"U.S. SPECTRUM POLICY – WHEN THE RUBBER MEETS THE ROAD"

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The U.S. government's spectrum policies have long demonstrated a keen awareness that bringing additional spectrum to the commercial sector is necessary to encourage innovation and create and maintain a competitive wireless industry. The policies have become increasingly bold over the years, recognizing that consumer demand for data-intensive mobile services will soon overtake carriers' supply of bandwidth.

Over the years, the government's plans have reflected the growing spectrum crisis by laying out with more specificity the actions that must be taken. At the same time, however, the process of moving encumbered and valuable bands to the commercial wireless sector has become increasingly complex. And, as with any strategic plans, the true difficulties arise when the time comes to convert visions to reality. Stakeholders fight for their own interests and oppose all initiatives that could alter a favorable *status quo*, leaving regulators with the almost impossible task of weeding through dozens of proposals and counter-proposals, and setting the best path forward. As a result, we have had some high points and some low points at the implementation phase, and many goals are yet to be accomplished.

Big Plans

Congress' grant of auction authority to the Federal Communications Commission (FCC) in 1993, and the ensuing sale of spectrum licenses for personal communications services, marked the beginning of our modern wireless industry. Dozens of new companies entered the business, fighting for customers and investors in an exciting Wild West environment.

By 2002, however, the FCC recognized that its policies would have to change to keep pace with the ever-increasing demand for spectrum and advances in technology. The Commission created its Spectrum Policy Task Force, which looked at ways to encourage the most effective and efficient use of the airwaves and ensure there is sufficient spectrum allocated for commercial, public safety, and other communications services. The Task Force ultimately recommended that the Commission consider setting interference standards, quantify use of spectrum, increase use of "white spaces," and develop a more flexible regulatory model for licensed and unlicensed use.

Eight years later, in March 2010, the FCC unveiled its National Broadband Plan, which established an ambitious roadmap for bringing broadband Internet access to all areas of the United States. The plan included numerous provisions aimed at making up to 500 MHz of spectrum available for wireless broadband, including reallocation from federal users, broadcast television, and mobile satellite services (MSS), within 10 years.

The National Broadband Plan was quickly followed up by a memorandum from President Barack Obama directing the National Telecommunications and Information Administration (NTIA), in coordination with the FCC, to identify 300 MHz spectrum that could be freed up within five years for exclusive or shared use, and develop a timetable for reallocation. NTIA developed a 10-year plan for identifying spectrum, including identification of four spectrum bands for study as part of a "Fast Track" Analysis. In January 2011, NTIA released the results of its Fast Track Report, which concluded that the 1695-1710 MHz and 3550-3650 MHz bands could be made available for commercial mobile use, albeit with exclusion zones impacting service to a significant percentage of the population and limiting the utility of the spectrum for commercial services.

As a follow-up to NTIA's report, the President's Council of Advisors on Science and Technology (PCAST) issued a report concluding that the traditional practice of reallocating and clearing spectrum bands used by federal agencies is not a sustainable model, and that the best way to increase commercial capacity is to enable blocks of spectrum to be shared. Although increased sharing is certainly part of the future, the report presents sharing as the only path for the future, rather than one tool available for making more efficient use of spectrum. PCAST also presents sharing as a mechanism that can be broadly applied to large swaths of spectrum through use of a database, when the reality is that developing sharing mechanisms and criteria is a complex process that requires case-by-case analysis. Nor does the report address the need for licensed commercial spectrum to be available reliably and on a primary basis to most of the U.S. population, which is essential to provide investment certainty. Importantly, however, the PCAST report points to the need for changes to facilitate access to spectrum and therefore represents a step forward in the process.

Implementation Wins and Woes

Moving from big strategic plans to implementation has always been slower than many in the wireless industry would like. Nevertheless, in the past decade, we have seen some important achievements. Two major spectrum auctions were held – in 2006, for Advanced Wireless Services (AWS) spectrum that had been reallocated from federal agencies, and in 2008, for reallocated broadcast spectrum in the 700 MHz band. During this period, the FCC also took key steps to remove regulatory barriers to leasing and purchasing spectrum in the secondary market, and it promulgated rules for more flexible use of the MSS bands.

Much more needs to be done, however, to ensure the looming spectrum shortage does not undermine competition in the commercial wireless industry. The National Broadband Plan and the President's memorandum required the FCC and NTIA to set an aggressive five-year schedule for making at least 300 MHz of spectrum available for wireless broadband. We are now starting to see some real action that not only has the potential to make valuable spectrum available, but also to provide a new foundation for how to make spectrum available in the future through use of incentive auctions and other processes that facilitate collaboration between government agencies and the private sector. While we are still at the beginning of developing these new tools, they have the potential to speed the availability of spectrum and to result in greater and more efficient sharing among users.

NTIA took one step in changing how we manage spectrum when it created a joint government/industry initiative for collaboration between government users and the private sector to study whether and how sharing is possible in the 1755-1780 MHz band, as well as to explore relocation possibilities in cases where sharing is infeasible. By creating working groups to conduct detailed analyses on a system-by-system basis, NTIA has taken an important step toward a new framework where the technical experts can exchange information that determines the feasibility of, and maximizes the potential for, spectrum sharing.

In addition to NTIA's working group process, the FCC has given the go-ahead for the industry to test for potential interference and coexistence, working with the government users. This effort will provide real-world information to inform the discussion – something that has often been lacking in past efforts.

Another important step was taken when, in September 2012, the FCC acted on a congressional grant of incentive auction authority by voting to begin proceedings on how best to encourage voluntary relinquishment of television broadcast channels. While developing the details of a much more complex auction procedure will take time, the use of an auction for licensees to voluntarily relinquish spectrum has the potential to speed the movement of spectrum from one use to another.

The FCC will have to develop an entirely new type of auction and determine the appropriate mechanisms to encourage participation. Small entities on both sides of the auction will need more governmental support than ever because of the inevitable complexity of the design. The FCC is not a novice when it comes to creating auctions out of virtually nothing. The electronic simultaneous multiple-round auctions the FCC introduced in the 1990s were masterful achievements, and the Commission provided extensive training and advice for all prospective participants. There is no doubt that with industry support it can accomplish the same outcome in the current, even more complex, environment.

Because the choices of available spectrum are increasingly encumbered, the procedures being designed today to make spectrum used by federal entities and broadcasters available for wireless broadband will serve as models for all foreseeable future spectrum reallocations. Accordingly, the government must get it right and we must all work hard to ensure that we succeed. Given the rapidly growing demand for broadband, all stakeholders must also move quickly to get beyond the planning stages and into the "rubber meets the road" phase before the spectrum crisis hits home.