowledge, a number of parties have successfully negotiated acceptable data roaming agreements. Moreover, the FCC is available to aggrieved parties to resolve data roaming disputes, either informally or formally. In light of this, Mobile Future does not believe any additional FCC action at this time is needed. The FCC's Wireless Telecommunications Bureau, which has the first-line role in addressing carrier disputes, clearly agrees with this assessment. In its March 13, 2014, Order approving AT&T, Inc.'s acquisition of Leap Wireless International, Inc., the FCC rejected requests that it impose new, roaming-related requirements on AT&T, finding that "the Commission's general roaming policies and rules should ensure that entities can obtain roaming arrangements on reasonable terms and conditions."[2]

Thank you again for allowing Mobile Future to have a role in this hearing. Please do not hesitate to contact me if we may offer any additional assistance as the Subcommittee and the Committee consider these important issues.

Sincerely,

Jonathan Spalter, Chairman
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[1] Sean Buckley, "Ethernet will contribute over 75% of business bandwidth by 2017, VSG says," FIERCE WIRELESS, Oct. 24, 2013, http://www.fiercetelecom.com/story/ethernet-will-contribute-over-75-business-bandwidth-2017-vsg-says/2013-10-24.

[2] *Applications of Cricket License Company, LLC, et al., Leap Wireless International, Inc., and AT&T Inc. for Consent to Transfer Control of Authorizations,* WT Docket No. 13-193 (WTB, IB March 13, 2014), ¶ 107.

RESPONSES OF ERIC GRAHAM TO QUESTIONS SUBMITTED BY SENATORS KLOBUCHAR AND FRANKEN

Responses of Eric Graham, Senior Vice President – Strategic Relations
C Spire Wireless

to

Questions for the Record

of the

Senate Committee on Judiciary, Subcommittee on Antitrust, Competition Policy and Consumer Rights February 26, 2014, hearing:

"An Examination of Competition in the Wireless Market"

Response to Question from Senator Klobuchar

Question #1: In addition to being the largest wireless carriers, Verizon and AT&T are also the two largest wireline providers. Competing wireless carriers rely on access to Verizon and AT&T's wireline networks through "special access" to connect calls from their own cell towers to the intended recipient. Does the fact that your competitors control wireline facilities that you need access to have any impact on your ability to provide wireless services? Do they have any incentive to increase your costs of providing wireless service? Have you seen increasing costs for this service?

Response: Yes. The vertical integration of the Twin Bells, AT&T and Verizon, gives them each control over both critical wireless and wireline facilities and has a direct, negative impact on smaller wireless operators' ability to provide competitive wireless services.

Each wireless cell site must be connected back to a voice network switch and the internet via a landline circuit we call "backhaul" or "special access." To optimize today's 4G LTE deployments, backhaul generally means a fiber-optic based Ethernet connection. In most instances and because of the incumbents pre-existing wireline network monopolies, competitive wireless operators are limited to purchasing backhaul circuits from the incumbent Bell in the given area – either AT&T or Verizon. Of course, both AT&T and Verizon also have their own wireless operations. This vertical integration of wireless and wireline services gives the Bells an incentive to overcharge competitors for backhaul services or to delay competitive wireless operators' access to backhaul.

Several years ago, in part as a result of this basic failure in the special access market, reasonable access to backhaul became such an issue for C Spire that we created our own backhaul company to provide an alternative to the Bell network in our wireless operating area.

Response to Question from Senator Franken

Question #1: We need a comprehensive strategy for fighting mobile device theft, which is a growing problem in my state. Part of that strategy is the "blacklist" of stolen phones, which the wireless industry created in cooperation with the federal government. But the black market for stolen phones extends beyond state and national boundaries. The black market is global, but the blacklist is not. What role did your company play in the creation of the blacklist, and how do you think it can be improved?

Response: C Spire Wireless, which is not a member of CTIA, did not play a role in the development of the stolen phone database known as the "blacklist." It is my understanding that creation of the "blacklist" was negotiated among the Federal Communications Commission, CTIA and Major City Policy Chiefs without input from competitive wireless operators or their association, the Competitive Carriers Association ("CCA").

