

SPECTRUM RELOCATION REPORT:
COMPENSATION OPTIONS FOR RELOCATION COSTS
OF FEDERAL ENTITIES

September 2006

INTRODUCTION

In December 2004, Congress passed the Commercial Spectrum Enhancement Act to provide a mechanism for Federal entities to receive compensation when Federal Government stations as-signed to certain frequency bands incur “relocation costs because of the reallocation of frequencies from Federal use to non-Federal use.”¹ Under the terms of the CSEA, funds for compensation are only available when the Federal entities relocate from spectrum awarded to non-Federal entities through a competitive bidding, or auction process.² Section 204 of the CSEA sets up a Spectrum Relocation Fund (SRF) and designates that a portion of the revenues obtained in the auction of the spectrum to non-Federal entities be credited to the SRF to pay the relocation costs of Federal entities.³

The CSEA directs the Administrator of the National Telecommunications and Information Administration (NTIA) to submit a report to Congress on the various policy options to compensate Federal entities for relocation costs “when such entities’ frequencies are allocated by the Commission for unlicensed, public safety, shared, or non-commercial use.”⁴ These situations are all cases where under current law the Federal Communications Commission (FCC) would not use competitive bidding to license the new spectrum users. In response to this congressional request, NTIA provides the following policy options for funding relocation costs.

RECENT REALLOCATION EFFORTS

The Federal Government has a significant investment in spectrum-dependent infrastructure, and relocating Federal operations to other bands to accommodate private sector activities can involve significant capital investment costs. For example, in 1993 Congress directed NTIA to reallocate at least 200 MHz of Federal Government spectrum to the private sector.⁵ In 1995, in response to that directive, NTIA identified 220 MHz of spectrum with an estimated cost for the relocation of Federal users of between \$477 million and \$592 million.⁶ In 1999, Congress passed the Strom Thurmond Act, which mandated the reimbursement of Federal agencies for re-location costs.⁷ The initial reimbursement rules involved direct reimbursement of Federal agencies by the non-Federal licensees who were displacing them. There has been, however, no transfer of or reimbursement for spectrum under these rules.

In 2003, NTIA and the FCC began planning for the transition of the 1710-1755 MHz band to non-Federal use. Congress clarified the reimbursement rules in anticipation of the transfer of this spectrum by passing the CSEA.⁸ The SRF and the associated processes set forth in the CSEA establish procedures for using the auction proceeds to reimburse

the Federal agencies for the costs related to moving to different spectrum “to achieve comparable capability of systems.”⁹ The auction of the 1710-1755 MHz band began on August 9, 2006, and auction proceeds are projected to exceed the migration costs.

Some non-Federal entities use spectrum that may not be auctioned under current law. For example, public safety radio services are exempt from the auction provisions of 47 U.S.C. section 309(j).¹⁰ Also, unlicensed spectrum use is inconsistent with an auction approach, since there is no license to auction. In passing the CSEA, Congress requested information on policy options to compensate Federal entities for relocating Federal systems to accommodate unlicensed, public safety, shared, or non-commercial spectrum use. The lack of auction revenue for reimbursement in such cases could delay or prevent Federal users from relocating from the bands, thus retarding implementation of promising new technologies and services for other users.

NO-COST SHARING AND REALLOCATION OPTIONS

Where the reallocation is structured so that Federal and non-Federal users share the spectrum in a way that does not require relocation of Federal users, there is no need for relocation reimbursement. In particular, for public safety services, sharing of spectrum is identified frequently as a means to facilitate needed interoperability among services and organizations. NTIA is not aware of any proposals to relocate Federal users in order to accommodate public safety spectrum users. Moreover, when spectrum used by Federal agencies is considered for reallocation for public safety services, it will likely be through sharing of spectrum for interoperability.

The accommodation of the significant increase in the use of unlicensed spectrum by millions of users in all sectors of the economy has not yet required the reallocation of Federal spectrum. The FCC’s regulations restrict the operation of unlicensed devices in bands where such devices may cause interference, regardless of the power level transmitted. These regulations require that the emission levels of unlicensed devices in bands where they operate are low enough to operate under the signals of licensed devices, thus not causing interference.¹¹

NTIA and the FCC are also investigating other methods of sharing that protect existing users from interference. For example, dynamic frequency selection (DFS) and cognitive radios, both allow new systems to select operating frequencies on an almost real-time basis from among those other existing users in the area have left idle. These can accommodate changes in operating frequencies of all users in the environment, including licensed existing users and other cognitive or DFS systems.¹² Work in this area recently made 255 MHz of spectrum available for unlicensed applications in the 5 GHz band. Technical sharing methods promise to increase greatly the amount of spectrum available for new technologies, and further decrease the need for relocation of Federal systems in order to accommodate shared use.

