

**Prepared Remarks of Commissioner Mignon Clyburn
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Thank you, John Kneuer, for your introduction. Good morning everyone. Because this Conference is quickly becoming a key regional forum for idea sharing, I'm delighted to have an opportunity to speak with you about the Federal Communication Commission's approach to spectrum management.

Radio spectrum management has always been challenging and there are several reasons for this. While spectrum is finite, there is no shortage of companies that approach us with new and innovative uses for this precious resource. Complex engineering issues are involved with preventing users from interfering with each other. Difficult policy and technical issues are also involved with developing spectrum allocation policies to ensure users will put this valuable natural resource to its highest and best use. What is clear to me is that we should encourage technological creativity for the use of spectrum, because ultimately, these advances have the potential of improving the lives of our citizens. However, the faster the pace of innovation, the greater the challenges in managing spectrum use and the faster that regulators, in this space, must adopt spectrum policies that encourage this progress.

The pace of innovation in the mobile services industry is forcing me and my colleagues not only to move faster, but think more creatively in order to find spectrum policy solutions. From the time the FCC adopted cellular service rules, in the 1980s, we have seen a steady increase in demand for more spectrum for mobile wireless services. That demand spiked, about a decade ago, when wireless companies started building devices that allowed consumers to send emails and access the Internet. But the true game changer occurred with the introduction of the iPhone and iPhone substitutes.

The demand for mobile broadband is now growing at breathtaking speed. Today's smartphones generate 35 times more traffic than the standard cellphones, and last year alone in the U.S., mobile data traffic grew almost 300%. Worldwide, by the end of 2011, there were over one billion mobile broadband subscriptions. By 2017, that number is predicted to reach five billion, and world mobile data traffic, is projected to grow 15-fold. And here's one more statistic about today's "app economy": in June of 2008, there was no app store. In June 2012, the Apple and Android app stores had a collective three billion downloads – that's 100 million apps a day.

Over the past few years, there have been several new technological developments that will also greatly increase mobile demand. Perhaps the most important is 4G LTE. LTE was designed for data services, and is much more efficient than previous technologies. The United States is currently leading the world in deploying 4G LTE at scale. It has 69% of the world's LTE subscribers, and has become the global test bed for 4G LTE apps and services.

Many wireless service providers in the United States, are using licenses they acquired in a 2008 auction, in the lower 700 megahertz band, to deploy LTE services. This spectrum band has excellent engineering characteristics and it allows providers to send signals that cover greater distances with less infrastructure. In fact, the band is so valuable, and LTE technology is so efficient, that Congress directed the federal government to use this spectrum and technology to deploy the first ever nationwide wireless broadband network for public safety communications. For these reasons, we expect greater demand of LTE data services going forward.

Another important development is devices such as the iPad. Tablets generate 121 times more traffic than a traditional mobile phone. And consider this: Cisco projects that mobile-connected tablets will generate as much traffic in 2016, as the entire global mobile network in 2012.

Finally, there's machine-to-machine connectivity – the "Internet of Things." Before long, almost every device we can imagine -- from our dishwashers to our cars -- will have embedded Internet-connected sensors, and video and other high-data uses, will be involved. Experts predict up to 50 billion Internet-connected devices will be at our disposal by 2020.

The rise of mobile broadband has been transformative. It is creating new industries, providing an extraordinary platform for innovation, and is changing everyday life for people around the world. Over the past few years, I have had wonderful opportunities to travel to developed, and developing, countries to see the incredible impact new mobile technologies are having on people's lives. In Sri Lanka, tele-centers have been brought to remote villages, connecting formerly isolated populations to the wider world. In Senegal and Ghana, farmers use mobile technology to improve their economic opportunities and their personal safety – accessing market prices for their harvests and checking in with loved ones using mobile phones. In Kenya, Tanzania and South Africa, the unbanked are using M-Pesa to deposit, withdraw and transfer money. MedAfrica, launched in Kenya, provides health information, including messages about doctors, hospitals, and first aid. And in Mexico, mobile services are used to provide health information and to educate expectant mothers.

Here in the US, tremendous opportunities in health care, with remote monitoring and other wireless technologies are helping lower costs and improve outcomes. And in education, mobile broadband is powering interactive digital textbooks and improving connectivity at schools. The Cloud is also key in driving mobile innovation, dramatically enhancing the power of mobile computing through infrastructure convergence and shared services.

