

**The Honorable Meredith Attwell Baker**  
**Commissioner**  
**Federal Communications Commission**  
**Keynote Remarks: 3G Americas Wireless Broadband Technology Briefing**  
**October 15, 2009**

Thank you 3G America for inviting me to speak this morning. I am grateful that you take the time to do this workshop in Washington, D.C. While I love traveling to see what is going on in the real world outside of our nation's capital, it's also nice to be able to take a taxi down the street to see all of the innovative things you are doing. So, thank you.

I'm here because wireless is so important, and so important to our economy. This is actually my second keynote to you all. My last speech was October 17, 2007, when I was at NTIA. I talked to you about the explosive growth of the wireless industry and all of the important things that we were doing in the federal spectrum management area – a strategic plan for more efficient spectrum management, the test bed, and the clearing of the AWS spectrum. So, this speech may sound a little familiar...

### **Adoption of Mobile Technology**

I started in this industry with a job at the Cellular Telecommunications and *Information* Association, before the "I" became the Internet. There were 55 million wireless telephone subscribers in 1997 and blackberries were mostly just fruit. That number today is about 280 million, providing 2.2 trillion minutes of voice, 1 trillion text messages, the data revenue that didn't exist in 1997 is now \$37 billion a year, and everyone seems to be getting a Smartphone.

So, \$264 billion of investment later (and for me, a lot of gray hairs later), we are at a time of full scale convergence of the mobile industry and the Internet. The merging juggernauts of wireless mobility and the Internet are literally transforming our personal lives, our businesses and our governments. Broadband is bringing unprecedented benefits to consumers and we have a mobile broadband demand that is hard to overestimate.

I've been at the FCC for about two and a half months. Our focus has been on formulating the National Broadband Plan, which is due to Congress on February 17<sup>th</sup>. It's really a strategic plan for how to get broadband to all of America. Mobile broadband, of course, will play an important role in this plan. In fact, what we have heard has been clear. Wireless has the power to level the playing field for rural customers who are beyond the reach of DSL and cable systems, providing access in a more affordable way. Mobility is the fastest growing part of the broadband economy.

### **America's Spectrum Crisis**

At other times when you all have come to Washington, spectrum availability and traffic growth were arguably in sync. While there was always a desire for more spectrum, nothing seemed out of control. It was all a very predictable dance. And in many respects, there is nothing that I would prefer more than for this to be true today.

However, it's just not true. Just as the demand for wireless data is taking off, there is ample evidence that we have reached the point where the spectrum pipeline is drying up, cutting off that vital element that allows our mobile data industry to grow and innovate. Finding more spectrum will take a lot of effort and a lot of time. So we need a plan and we need it now.

We have just concluded a series of hearings and workshops on spectrum availability and mobile broadband deployment in Washington, DC, in Austin TX and in San Diego, CA In each hearing there was the same message: the demand for mobile data is growing exponentially, and despite the breathtaking pace of innovation and the rapid pace of network deployments, soon there will simply not be enough spectrum available to support the applications and services people are willing to pay for and coming to expect. The record in the national broadband plan docket contains the same message.

### **The Success of Mobile Data**

Why do we now find ourselves in this predicament? To me it's pretty simple: the wireless data sector has become one of the drivers of our economy. Cell phones that were modest in their spectrum use are becoming smart phones, and computers that used to work only in fairly limited locations, if they could move around at all, are being used everywhere - thanks to wireless connectivity.

#### ***The numbers tell the story:***

Our record indicates that mobile data usage is not just growing, it's exploding. By some estimates mobile data traffic will grow from 6 petabytes per month in 2008 to nearly 400 petabytes per month in 2013, a 130% combined annual growth rate in just five years! (For those of you who don't know, the prefix peta- indicates a power of 1000, so a petabyte is equal to one quadrillion bytes or 1 million gigabytes. I had to check...)

The Commission has done a good job of making more spectrum available for commercial use by freeing up approximately 540MHz in recent years. This includes 170MHz in the cellular and PCS bands plus 364 additional MHz of spectrum in the 700MHz band (70MHz), the AWS-1 band (90MHz); the EBS/BRS band (194MHz) and the G block. That's 300 percent growth, an impressive number, but all of this happened before the iPhone, Blackberry, Pre or Touch Pro2 were household words

Touch screens, full Internet access, camera and video capabilities are the envy of many consumers, but to put that into perspective, each Smartphone has approximately 30 times the data traffic per device as a regular cell phone. Mobile PCs, which are proving one of the best ways to enable new users to access the Internet, use **450 times** as much data as a cell phone. Experts agree that mobile broadband devices like smartphones and netbooks will account for the vast majority of mobile data traffic in less than five years.