C Spire remains a vocal proponent of competition and innovation in the wireless industry. We believe that a competitive marketplace provides the best means of advancing wireless consumers' interests. Restoring competition in the wireless industry will provide consumers with greater choice and will force wireless operators to be more responsive to consumer demands and more innovative in solving industry problems, including better and more effective means of deterring cell phone theft.

RESPONSES OF ROSLYN LAYTON TO QUESTIONS SUBMITTED BY SENATOR KLOBUCHAR

Senator Klobuchar's QFRs
"An Examination of Competition in the Wireless Market"

Roslyn Layton, University of Aalborg

The Justice Department's filing to the FCC about mobile spectrum last April raised concerns about the potential risk of market leaders acquiring spectrum for the "foreclosure value" as opposed to "use value." Can there be economic benefits for firms to buy up a limited resource, such as spectrum, in order to prevent a rival from obtaining this scarce resource?

America's wireless rests on the effective optimization of one asset above all: spectrum. The US has taken advantage of technologies to improve the utilization of spectrum, but relying on efficiency enhancement alone is not enough. The supply of spectrum is fixed, and it needs to be allocated and utilized more efficiently.

A suboptimal approach to spectrum management may "satisfice" for the moment, but it is not strategic for the long term. The US faces an exploding demand for mobile data, cellular telephony on licensed spectrum, and a range of devices needing unlicensed spectrum. This situation of squandered spectrum is a great concern to the nation and a threat to future economic growth and global competitiveness. Citing the National Telecommunications and Information Administration's Office of Spectrum Management, the President's Council on Advisors for Science and Technology explains the situation.

> *Federal agencies have exclusive use of 18.1% (629 MHz) of the frequencies between 225 and 3700 MHz (traditionally referred to as the "beachfront frequencies"), while non-Federal users have exclusive licenses to 30.4% (1058 MHz). The remaining 51.5% is shared, with Federal use primary and private sector use secondary. Approximately 80% of the shared allocation—or 40% of the total—have a "dominant" Federal use (e.g., radar, aeronautical telemetry) that under the current coordination regime effectively precludes substantial commercial use of those bands. In other words, nearly 60% of the beachfront frequencies are predominantly allocated to Federal uses.*[1]

President Obama has taken a number of actions on this issue. He deserves commendation for his important and forward-looking leadership in 2010 to require that a combined 500 MHz of of federal and non-federal spectrum be shared or relinquished by 2020. His Wireless Innovation and Infrastructure Initiative[2] described freeing spectrum through incentive auctions. The President has wisely recognized that there isn't a simple solution to spectrum management, and auctions and

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[1] President's Council on Advisors for Science and Technology, "Realizing the Full Potential of Government-held Spectrum to Spur Economic Growth," July 2012.
http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast_spectrum_report_final_july_20_2012.pdf; Karl Nebbia, Director, NTIA Office of Spectrum Management, presentation to the Commerce Spectrum Management Advisory Committee (CSMAC), Dec. 9, 2009.

[2] White House Press Office, Presidential Memorandum, "President Obama Details Plan to Win the Future through Expanded Wireless Access", Feb 10, 2011. http://www.whitehouse.gov/the-press-office/2011/02/10/president-obama-details-plan-win-future-through-expanded-wireless-access

sharing are only two tools in the toolkit. It is a testament to his leadership that he would make such an effort, the political rewards of which will come after his presidency.

Federal spectrum holdings are assigned to some 60 federal agencies which don't necessarily have the information or incentives to steward their use of the resource. Given the importance of spectrum to the nation's economic health and security, a rational spectrum policy to recover unused and underutilized spectrum is in order. A Consumer Electronics Association study suggests there is a $1 trillion business opportunity in converting some $62 billion worth of spectrum. Mobile telephony is just one of many areas where high value use can be substituted for low value use, bringing greater efficiency and economic welfare.

The key theoretical notion underpinning the relinquishing of spectrum is that federal agencies procure their other resources through the market and competitive processes. There is no justification that spectrum, one of the most valuable inputs, should not be part of that process. The academic theory introduced by Herzel, formalized by Coase, and demonstrated successively with auctions, is that those who value spectrum most will pay the most for it and thereby put it to the most productive use.

