

A Spectrum Management Framework

**Remarks of Commissioner Meredith Attwell Baker
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As we all know, the Commission will have a full agenda in 2010. At the outset, it may help to understand how I approach the challenges ahead. I fundamentally believe that consumers will benefit most from continued investment, innovation, and competition. I start with an assumption that markets work better than government intervention and that competition regulates market behavior more efficiently than regulators can. This is my regulatory philosophy that will guide me as the Commission begins its consideration of the national broadband plan and our other front-burner issues. It is my hope that come February the Commission will have a plan that charts a meaningful course for our nation's broadband future.

I want to recognize the work of the Commission's Broadband Team. Congress presented the Commission with a formidable challenge. Thirty field hearings and over 25 public notices, innumerable all-nighters and no doubt more than a few gray hairs later, I think that Blair and his team have done a great job gathering data from all parts of the ecosystem, and I commend industries, interest groups and trade associations for offering valuable input at each stage of the process. I look forward to hearing more from the Broadband Team in the coming weeks as they pull the plan together.

However thoughtful, the national broadband plan will be far from self-executing. It is my hope that the plan will not only propose paths forward – but will also help us start a dialogue about some of the very difficult issues that have vexed the FCC for decades – intercarrier compensation, universal service, special access, and spectrum policy. It is my sense that my colleagues and I are going to have to take a tough look at each of them if we are going to craft policies to enable a broadband future for Americans in all parts of the country.

A Spectrum Policy for Tomorrow

Today, I want to focus on one of the issues that must be addressed and that is particularly important to the long-term broadband health of the country, our global competitiveness, and to me personally: spectrum policy. The United States needs a comprehensive approach that expands upon proven flexible, market-oriented policies that facilitate spectrum access, wireless innovation and competition. Our policy should achieve two overarching objectives: first, make the best use of the spectrum that is available today and, second, get as much additional spectrum into the market as possible to meet the current and future demands of wireless consumers.

This approach must include the nation's first cross-government, long-term strategic framework. This is my top priority and my focus for today. The framework should be one of our major efforts of 2010 and should chart the government's course well into the decade. And we should pledge to make this a living document – one that adapts over time – and gives the public a clear sense of the policy direction of the government and the timeline for additional spectrum availability to the extent possible.

My hope is that the first part of such a framework is a comprehensive inventory of how government and industry use spectrum today.

For those of you who know me, my focus is not surprising. It is hard for me to believe, but I have spent nearly 15 years in government and industry working on these issues. Throughout that time, whether at CTIA, which I joined before the “I” stood for the “Internet,” at Covad Communications, or in private practice, I participated in the unprecedented growth of the communications industry, in unleashing the power of innovation and investment, and in creating strong viable competition to benefit America’s consumers. I saw some businesses succeed and others fail. I saw great value delivered to consumers, and I saw some ill-advised government policies turned into industry arbitrage.

Later at the Commerce Department, I saw the positive impact of U.S. leadership on technology policy to promote an open Internet and opportunities for U.S. businesses and technologies here and abroad. I participated in efforts to foster investment in wired and wireless services, lower barriers to entry across industries, create more flexible service rules, and get new spectrum into the hands of businesses ready to provide valuable consumer services. We worked to ensure that market forces and incentives, not regulatory requirements, were the driving force behind putting spectrum to its highest and best use through auctions rather than command and control service rules.

Overall, we helped to triple the amount of spectrum (both licensed and unlicensed) that is now available for the wireless broadband services that consumers use every day. These collective efforts of government and industry have provided us a strong foundation to build a mobile broadband future.

The Promise of Mobile Broadband

I also know we need to do more. In just a few short years, access to the Internet has become a critical factor in the lives of most Americans. We need to ensure that every American can access the Internet by the most affordable and convenient means possible. Encouragingly, there are signs that mobile devices—smartphones and increasingly netbooks—are empowering people, particularly older Americans, lower income households and other underserved communities, to go online for the first time.

The Pew Foundation recently released a report that noted the power of mobile broadband to encourage people who had never used the Internet to go online. Organizations like One Economy have recognized this trend, and, in conjunction with the mobile industry are developing broadband adoption and literacy training programs to make the Internet relevant and accessible to every American. It’s wonderful that more people are getting exposure to the power of mobile broadband and are putting it to such good use.

The statistics help put this sea change into perspective. Information recently filed with the Commission suggests that less than 15 percent of Americans go online today with mobile broadband. However, among the key 18-29 year old demographic, 93 percent use mobile broadband. I am confident that wireless Internet access will soon be the norm across all demographic groups.

These global trends are not going away. Smartphones capable of accessing the Internet may soon outsell regular mobile phones and there is a fairly broad consensus that within 10 years the principle global means of access to the Internet will be through a wireless device. Predictions like this and the testimony of countless CTOs and other industry leaders tell a similar story. We expect 130% annual growth for mobile data services over the next five years. For mobile broadband to reach its full potential, we are going to need more spectrum—lots more. Not today, or even tomorrow— but soon.