The success, vibrancy and diversity of this room alone suggest that this is right. Most people simply will not be content to make just voice calls any more. They'll want apps; they'll

want movies, TV shows and sports. They'll want directions to new places; they'll want to monitor their houses, their cars, their children, and their health. Maybe they'll just want to have more fun.

Having that fun is going to take some hard work. From all of us.

### **FCC and Spectrum Leadership**

In filings that we've received at the Commission, carriers are telling us that they need anywhere from 40MHz to 150MHz—each!—to continue to provide the increasing benefits of broadband to their customers. But they may be optimistic. The ITU estimates that the US will need anywhere from 760MHz to 840MHz of spectrum to support wireless broadband by 2010 and up to 1720MHz by 2020. Many people are calling this a spectrum crisis. I do too.

Even if, according to CTIA, we are the most efficient users of spectrum worldwide, with more consumers using less spectrum for more minutes than any other country, we all have our work cut out for us. And it is going to take time.

Depending on how you count, and I am an optimist so I may be underestimating, it took 11 years to allocate and assign the cellular spectrum. It took six years to allocate the PCS band, another 13 years to clear the 700MHz block. It was another six years to allocate and assign the AWS-1 spectrum—and that's still a work in progress.

So, if it is beyond peradventure that significant amounts of additional spectrum will be needed to address the needs of consumers, and it is going to take some time especially if regionally or globally harmonized, we must begin the process of securing the necessary spectrum now.

### **The Need for Innovation**

Not only are we going to need to make additional spectrum allocations, we are going to have to implement more innovative, efficient and flexible spectrum management techniques to address what is being called the "looming spectrum crisis." Between our broadband initiative and our innovation NOI, we are receiving some helpful suggestions.

We are going to look at conducting a house-keeping or an inventory, as some would call it. If we are going to make the most of the potential of the newly available White Spaces, have a viable secondary market, spectrum sharing or site specific coordination and registration (like we do in the 70-80-90 GHz band), we need to have a reliable data base. The most common interference problems are out of band, adjacent channel, and spurious emissions. We need to take a look at our methods of analysis and question if there is room for other approaches. We need to look at higher quality receiver standards.

We are going to have to make it easier for new technologies to come to the market faster. The test bed that was established with NTIA needs to be replicated and enhanced. We need to hire more engineers and allow them to address questions and problems in real world timeframes.

There are promising technologies that can help make more intensive use of our airwaves such as dynamic spectrum access and multi-antenna signal processing. They give hope for future multi-purpose use. We need to foster more research and development to incentivize faster development and deployment of next generation technologies such as these.

Innovation in the infrastructure has showed promising possibilities. The distributed antenna system in the new Cowboys stadium- 500 strategically placed antennas through out the stadium- provides coverage indoors and outdoors, even for even the most avid iPhone user. Appropriately installed femtocells, personal cell towers installed at home, can extend network coverage and capacity and are another example of innovation. There were 100,000 sold in 2008 and predictions are an eight-fold increase in 2009. And I am sure there is more we can do to leverage the power of licensed and unlicensed spectrum working together. So there is hope.

### **Importance of Investment**

Finally, it is imperative not to scare private investment away from this sector at this critical time. Additional money is needed to bring mobile broadband capacity and capabilities to all Americans at affordable prices. Despite recent injections of stimulus cash, we will rely on the private sector to continue to expand and build out these networks.

Incentives and a stable regulatory environment are critical for capital commitments. According to our expert panelists in the capital management field, “uncertainty in regulation can have the perverse result of raising prices to all users.” This is a result American consumers, investors, and network operators can ill afford while working towards a connected nation.

As Chairman Genachowski said in his speech last week, “Working together, we can ensure that the U.S. leads the world in mobile. Working together, we can realize the potential of our nation’s mobile future. Working together, we can build a more connected America with mobile communications unlocking a future of opportunity and prosperity for our country.” I couldn’t agree more. So, I look forward to working with you and let’s get to it. Thank you.