The question speaks to whether a party would "stockpile" spectrum for the future. As for as hoarding and stockpiling, we can see that some government agencies are doing that at present. Given that they don't need to operate in a real market, they have that ability.

As for private actors in the US, it is also theoretically possible that they could buy spectrum as a means to foreclose competitors. However the prospect is expensive and difficult. For one buying an asset to have it on the shelf is not a wise decision for a mobile operator. Markets and investors will punish operators if they don't put their assets to use. Furthermore, it is difficult to justify shareholders why such as an action is desirable. If it is in fact a gambit to foreclose spectrum, it will be very difficult to keep it a secret. So an operator faces a number of risks to implement a theoretically beneficial, but unproven strategy. Dr. Leslie Katz, former Chief Economist of the FCC, explains this in a paper "Economic Analysis of the Proposals That Would Restrict Participation in the Spectrum Auction".[3]

That being said, I know of a case in a European country where spectrum was attempted to be foreclosed. In this instance there was a state owned incumbent and a new entrant which the regulator was attempting to give a "leg up" in the auction—a bad idea. In this case, the new entrant (as it was given the ability to purchase spectrum at a lower rate than the incumbent) attempted to purchase spectrum and hoard it for future.

This effort for incentive auctions in the US should be applauded, but the original good idea has been marred in a few recent occasions. It is not possible to have a pure, bona fide incentive auction if arbitrary and capricious conditions are added to the auction (not allowing certain players to bid, restricting participating etc). Such practices distort the information and incentives of the agencies that are foregoing the spectrum. Without having a true reflection of the market

[3] http://apps.fcc.gov/ecfs/document/view?id=7520944358

value or the buyers interested in the spectrum, agencies can't get a clear sense of the value they are relinquishing and what returns they can expect in future. The spectrum auction has to be held in good faith and with transparency in order to work.

RESPONSES OF MATTHEW WOOD TO QUESTIONS SUBMITTED BY SENATORS KLOBUCHAR AND FRANKEN

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March 31, 2014

Thank you again for the opportunity to testify on behalf of Free Press for the Subcommittee on Antitrust, Competition Policy and Consumer Rights hearing entitled "An Examination of Competition in the Wireless Market," which took place on February 26, 2014.

Below, please find our answers to questions for the record that were submitted to Free Press by Subcommittee Chairman Klobuchar and by Senator Franken.

* * *

Senator Klobuchar's Questions for the Record

1. Critics say the Justice Department's FCC filing about spectrum was all about picking winners and losers by favoring smaller carriers. They say that limiting auction participation in any way would result in spectrum being sold for much less, which could mean less money for the first responder network and for paying down the deficit. Should we be concerned about this?

Response: The Justice Department's filing in the FCC's spectrum aggregation proceeding[1] was not about favoring any class of carriers, but rather promoting competition by preventing excessive concentration of licenses. That filing noted simply that competition drives innovation in wireless services,[2] and that spectrum is a key input for such competition.[3] It also explained that spectrum might not be put to its highest and best use in an already concentrated market – such as this one – because incumbents with market power could realize a "foreclosure value" from acquiring spectrum not just to use it themselves, but to maintain their market power and incumbency advantages. In other words, "[i]n a highly concentrated industry with large margins between the price and incremental cost of existing wireless broadband services, the value of keeping spectrum out of competitors' hands could be very high."[4]

The Justice Department's filing therefore recognizes the realities of today's wireless market, and suggests that the FCC take care to ensure that all competitors have a legitimate chance to obtain spectrum. This is not just sound advice from our nation's antitrust authorities: it is also the law.