As a result of the President’s 21st Century Spectrum Policy Initiative that was launched in 2003 to improve the management of the nation’s airwaves, NTIA and the FCC are

working to develop improved approaches for assessing the potential impact of emerging technologies.¹³ This includes the development of a plan to increase sharing of spectrum between Federal Government and non-Federal users, and the establishment of a pilot program to allow sharing of two 10 MHz segments of spectrum, of which one is currently allocated for exclusive Federal use and one for exclusive non-Federal use.¹⁴ In April 2006, NTIA selected the Washington, D.C. Wire-less Accelerated Responder Network (WARN) to evaluate the effectiveness of sharing radio spectrum among Federal, state, and local government during emergencies.¹⁵ The WARN system was selected to be the first demonstration of the feasibility of sharing spectrum, among commercial, Federal and local public safety agencies, and critical infrastructure applications. The demonstration program also will test the operational and cost effectiveness of sharing spectrum and communications infrastructure between Federal, state, and local governments, and private entities.

CONCLUSION

Thus, the management of spectrum is evolving from the need to provide segregated bands of frequencies for different users to a condition in which radio services can operate on a non-interference basis due to the use of low power or computer-facilitated communications to select operating frequencies that will not cause interference in dynamic environments. These developments will decrease the need to find new operating frequencies for existing Federal systems in order to accommodate unlicensed, public safety, shared, and non-commercial spectrum use. Future situations may occur, however, when the bands currently allocated for Federal operations are reallocated to non-Federal users, and in such situations, the spectrum should be auctioned and reimbursement provided to Federal users under the CSEA. NTIA and the FCC regularly assess the optimal allocation of the spectrum as an element of their spectrum management responsibilities. When Federal spectrum is reallocated, the CSEA provides an effective mechanism for streamlining this process.

Endnotes

¹ The Commercial Spectrum Enhancement Act (CSEA), Pub. L. No. 108-494, sec. 208(b), 118 Stat. 3996-97 (2004) (to be codified at 47 U.S.C. § 923(g)(1)). The CSEA includes Titles I through III: *Ensuring Needed Help Arrives Near Callers Employing 911 Act of 2004* or the *ENHANCE 911 Act of 2004*; *Commercial Spectrum Enhancement Act*; and *Universal Service Anti-deficiency Temporary Suspension Act*, respectively.

² CSEA, Pub. L. No. 108-494, sec. 202(1), 118 Stat. 3991 (to be codified at 47 U.S.C. § 923(g)(1)).

³ *Id.* at sec. 204, 118 Stat. 3994 (to be codified at 47 U.S.C. § 927(c)).

⁴ See supra note 1. The House Committee on Energy and Commerce, in its Report to the House of Representatives on H.R. 1320, the *Commercial Spectrum Enhancement Act*, provided the following guidance: “[t]he Committee expects NTIA to make policy recommendations appropriate to and consistent with its statutory authority.” H.R. Rep. No. 108-137, at 20 (2003).

⁵ See, 47 U.S.C. § 923(b).

⁶ See, *Spectrum Reallocation Final Report, Response to Title VI - Omnibus Budget Reconciliation Act of 1993*, NTIA Special Publication No. 95-32, Executive Summary, at page vii (1995).

⁷ *Strom Thurmond National Defense Authorization Act For Fiscal Year 1999*, Pub. L. No. 105-261, 112 Stat. 1920, (1998).

⁸ See supra note 1.

⁹ See CSEA, Pub. L. No. 108-494, 118 Stat. 3992, sec. 202 (to be codified at 47 U.S.C. § 923(g)(3)).

¹⁰ See 47 U.S.C. § 309(j)(2).

¹¹ See 47 C.F.R. part 15. The FCC has always adhered to the non-interference requirements on Part 15 devices when conflicts with FCC-licensed and NTIA-authorized uses have arisen. While the use of concepts protecting existing users has been a critical aspect of the successful implementation of the underlay philosophy of Part 15, DFS and cognitive radios for unlicensed devices, this approach is not without risk. Although the unlicensed users must stop causing interference to stations in allocated services and cannot claim protection from interference from other spectrum users, the costs of resolving such problems can be high. Incumbent licensed or Federal authorized users could potentially face interference from large numbers of unlicensed devices, as could the unlicensed devices from the licensed and authorized users.

¹² See, Comments of NTIA, *In the Matter of Facilitating Opportunities for Flexible, Efficient, And Reliable Spectrum Use Employing Cognitive Radio Technologies Authorization and Use of Software Defined Radios*, ET Doc. No. 03-108, filed February 15, 2005.

¹³ In May 2003, the President established “the Spectrum Policy for the 21st Century - the President’s Spectrum Policy Initiative” to foster economic growth, promote our national and homeland security, maintain U.S. global leadership in communications technology, and satisfy other vital U.S. needs, including public safety. As part of this Initiative, the President directed the Secretary of Commerce to prepare recommendations for improving spectrum management. The Secretary of Commerce formed a Federal Government Spectrum Task Force, and initiated a series of public meetings to address improvements in policies affecting spectrum use by Federal, state, and local governments and the

private sector. The recommendations from these activities were included in a two-part report released by the Secretary of Commerce in June 2004. NTIA and other designated agencies are in the process of implementing these recommendations.

¹⁴ See, *Spectrum Policy For The 21st Century – The President’s Spectrum Policy Initiative: Report 2, Recommendations From State and Local Governments and Private Sector Responders*, NTIA, Washington, D.C., June 2004 (This report specifies that the spectrum for the pilot program may come from either shared or exclusive use bands.)

¹⁵ See NTIA Press Release, April 25, 2006, at http://www.ntia.doc.gov/ntiahome/press/2006/publicsafety_042506.htm.