The sobering fact is that based on today's projections and technologies, the demand for spectrum, threatens to outpace supply, sooner rather than later. This issue is particularly acute in the United States, where networks are running at the highest utilization rate of anywhere in the world. The old ways of making spectrum available – clearing bands and reallocating – will not be enough. New approaches and policy tools are needed.

The FCC is taking a number of steps to make more spectrum available for broadband use. Over the past few years, freeing up spectrum for mobile broadband, has been at the top of our agenda. As many of you know, in 2010, we adopted a National Broadband Plan, and were the first country, to develop a broadband plan, that focused on *mobile*, as well as wired broadband. Our Broadband Plan included a detailed discussion, of the opportunities and challenges presented by mobile broadband, and set forth a comprehensive plan of action. Recognizing that it can take a decade or more to identify, reallocate, and auction spectrum, the Plan recommended new, and quicker ways, to make spectrum available in order to meet our goals.

Under Chairman Genachowski's leadership, the agency has been focused on four general areas. The first is traditional auctions. The FCC pioneered spectrum auctions in the 1990s, and has conducted 80 auctions, granting more than 30,000 licenses. These auctions have raised more than \$50 billion for the U.S. Treasury, in those two decades, with an economic value estimated to be about 10 times that amount, or \$500 billion. We are currently on track to auction 75 MHz of licensed Advanced Wireless Service spectrum – essential for 4G cellular service -- by 2015. We expect the first of these auctions will be held in 2013.

The second area of focus is on removing regulatory barriers to allow flexible use, of already allocated spectrum. Just last week, we adopted technical rule changes that will allow 30 megahertz of allocated spectrum to be used to meet the demand for 4G LTE service. Later this year, we hope to adopt rules that will enable 40 megahertz of spectrum, currently allocated to mobile satellite services, to be used for mobile broadband services.

Third, we're working to clear new bands for flexible commercial broadband use. Traditionally, the FCC did this by working with other U.S. federal agencies to clear and reallocate federal government spectrum for commercial use. This can often be a lengthy process. Recent legislation from Congress, gave us another tool. It granted the FCC authority to conduct the world's first voluntary incentive auctions. Incentive auctions are an innovative, market-based tool, so that spectrum, currently used by TV broadcasters, can be repurposed for wireless broadband.

The process will actually involve two auctions – first, a reverse auction and, to me, the most important aspect of this auction is that it is voluntary. That means TV broadcasters may, if it is in their interests, choose to submit bids to give up their spectrum rights in exchange for payment.

Then, there will be a forward auction in which the surrendered broadcast spectrum is auctioned for flexible use. In September, the FCC officially launched the incentive auction process and released detailed recommendations for the auctions. The FCC also proposed a plan to use the 600 MHz band for mobile and other wireless uses. While we don't know exactly how much spectrum incentive auctions will free up, there has been great interest generated from broadcasters and wireless service providers. If we approach this opportunity properly, we should strengthen both the broadcast TV ecosystem and mobile wireless industries.

I would also like to emphasize that we plan to work closely within the region – and particularly with our neighbors to the North and the South – as we move forward with our incentive auction proposals. We are early in the U.S. process and can only benefit from regional input.

The fourth area of focus is on policies that promote greater spectrum efficiency. One such course is spectrum sharing. This summer, President Obama's Council of Advisors on Science and Technology, or PCAST, released a major report strongly advocating this policy. The report notes that a large amount of prime spectrum in the U.S., is currently allocated for Federal government use, and concludes, that the best way to increase capacity is to use new technologies that will enable large blocks of this spectrum, to be shared with commercial providers. The report recommends that we identify large bands of spectrum that can accommodate a variety of uses. The idea is to create multi-lane spectrum superhighways. Spectrum sharing should be the norm, the report states, and this approach could multiply the effective capacity of spectrum by a factor of 1,000. This would transform scarcity into abundance. The report's proposals, which are currently being considered, also assert that technological innovations in recent years, including small cells and improved device performance, make this new approach achievable.

Another policy to promote spectrum efficiency is next-generation unlicensed spectrum. Unlicensed spectrum was one of the great spectrum policy innovations of the 20th Century that has allowed for a new wave of technologies – from baby monitors, to cordless phones, to Wi-Fi.