Congress charged the FCC with the duty to "promot[e] economic opportunity and competition and ensur[e] that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants." 47 U.S.C. § 309(j)(3)(B). Despite this mandate, the two most dominant

[1] *Ex Parte* Submission of the United States Department of Justice, WT Docket No. 12-269 (filed Apr. 11, 2013).
[2] *See id.* at 5-8.
[3] *See id.* at 9.
[4] *Id.* at 11.

carriers today control more than two-thirds of the critical low-frequency spectrum nationwide,[5] and an even higher percentage of it in many markets.[6] Free Press has advocated comprehensive reform of FCC spectrum aggregation policies to address this imbalance, rather than auction-specific policies for the upcoming incentive auction or other competitive bidding situations.[7]

As Free Press demonstrated in its written testimony for this hearing, there are consequences to allowing such imbalances to persist. For instance, the lack of effective competition has led to wireless consumers paying *more* today for less robust service than they had at the dawn of the smartphone era. In 2008, an AT&T iPhone customer could purchase a plan with 450 voice minutes, 200 text messages and *unlimited* mobile data for $60 per month. Today that AT&T user must pay a base rate of $95 per month for unlimited voice and texts, but with just 2 gigabytes of data included in the monthly allotment, which equates to a 58 percent rate-hike.

2. Consumers deserve to keep and use cell phones they have already bought—it's just common sense. That is why I introduced the Wireless Consumer Choice Act with Senators Lee and Blumenthal. This bipartisan legislation directs the Federal Communications Commission (FCC) to take action to ensure consumers can "unlock" and keep their phones when they switch carriers. If they are deterred from switching carriers because they would have to buy a new phone, it is not true competition. Competition can lead to lower prices, new innovations and improved service. In December, the FCC came to a voluntary agreement with the wireless carriers to improve policies for unlocking prepaid and postpaid devices for current and former customers. Do you agree that this was a positive step for consumers? What should we continue to watch for as this voluntary agreement is implemented to make sure consumers are getting the benefits?

Response: The Free Press Action Fund supported the Wireless Consumer Choice Act (WCCA), and continues to support legislative efforts to change copyright and communications laws governing wireless device locking. The FCC's voluntary agreement with CTIA and five major carriers was a positive step, but it did not go far enough towards providing consumers with real freedom to use their devices. Those principles do not compare favorably to WCCA provisions. The bill would require the FCC to direct wireless providers to "permit . . . subscribers . . . or the agent of such subscribers, to unlock any type of wireless device," although the bill would not alter the terms any valid wireless service contract.

By contrast, the voluntary principles agreed to in December 2013 suggest that *only* the wireless providers themselves can unlock devices; and they stipulate that customers are only eligible for such unlocking by the carrier *after* the fulfillment of any postpaid contract, the payment of an early termination fee, or after some unspecified length of time as long as a full year for prepaid wireless customers. (The other four voluntary principles deal mainly with publicizing these unlocking policies and notifying customers of their eligibility for such actions.)

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[5] *See* Letter from T-Mobile, Sprint, C Spire, CCIA, DISH, CCA, WGAW, Free Press, RWA, NTCA, Public Knowledge, WT Docket No. 12-269, GN Docket No. 12-268, at 1 (filed Mar. 25, 2014).
[6] *See* Comments of Free Press, WT Docket No. 12-269, at 17 n.41 (filed Nov. 28, 2012).
[7] *See id.* at 14-19.

In other words, the WCCA would allow users themselves or third party software providers to unlock devices, rather than relying on carrier permission and carrier action. And the WCCA would allow consumers to unlock devices at any time during the service contract, so long as those customers still honor their contracts. (While the principles suggest instead that devices should remain locked during the term of the contract, it would be hard to imagine laptops, tablets, or other devices being "locked" to a particular cable modem, DSL, or other home broadband wired network option during the first two years after purchase of that computer.)

As Free Press has suggested, the deeper policy question is not how to let consumers unlock their devices more easily but why those devices are locked in the first place. Merely using the full capabilities of a device that you've purchased should not be a copyright violation, and it should not give rise to any claim against you if you do not breach your contract with the carrier from which you purchased the device.

Senator Franken's Questions for the Record

1. The aftermath of the failed AT&T/T-Mobile merger is an important lesson in why we need antitrust enforcement. However, just as consumers are beginning to reap the benefits of that merger's collapse, there is talk of another merger: Sprint is reportedly considering a bid to acquire T-Mobile. I'm very concerned this deal would stifle competition and reverse the competitive dynamic of the past year. How would a Sprint/T-Mobile impact consumers?

