



THE COMMITTEE ON ENERGY AND COMMERCE

MEMORANDUM

June 25, 2013

To: Communications and Technology Subcommittee

From: Majority Committee Staff

Re: Hearing entitled “Equipping Carriers and Agencies in the Wireless Era”

On Thursday, June 27, 2013, at 10:30 a.m., in 2322 Rayburn House Office Building, the Subcommittee on Communications and Technology will hold a hearing entitled “Equipping Carriers and Agencies in the Wireless Era.” One panel of witnesses will testify:

1. Dean Brenner, Senior Vice President, Government Affairs, Qualcomm
2. Christopher Guttman-McCabe, Executive Vice President, CTIA – The Wireless Association
3. Karl Nebbia, Associate Administrator, Office of Spectrum Management, NTIA
4. Teri Takai, Chief Information Officer, Department of Defense

I. Overview

How can Congress meet the needs of Federal agencies while addressing carriers’ spiraling demand for spectrum in the age of the smartphone? Americans increasingly expect—and our economy increasingly depends on—the ability to access information, enjoy content, and conduct commerce from a mobile device nearly anywhere in the country. And with most of the “low-hanging fruit” exhausted, the conversation is once again turning to spectrum currently used by Federal agencies to fill the breach. But government reliance on wireless technology shows no sign of diminishing, either. What tools are available to maintain and even improve Federal agencies capabilities while freeing spectrum for commercial use? How much would various approaches cost, and how long would they take to implement? What progress is being made today? What steps might Congress, agencies, and the private sector take to facilitate the process? These are the types of questions the hearing will address.

II. Background

The two primary approaches for making spectrum used by Federal agencies available to the private sector are reallocation and sharing. In the past, Federal users have relinquished spectrum or relocated to other bands to make more spectrum available for auction to the private sector. To facilitate such clearing, the 2004 Commercial Spectrum Enhancement Act authorizes the FCC to hold contingent auctions of spectrum used by Federal agencies. If the proceeds of the auction cover the cost of relocating the Federal agencies by 110 percent, the winning bidders receive licenses for the spectrum and the Federal agencies receive funding to relocate. This

approach led to the AWS-1 auction of spectrum from 1710-1755 MHz used by Federal agencies, paired with spectrum from 2110-2155 MHz. Building on the experiences of the AWS-1 auction, Congress amended the CSEA in the Middle Class Tax Relief and Job Creation Act of 2012 to make clearing even smoother by allowing agencies to use some of the funding for advance planning and system upgrades.

An alternative to clearing Federal users is to allow commercial users to share the spectrum the Federal users occupy so long as they can do so in a way that does not interfere with the Federal use. There are many types of sharing. In geographic sharing, multiple entities use the same band of frequencies in different locations. For example, two different broadcasters can use channel 7 in New York and channel 7 in Los Angeles because their service areas do not overlap and they won't cause interference to one another. In temporal sharing, multiple entities use the same band of frequencies at different times. Again using a broadcast analogy, some AM radio stations sign off the air during part of the day so other stations can boost their transmitter power. In dynamic or cognitive sharing, an entity checks to see if anyone is using a band of frequencies, starts when everyone else has stopped, and stops again when others start. This type of sharing is much more complex and can encompass many different technologies, including "dynamic frequency selection" (which is a part of the Wi-Fi standard), accessing spectrum through a database of available frequencies (which is a part of the television white spaces model), and spectrum sensing, in which devices "listen" to see if certain frequencies are in use (which was rejected in the white spaces model because of technical challenges).

Based on the assumption that additional Federal clearing would be too difficult, cost too much, and take too long, the President's Council of Advisors on Science and Technology (PCAST) released a paper in July 2012 that emphasizes dynamic and cognitive sharing over clearing. Federal users would remain where they are and a database would keep track of governmental spectrum uses. Potential commercial or unlicensed users could then query the database and gain access to the spectrum when they can do so in a way that does not interfere with the Federal use. Any compatible device could seek to operate on the spectrum on an unlicensed basis or a user could pay for exclusive access to the spectrum for a period of time. The government would preempt any commercial use when it needs exclusive use of the spectrum.

To help determine the feasibility of various types of sharing in the context of specific spectrum and real-world services, T-Mobile sought special temporary authority in May 2012 from the FCC to test the use of commercial wireless technology in the 1755-1780 MHz band. The 1755-1780 MHz band has long been sought after by the commercial wireless industry for reallocation because it is immediately adjacent to existing wireless spectrum and because that spectrum is used around the world for commercial wireless operations, creating economies of scale. The FCC granted T-Mobile's request in August 2012 to allow testing of how best to accommodate commercial wireless users in the 1755-1780 MHz band. The commercial and government participants continue to work on testing and analysis.

In June 2013, the Obama Administration issued a Presidential Memorandum directing Federal agencies to assess their current and prospective spectrum use, to consider ways of improving efficiency, to examine the possibility of relying on commercial services rather than

dedicated spectrum, to evaluate opportunities for relinquishing or sharing spectrum for commercial use without jeopardizing the agencies' missions, and to share data with the private sector. The memorandum also created a Spectrum Policy Team to recommend ways of incentivizing agencies to share or relinquish spectrum and encouraged the FCC to expedite the repurposing of spectrum and to promote receiver performance as a way of improving spectrum efficiency.

III. Discussion

How can the Subcommittee augment existing spectrum allocation tools to bring additional capacity to commercial systems while maintaining and upgrading the ability of government users to meet their missions and plan for future need?

Existing tools to facilitate the relocation of government systems under the Commercial Spectrum Enhancement Act have limitations. What are some of the challenges presented by the current relocation system? What lessons have we learned from past relocations that can inform the process going forward? In what circumstances is the use of the CSEA inappropriate? Are there situations where the CSEA lacks the flexibility to maximize the benefits of spectrum relocation to the government user, the commercial auction participant and the Treasury?

While scarcity of spectrum is a problem for the private sector, scarcity of funding is a challenge for government agencies. As a result, government systems may lack funding to upgrade their equipment or for other purposes. This Subcommittee worked in the 112th Congress to authorize the FCC to share auction proceeds with commercial licensees that return spectrum to be auctioned for wireless service. Can investment in modern government systems produce a spectrum dividend to meet commercial needs? Might the incentive auction model be adapted to augment the tools in the CSEA and better meet the challenge of improving government spectrum systems? What incentives can Congress offer government agencies to participate in the spectrum clearing process? What challenges and opportunities are presented by the recent Presidential Memorandum on government spectrum use?

In cases where relocation of government incumbents is not economically or technically feasible, sharing between services continues to be an option. Sharing, particularly geographic sharing, has long been an accepted part of maximizing spectrum allocations. By contrast, the PCAST approach to sharing has been criticized for being too reliant on untested and undeveloped technologies. In what instances should we utilize spectrum sharing? How can sharing complement the clearing process in the current spectrum and economic environment? What economic and technical conditions should trigger sharing over clearing?

If you need more information, please call Neil Fried or David Redl at 5-2927.