Spectrum provides one of the basic building blocks for America’s telecommunications future. The “airwaves” are the twenty-first century highway for a multitude of advanced and innovative new technologies and services. How skillfully and creatively we develop and utilize this unique resource will have profound effects upon American commerce, American consumers and American security.

It seems wireless technology is everywhere these days. Wherever you turn, someone is talking on their cell phone, reviewing their emails on their personal digital assistant, or surfing the web on a laptop without wires. Look more closely and you’ll also see people opening their garage doors wirelessly from their cars, preventing their pets from wandering off through wireless tracking devices, avoiding traffic accidents through wireless collision avoidance systems, and monitoring their infant’s sleep in another room with a wireless baby monitor. Even those electronic screens the delivery person has you sign make it possible for the sender to know the instant their package is delivered.

This proliferation of communications devices that utilize radio waves to transmit and receive information is not just theory; it is a marketplace fact. Indeed, in recent years, the use of spectrum-based wireless technologies by businesses, consumers and the government has exploded. Today, over 50% of Americans—or over 140 million U.S. customers—have wireless phones. Worldwide, mobile phone sales totaled 423.4 million units last year, up 6% from 2001. Fourth quarter sales were up 14%, and the U.S. cell phone industry currently employs more than 200,000 people. Beyond cell phones, we are also seeing increasing sales in other areas such as wireless fidelity technology. “Wi-Fi”, as it is commonly referred, was unknown just a few years ago. Today, this consumer-friendly means of establishing a wireless local network is being deployed all over the world, with over 18 million pieces of Wi-Fi equipment sold in 2002.

There is no doubt that advances in wireless technology play a major role in spurring innovation, economic growth and job creation. The ability to communicate and access information on the go has had a significant effect on the productivity and efficiency of American business. By untethering the worker from his or her desk, spectrum-based technology has resulted in substantial savings in time and resources as well as freeing workers to be where they need to be at any given time.

Recent events have also demonstrated the vital contributions that wireless technology is making to our national security. Indeed, spectrum-based devices are a tool of critical importance to today’s military. We have all read about the effectiveness of pilot-less drones, real time battlefield video and GPS-guided munitions. These devices, which have at their heart wireless technology, contribute greatly to the success of our military efforts and can save a substantial number of lives. Our public wireless devices. Assistant Secretary Victory took the lead in the effort to prevent rights-of-way regulation from becoming an unreasonable impediment to the deployment of broadband, and also took steps to advance the privatization of the Internet domain name system. Prior to her appointment to the Department of Commerce, Nancy J. Victory was a partner in the Washington, D.C. law firm of Wiley, Rein & Fielding, where she focused on legal and regulatory issues faced by communications companies. She received her B.A. from Princeton University and her J.D. from the Georgetown University Law Center.
safety officers in the field also rely on wireless communications to deliver critical, real-time information. Additionally, there are many other less visible but no less important government uses of spectrum, such as the radars that guide all commercial and government aircraft, the many science missions of NASA, and satellite imaging for weather forecasting and other purposes.

Supporting all of these amazing technologies is the radio spectrum—an invisible natural resource and an indispensable foundation for America’s future. But, like other natural resources, the spectrum is not unlimited. As these new wireless applications continue to develop and wireless devices are deployed more and more extensively, the demands on spectrum increase and the need for modern and improved spectrum policies and procedures are all the more pressing.

THE NEED FOR SPECTRUM MANAGEMENT REFORM

Today, the management of spectrum has been transformed from the sleepy backwater of yesterday to the front and center focus of policy deliberations. The core principles governing communications policies were set in 1934—before television, before cell phones, before satellites and before the emerging breed of unlicensed devices. Not surprisingly, we are now laboring to revisit these outdated legacy regulations and approaches to accommodate a dramatically different wireless marketplace. As you might imagine, this involves inordinately complex and difficult issues.

First, there is the challenge of the finite nature of the radio spectrum. Additional spectrum cannot be manufactured to accommodate every new use that is created. Rather, such new uses must be accommodated within the existing—and increasingly crowded—spectrum. This is particularly true in the 0 to 3 GHz range—the beachfront property in which 93% of all existing spectrum users reside.

Second, there is the challenge of constantly evolving technology. This of course can be quite helpful in that a new technology can solve difficult efficiency, interference or sharing issues. But it also proves a challenge because even as new problem-solving technologies are developed, operational parameters for the surrounding uses must be re-examined and redesigned to accommodate the new technology. This makes predictability for incumbent users difficult. Not surprisingly, this also imposes increased pressure on managers of the spectrum—the Federal Communications Commission ("FCC") and the National Telecommunications and Information Administration ("NTIA")—to respond more quickly to implementation of new technologies, spectrum distribution and spectrum issue resolution.