To meet this rising demand for wireless broadband and address other core Commission objectives, it has become clear to me that we must have a central focus on spectrum policy. Given wireless broadband’s ability to foster new competitive players, drive economic investment, and push broadband services to underserved communities, I have no doubt that the national broadband plan will address this country’s spectrum needs at some length. This is appropriate and promising. But I do want to make sure that long-

term spectrum reform is not just a subset of broadband reform. The Commission should develop a separate, complementary approach to guide the Nation's spectrum policy into the next decade. Do not worry, I am not suggesting 15 more workshops and 20 more comment cycles, but I am proposing a more comprehensive and searching review of our nation's spectrum management policies.

Spectrum Challenges on the Horizon

Today, there is over 500 MHz of spectrum available for flexible, licensed commercial wireless services. By various estimates, this demand will require hundreds of MHz of additional spectrum to meet the anticipated needs of a truly mobilized America where 270 million plus Americans are going online wirelessly for their healthcare, education, entertainment, and employment. This need for new spectrum will not develop overnight, and industry is not sitting still waiting for it to happen.

Wireless service providers will be bringing new 3G and 4G services online during the coming month in the 700 MHz, AWS, and EBS/BRS bands. Even where systems are already in place, carriers continue to innovate to use these bands more efficiently – by deploying new spectrally efficient technologies like LTE and WiMax. Providers are also adding infrastructure and advanced technologies that allow for additional cell splitting, increasing use of femtocells, and deploying smart antennas to increase throughput. Innovation is also ongoing to blend wired, licensed and unlicensed solutions to more efficiently manage spectrum and network resources.

This continued investment and innovation by providers to use spectrum efficiently is a positive trend, but industry alone cannot solve our long-term spectrum challenges. Additional spectrum will be necessary in the future. Even with the agreement of every interested stakeholder, it takes a long time for the government to bring new spectrum to market. In the past it has often taken 6 to 13 years to make spectrum available to commercial users through traditional reallocation and relocation approaches.

I am hopeful that future reallocations will be less drawn out thanks to the lessons learned from those past efforts, the Commercial Spectrum Enhancement Act and the helpful recommendations of the Commerce Department's Spectrum Management Advisory Committee. Nonetheless, the timing and intricacies of the spectrum reallocation process, along with the need for a fresh approach, drive my interest in having the Commission begin work in coordination with other government agencies to address the nation's spectrum needs. In my mind, this undertaking should include at least three core elements:

1. An up-to-date, strategic spectrum management framework that includes achievable and clear short and longer term goals. A transparent plan will provide a predictable flow of spectrum resources to broadband providers to allow for planning by both existing providers and new entrants, as well as more flexible use of existing allocations.
2. Economic and regulatory policies to facilitate investment in mobile broadband networks—including deploying 4G networks and enhancing 3G infrastructures. These policies need to support the continued success of the competitive wireless market, but not to the exclusion of entrepreneurs and new entrants. We also need to align the incentives to deploy wireless services to unserved and underserved areas.
3. A policy plan to actively promote innovation, including cutting edge research and development in areas that will help increase the efficiency of spectrum use. Mobile broadband would not exist today without basic research conducted years ago and relentless applied research and development. We cannot expect to benefit from the types of advances that took us from brick phones to smartphones without a comprehensive commitment to world-class research and development in the area of mobile technologies—here in the United States. This could include enhanced collaboration with

technical advisors and other spectrum experts and the adoption of policies that foster further innovation.

A New Framework

While over the next few months I plan to share additional thoughts on addressing our spectrum challenges, today I wanted to talk about the broad contours of what should be the Commission's first step: the development of a comprehensive and strategic spectrum management framework. We need to look at what we can and must do today to address the spectrum needs of tomorrow.

In 2003, President Bush established the Spectrum Policy Initiative, and we developed a strategic spectrum plan for government while I was at NTIA. I think it is essential that we get started with one for non-federal users today. This would not be the first time the Commission tried to look at spectrum policy more holistically. Chairman Powell's Spectrum Policy Task Force's report and recommendations were thoughtful and instructive, but it was also before netbooks, Blackberries, iPhones, and Droids. We need to take a fresh look and build on all these prior efforts.

It is Strategy 101 that one needs to understand the contours of the problem before one can make any recommendations or develop a plan. Indeed, my analytical framework for resolving spectrum issues or any other challenge before the Commission is to first identify the objective, then look to the statute and to Congress, consider the context, and weigh the costs and benefits. With respect to spectrum, we do not today have the basic tools necessary to discern a proper objective with respect to spectrum usage and needs. We need tools to know how, when and where commercial, public safety and public sectors use spectrum.