Response: Free Press is likewise concerned about increased concentration in an already highly concentrated market, and as always we remain skeptical of counter-intuitive claims that *reducing* the number of competitors will somehow improve competition. However, because this acquisition has not been formally proposed yet, it is difficult to arrive at any final conclusion about its potential harms or merits. As I indicated in response to a question during the hearing, not only is the jury still out on this deal – that jury hasn't even been called yet.

There is indeed reason for concern about it at this stage nonetheless. Sprint's new ownership has argued that effective competition against the entrenched wireless duopoly will occur only if the third and fourth largest carriers combine and acquire the scale to compete.[8] But there could be other ways to facilitate scale and sharing of resources that would not remove T-Mobile from the market, along with its penchant for "maverick" behavior that disrupts and challenges the business models of its larger rivals.[9]

T-Mobile's maverick behavior has continued, and arguably intensified, in the time since the Justice Department and the FCC properly denied AT&T's acquisition of its smaller rival.

[8] *See, e.g.*, Edward Wyatt, "Sprint Owner's New Appeal for Merger With T-Mobile," *N.Y. Times*, Mar. 11, 2014.
[9] *See* Joint Petition to Deny of Center for Media Justice, Consumers Union, Media Access Project, New America Foundation, and Writers Guild of America, West, WT Docket No. 11-65, at 19-28 (filed May 31, 2011).

Analysts and reporters disagree, however, about whether T-Mobile's recent maneuvers and contract buyout efforts have resulted in lower monthly prices for wireless consumers.[10]

In sum, a combination of the third and fourth largest carriers would increase the concentration of a wireless market that Justice Department guidelines already categorize as "highly concentrated." It would extend a trend that has seen a precipitous drop in the number of national and regional wireless choices available to consumers over the last decade. Yet, it bears noting that Free Press did not base its opposition to AT&T's acquisition of T-Mobile solely on the sheer increase in concentration. We also demonstrated that the proposed transaction would have greatly increased the market share and strengthened the position of the AT&T/Verizon duopoly – all without any merger-specific efficiencies in terms of mobile broadband deployment or spectrum usage.

2. The Justice Department and the FCC are currently considering AT&T's bid to acquire Leap Wireless, a small pre-paid carrier that does business under the brand name Cricket. Do you think they should approve the deal? If so, what sorts of conditions should be attached to ensure that consumers are protected?

Response: After the conclusion of this hearing, and just after the delivery to witnesses of these questions for the record, AT&T and Leap closed their transaction on March 13th upon receiving FCC approval. *See Applications of Cricket License Company, LLC, et al., Leap Wireless International, Inc., and AT&T Inc. for Consent To Transfer Control of Authorizations*, Memorandum Opinion and Order, WT Docket No. 13-193, DA 14-349 (rel. Mar. 13, 2014).

Free Press did not petition to deny this acquisition at the FCC, nor register any formal opposition to it, after voicing initial concerns about continued concentration of spectrum, customers, and revenues in the hands of two dominant carriers. There is cause for concern especially about ongoing erosion of alternatives to expensive postpaid wireless service, as the four large national carriers continue to acquire and eliminate their prepaid service rivals such as Leap and MetroPCS. The FCC has adopted time-limited merger remedies – purportedly to address such concerns – such as the continuation of certain discounted rate plans for existing Leap customers during a transitional period of 12 to 18 months. *See id.* ¶¶ 168-171.

3. Comcast recently announced its plans to acquire Time Warner Cable. What are your views of this proposed deal?

Response: Comcast's acquisition of Time Warner Cable would be, in a word, disastrous. It would give Comcast unprecedented and dangerous levels of control of high-speed broadband *and* multichannel video programming distribution platforms. Free Press plans to oppose this transaction vigorously, and in fact began to do so with public statements and a campaign launched on the very same day that the deal was announced.