Third, there is the challenge of stability and safety. To what extent do new uses and technologies disrupt the stability and performance of existing critical communications systems, and how can this be quickly and comprehensively determined and dealt with prior to the introduction of the new technology? This puts a premium on hypothetical testing and problem solving—one of the reasons that I think NTIA’s Institute for Telecommunications Sciences lab in Boulder, Colorado is so valuable.

And finally, there is the challenge of static processes and legacy regulations in a dynamic field. Older technology can serve as a major delay and impediment to the introduction of new publicly beneficial technologies. Spectrum managers must devise strategies to provide more flexibility to allow the rapid introduction of new technologies and uses in a way that is not disruptive to other users of the spectrum. In other words, how do we get government bureaucracy out of the way where it’s not needed and provide more flexibility to existing users of the spectrum?

SPECTRUM POLICY FOR THE 21ST CENTURY

The Bush Administration understands the importance of spectrum policy to our country’s economic and security needs. Working within the current framework, it has achieved a number of successes to facilitate the introduction of new technologies. Last summer, the Administration facilitated a historic consensus plan between industry, federal government users, the FCC, and NTIA to make 90 MHz of spectrum available for third generation—or 3G—services. And early this year, the U.S. Government and the private sector reached an agreement on how to make an additional 255 MHz of spectrum available for unlicensed use in the 5 GHz band—resolving another complex spectrum management issue that posed a potential barrier to the deployment of devices
using the 802.11(a) Wi-Fi technology. The Administration also found a way to permit the deployment of ultrawideband technologies, a leading spread spectrum technology that will support advances in homeland defense, law enforcement, and high-speed communications.

Yet, all who participated in these spectrum successes would agree that arriving at these win-win solutions was exceedingly difficult and took far too long. A modernized spectrum management process is needed that facilitates and encourages the introduction of new technologies, while providing incumbent spectrum users with predictability and certainty.

Recognizing this, President George W. Bush on June 5, 2003, issued an Executive Memorandum initiating a comprehensive review of spectrum management policies and processes with the goal of developing and implementing a United States spectrum policy for the 21st Century. The President’s goal is to create appropriate spectrum policy that will keep pace with changes in technology, foster economic growth, ensure national and homeland security, and maintain U.S. global leadership in communications technology development and services. In addition, such policies must be designed to satisfy the United States’ critical spectrum needs, including public safety, scientific research, federal transportation, and law enforcement.

Specifically, the President calls for legislative and non-legislative recommendations for improving spectrum management in the following areas:

1. to facilitate a modernized and improved spectrum management system;
2. to facilitate policy changes to create incentives for more efficient and beneficial use of spectrum and to provide a higher degree of predictability and certainty in the spectrum management processes as it applies to incumbent users;
3. to develop policy tools to streamline the deployment of new and expanded services and technologies, while preserving national security, homeland security, and public safety, and encouraging scientific research; and
4. to develop means to address the critical spectrum needs of national security, homeland security, public safety, federal transportation infrastructure, and science.

To develop those recommendations, the President’s Executive Memorandum calls for two courses of activity. First, the memorandum directs the formation of a Federal Government Task Force to focus on ways to stimulate more efficient and beneficial use of spectrum by the federal government. The Secretary of Commerce will chair the Task Force, which will be composed of the major federal government agencies that use spectrum, such as the Department of Defense and the Federal Aviation Administration.

The President’s Memorandum also directs the Department of Commerce to make recommendations for improving policies and procedures for use of spectrum by state and local governments and the private sector, as well as the spectrum management process as a whole. Because of the important role of private sector and state and local government stakeholders with regard to spectrum use, the Department is directed to hold a series of public meetings to assist in the development of these recommendations. The Memorandum also encourages the FCC to participate actively with the Department in developing these recommendations.

The recommendations developed as a result of both of these courses of activity are required to be submitted to the President within one year.

AN OPPORTUNITY NO SPECTRUM STAKEHOLDER SHOULD MISS

The President’s landmark initiative on spectrum means that the next year will be a busy one for those of us engaged in spectrum management. But the next year also provides an unprecedented opportunity for current users of the spectrum (both private sector and governmental), spectrum-based technology innovators, wireless manufacturers, economists and analysts to review the current policies and processes, figure out what still works and what does not, and to suggest changes to improve the spectrum management process to benefit all. Now is the time to think creatively and to generate new ideas—and, most importantly, to participate in the process. In structuring the activities under this spectrum initiative,

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President Bush has recognized the benefit of obtaining the advice of all participants in the spectrum management system and specifically incorporated a process for stakeholder input. I urge you not to miss the opportunity he has made available. With the input of all stakeholders, the resulting spectrum policy for the 21st Century will be better able to address not only the needs of this century, but that of the next one as well.