Today, Wi-Fi and other unlicensed technologies are key complements to licensed spectrum technologies, bridging the supply/demand gap, in a sustainable way. Many of us automatically connect our smartphones and tablets to Wi-Fi networks, instead of our cellular carrier's network, when both are available. And Wi-Fi today, carries much more Internet traffic, than cellular networks. In fact, the aggregate capacity of the world's Wi-Fi networks is 28 times greater than the capacity of the world's 3G and 4G networks. And innovators are doing amazing things on open unlicensed networks. According to one report, 80% of wireless healthcare innovation involves unlicensed use.

Why has Wi-Fi been such a success? For one, unlicensed spectrum is a vibrantly free market: Anyone can innovate in this spectrum. And anyone can use these products. You do not need permission. In addition, all sorts of devices and applications share the same spectrum without any difficulty. It's also worth noting that unlicensed spectrum use requires less government engagement than licensed use.

In 2010, we allowed unlicensed devices to access the unused spectrum in between broadcast TV channels often referred to as "white spaces." In our recent incentive auctions proceeding, the FCC proposed building on this innovation by ensuring that a significant amount of unlicensed spectrum will be available everywhere across the country, and for the first time, on a consistent, nationwide basis. Expanding the availability of unlicensed spectrum will help increase the chance that Americans who live in low income rural and urban areas will have affordable, competitive options, for mobile broadband service. In addition, this proposal could provide an extraordinary new platform for next-generation Wi-Fi, greater machine-to-machine connectivity, and other innovations.

We also need smart policies with regard to the structure of the wireless industry. These policies include promoting competition, encouraging investment, and deployment of towers and other infrastructure that companies need to offer wireless services. The FCC has long promoted competition, which forces carriers to innovate, and get the absolute most out of the spectrum and equipment that they have. The FCC conditions or blocks deals that are anti-competitive, or otherwise inconsistent, with the public interest. But we have also approved more than 1,000 spectrum license transfers, and reduced the amount of time it takes, to review secondary market spectrum

transactions. We've done this because a healthy, pro-growth spectrum policy requires facilitating efficiency-enhancing deals.

We also need policies that promote investment. Addressing the spectrum crunch will require massive amounts of private capital. One way to help encourage this type of investment is to facilitate and remove barriers to broadband buildout. The FCC's Broadband Acceleration Initiative, seeks to do just that, by taking such steps as: implementing a "shot clock" for wireless tower siting, modernizing rules related to pole attachments, and reforming our rules for wireless backhaul. As part of this initiative, we're also moving forward on new ideas -- like removing barriers to collocating antennas, and streamlining access to rights of way. While these may not sound like exciting topics to many people, they speed up broadband deployment, lower costs, and spur billions of dollars in private investment.

Public investment in wireless infrastructure is also necessary. As part of our overhaul of the U.S. universal service system last year, we created a new Mobility Fund to support voice and broadband mobile network in unserved areas. The program allocated an initial \$300 million, to be awarded through a nationwide reverse auction. In this auction, carriers indicate how much support they need to provide 3G or better service, and the award goes to the lowest bidder. Earlier this month, the FCC announced the winners of the reverse auction, who will receive funds to support new mobile infrastructure, in 31 states. The Mobility Fund will also provide \$500 million annually in ongoing support.

Regional and global coordination, and harmonization of spectrum, are keys to many of the policy innovations I've just mentioned. Potential synergies and economies of scale can be captured, by countries working together, and seeking to harmonize spectrum, to the extent possible. At this year's World Radio Conference, we worked with our international partners to achieve adoption of a new agenda item for the next WRC in 2015, to consider new internationally harmonized spectrum allocations, for mobile services. Our plan is to work under this agenda item, and to work with our partners in the Americas, within CITEL, in furtherance of the goal of spectrum harmonization.

In short, we're at a crossroads in spectrum policy. While mobile broadband holds vast promise, we are faced with a host of challenges. To address these challenges, we need to match the ongoing innovation in mobile broadband, with innovation in spectrum policy, global harmonization of spectrum where possible, and a free and open Internet.

Thank you once again for allowing me to join you today. I wish you a successful conference, and look forward to working with the Americas region, to address our common challenges and opportunities.