Free Press will develop its formal opposition to the transaction upon review of the merger applicants' filings with the FCC and antitrust authorities, which have yet to be submitted some

[10] *See, e.g.*, Thomas Gryta, "Wireless Bills Go Up, and Stay Up," *Wall St. Journal*, Mar. 9, 2014; Kevin Fitchard, "Has T-Mobile really kicked off a mobile price war, or is it all just an illusion?" *GigaOm*, Mar. 25, 2014.

six weeks after the announcement. As we have detailed already, however, this combination of the nation's two largest cable companies would make the combined colossus the *only* available provider of truly high-speed Internet access for almost 3 out of 8 households in the United States.[11] It would make the merged entity the largest pay-TV provider in 104 markets, encompassing 65 percent of the U.S. population.[12] It would give Comcast control of the 11 largest markets in the United States, and 17 of the top 20 – along with control of the NBC affiliate *and* the dominant wired distribution platform in the nation's 5 largest cities.

Looking beyond the reach of the merged entity and at its current customer base, the dominance of the combined Comcast and Time Warner Cable would be even more impressive. It would control 33 percent of pay-TV subscribers, 36 percent of home Internet subscribers, and 47 percent of subscribers to truly high-speed broadband (excluding slow DSL offerings not capable of delivering multichannel video).[13] The post-merger company would control 49 percent of "triple play" (video, data and voice) subscribers in the market for the "bundled" services, as well as 55 percent of the "double play" (video plus data) subscribers.[14]

What is this level of gatekeeper power and control good for? Well, Comcast's shareholders for one; but certainly not its customers. Comcast executives are already on the record conceding that the merger would *not* be likely to reduce consumers' prices.[15] The claim, therefore, that increased size and scale would allow Comcast to reduce its own costs for acquiring video programming should be seen for what it is: an attempt to increase Comcast's profit margins without passing *any* savings along to its long-suffering subscribers.

It's clear that Comcast's current scale does nothing to help its own customers. Despite the fact that Comcast already receives substantial volume discounts on programming, it has increased basic and premium cable TV prices *faster* than rivals like Time Warner Cable, AT&T or DISH.[16] As Free Press has documented, cable rates have increased at three times the rate of inflation for the last two decades straight, and much of that increase in price can indeed be traced to increased passed-through programming costs.[17] Yet, despite declining video margins, cable operators like Comcast have been able to maintain their overall margins by cross-subsidizing their video business with broadband – a hugely profitable service that is subject to little competition.[18]

Comcast's dominance, were this deal allowed, would give it the power to control the flow of speech, news, and other content on both cable TV and broadband platforms, simultaneously harming its own programming suppliers and online alternatives; its pay-TV and broadband rivals; and its own customers. That's not the kind of "triple play" anyone needs.

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[11] *See* Josh Stearns, Free Press, "Four Infographics Reveal Why the Comcast Merger is Bad for You" (Mar. 26, 2014), http://www.freepress.net/blog/2014/03/26/four-infographics-reveal-why-comcast-merger-bad-you.
[12] *See id.*
[13] *See id.*
[14] *See id.*
[15] *See* Jon Brodkin, "Comcast: No promise that prices 'will go down or even increase less rapidly,'" *Ars Technia*, Feb. 13, 2014.
[16] *See* Free Press, "Four Infographics," *supra* note 11.
[17] *See generally* S. Derek Turner, Free Press, "Combating the Cable Cabal: How to Fix America's Broken Video Market," (May 2013), http://www.freepress.net/sites/default/files/resources/Combating_The_Cable_Cabal_0.pdf.
[18] *See id.* at 2.

Turning briefly to the impact of the proposed cable merger on the wireless competition that was the subject of this hearing, some have claimed that a Comcast-Time Warner Cable merger would increase the likelihood of cable competition against entrenched wireless companies such as Verizon and AT&T. Yet cable companies today have already built out their own wi-fi footprints, and they already allow customers of other cable companies to use these wi-fi networks.[19] Once again, a supposed benefit of the merger is not in fact dependent on the transaction – and cannot be used to justify it.

Respectfully submitted,

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[19] *See* Time Warner Cable, "What is CableWiFi?" http://www.timewarnercable.com/en/residential-home/support/faqs/faqs-internet/twcwifihot/cablewifi/what-is-cablewifi.html (last visited Mar. 27, 2014).

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