Spectrum Inventory

One critical tool government and industry needs is a spectrum inventory to better understand how spectrum is being used today across all bands. Such an inventory should be dynamic and focused on data that will inform and facilitate additional spectrum use. The output should be a user-friendly resource for all interested parties and should be able to be incorporated into more sophisticated spectrum management tools. Such an inventory will be critical to government efforts to manage spectrum more effectively as well as spectrum users trying to find fallow spectrum that can be transformed into greater connectivity and new services.

I am reminded of Matt Rantanen, the Director of Technology of the Southern California Tribal Digital Village and a witness at our spectrum hearing in October in San Diego. Matt told us, remarkably light heartedly, about the trouble he had adding capacity to his wireless network that serves Native American communities. Many of his initial spectrum solutions were dead ends because of competing uses and exclusionary areas that would be readily apparent in an inventory-driven database. Without an inventory that shows where spectrum opportunities may lie and where there are "no-go zones" the FCC cannot expect people to build the business plans and spectrum sharing models that are going to help meet the spectrum needs of consumers. We want to lower transaction costs and barriers to entry for those who want to build infrastructure and provide service. An inventory tool could help bring together buyers and sellers, lessors and lessees, and those who might share infrastructure to the benefit consumers.

I know there is recognition of the need for an inventory in Congress, but I don't think the FCC or NTIA need any Congressional authorization to carry out a spectrum inventory. I hope we can get started soon.

Improving Secondary Markets

Even without an inventory, we know from the rural and national broadband proceedings that a lot of allocated and licensed commercial spectrum in rural areas has not been deployed. The dynamic inventory I envision will likely highlight other places where deployment lags as well.

To address this uneven deployment problem, we need to take a comprehensive look at our secondary market rules. Initially developed to encourage deployments in unserved and underserved areas, the secondary market rules have been an evolving tool for providers that may not be attracting the level of investment initially envisioned. The FCC needs to take another look. We need to ask what the Commission can do to stimulate secondary market transactions that enhance the efficient use of existing spectrum allocations.

To answer that question, we need to develop a better understanding of the economic forces that affect the robustness of a secondary market. It is worth noting that there are entrepreneurs out there who are trying to start businesses to trade spectrum, but it is my sense that they may be struggling. I think we need to know why. Are transaction costs too high even after an inventory? Is there sufficient transparency in our existing license databases? Are there enough participants to make “a market?” What specific steps can the FCC take to drive transaction and information costs down and to increase the number of potential secondary market participants?

We also need to understand the impact of our service rules, especially build-out rules and other performance requirements, on the secondary market. Could they be modified to provide incentives that would encourage additional deployments?

Within this discussion, what is the potential role of spectrum leasing? Is interference trading a concept that could help improve spectrum policy? Are there policies that would encourage dynamic spectrum access and cognitive radio technologies and other innovative tools yet to be developed—which I believe are going play a significant role in the near future in enhancing spectrum efficiency.

The more the FCC can promote an active and dynamic secondary market for spectrum, the better off we will be in meeting the challenges of using the spectrum we have more efficiently—and helping ensure broadband coverage to all Americans, especially in unserved and underserved areas.

Updating Allocations and Service Rules

As we develop a more comprehensive understanding of spectrum use, I think we will also need to rationalize and update our existing spectrum allocations and service rules. Decades-old service-specific and technology-specific allocations have splintered our spectrum, delayed implementation of tremendous innovation and arguably resulted in inefficiencies. Resolving those inefficiencies could be one of the keys to unlocking additional value in our current spectrum allocations.

In this context it is worth noting that initial cellular licenses contained none of the rigidity of mobile licenses in other parts of the world, notably in Europe. As a result, there was significant innovation and investment that has propelled U.S. networks from analog to digital and from digital to 3G and now 4G technologies. By contrast, bands subject to much more rigid service rules, including the fixed microwave and LMR, have remained largely the same technologically -- perhaps because the rules may not have facilitated investment and innovation in the same manner as flexible allocations.

On a related matter, as we move to more market-driven service rules, we should avoid rules that favor specific business models. If the market and investors will support a unique or innovative business model,

that's great and the FCC needs to make sure there are no regulatory barriers to them. But I do not think the Commission should be prejudging those outcomes however high-minded the purposes might be behind such efforts.

Conclusion

It is important to recognize that these important first organizational steps to rationalize our spectrum policies will not fix all our nation's spectrum challenges. Longer-term, I see no choice but to identify other spectrum that can be used for mobile broadband services, both above and below 3GHz.

Before we reach those difficult decisions, the spectrum management framework outlined today is a critical first step. By taking full stock of our spectrum resources, and how they are being used, and adapting secondary market and service rules to the changed conditions and technologies we have today, I think we can make great strides to help ensure that U.S. consumers are the beneficiaries of a world class mobile broadband infrastructure.

In closing, with the crush of broadband and other high priority issues, I want to ensure that long-term spectrum management gets the full attention it deserves. It is my hope that the Commission will act quickly, and no later than the end of 2010 to adopt a strategic spectrum management framework.