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The Digital TV Transition: A Brief Overview

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Summary

Congressional policymakers are seeking a way to accelerate the nation's transition to digital television and to expedite the transfer of radio frequency channels from the broadcast industry to public safety and commercial users no later than 2009. Broadcasters are holding spectrum in the 700MHz band (channels 52-69) that they would be required to relinquish after the transition to digital television (DTV) is achieved. Without a hard deadline, the transition to digital television has been postponed. Meanwhile, public safety officials want 700 MHz spectrum that has been assigned to them, but not delivered, in order to build new interoperable networks, while the commercial wireless industry would like access to the spectrum for new services.

The scope of a bill to clear spectrum and facilitate the transition to digital television is under discussion in the House and Senate. Although policymakers continue to discuss different proposals for legislation, it appears that consensus has been reached on several points. For example, there is general agreement to set a firm date for the clearing of 700 MHz spectrum; to use \$4.8 billion of auction proceeds toward Congressional commitments to reduce the budget deficit by 2010; and to take measures so that TV viewers will not lose access to television programming. The steps needed to achieve the latter remain a major point of disagreement, within and outside Congress. Because of the intention to use spectrum funds to meet the Budget Resolution (H.Con.Res. 95), many believe that the major points of a DTV transition act could be included as part of the reconciliation process. Bills introduced that deal with the transition to digital television and spectrum use include H.R. 1646 (Representative Harman), S. 1268 (Senator McCain), and S. 1600 (Senator Snowe). This report will be updated.

The transition to digital television has two major policy components. One set of policy decisions is concerned with how best to move television broadcasters and their viewers to digital technology. Other key policy issues deal with radio frequency spectrum management and allocation. The public interest goals for these paths are not well aligned,

presenting Congress with difficult choices to achieve its overall objective of completing the transition. Briefly discussed below are key points about the transition process: background, the impact on broadcasting, spectrum policy, and recent legislative activity.¹

I. Background. The process of regulating the introduction of digital television (DTV) technology extends over more than a decade.

- DTV is considered the most significant development in television technology since color television because of features such as better picture resolution and the more efficient use of spectrum. DTV also allows a broadcaster to offer multiple programs (multicasting) or a single program of high definition digital TV. The United States and countries throughout the world are actively seeking to replace existing over-the-air analog TV with DTV broadcasting.
- The Telecommunications Act of 1996 (P.L. 104-104) provided that eligibility for DTV licenses should be limited initially to existing broadcasters. Digital signals cannot be transmitted with existing analog television technology. Therefore, broadcasters were issued additional licenses for new, DTV broadcast channels while continuing to broadcast on existing channels during the transition period. The old, analog licenses were to be returned to the federal government after the transition to DTV.
- In the Balanced Budget Act of 1997 (P.L. 105-33), Congress set a deadline of December 31, 2006 to complete the transition from analog to digital television but allowed several exceptions that can extend that deadline. The most critical exception is the establishment of a threshold of 85% for the percentage of households, by market, that must be able to receive digital signals before the licenses for analog broadcasts must be relinquished.
- Given the slower-than-expected rate of adoption for DTV in American homes, few believe that the goal of over-the-air digital television in 85% of American households by 2006 will be reached. As a result — under the Balanced Budget Act — television stations will be able to broadcast both analog and digital signals indefinitely.
- Switching from analog to digital broadcast means that broadcasters will begin to broadcast exclusively on channels assigned for digital use; broadcasts in analog mode would be ended. Viewers with conventional (not DTV) sets would lose over-the-air broadcast TV unless they either installed a set-top converter box to convert digital signals to analog formats, or subscribed to a cable or satellite service that can accommodate both technologies.

¹ Detailed information on these topics is available in CRS Report RL31260, *Digital Television: An Overview*, and CRS Report RL32622, *Public Safety, Interoperability and the Transition to Digital Television*.

- In the Intelligence Reform and Terrorism Prevention Act (P.L. 108-458), Congress expressed its sense that 1) it must act in the first session of the 109th Congress to establish a comprehensive approach to the timely return of spectrum held by the broadcasters and that 2) any delay in doing this would delay planning by the public safety sector that is to receive some of the spectrum for new communications systems. (Sec. 7501.)
- Spectrum released in the transition process that has not already been allocated could, for example, be assigned for additional public safety use, for licenses for advanced wireless services (auctionable for revenue to the Treasury), or for unlicensed (free) use.

II. DTV and Broadcasting. Several studies, such as those mentioned below, have indicated that only a small percentage of consumers have digital tuners and that many are unaware of the impending transition. Much of the debate over the transition to DTV is how to assure access to broadcast programs.

- According to the National Association of Broadcasters, there are currently 280.5 million analog televisions in United States. Of these, 73 million rely on over-the-air broadcasting.²
- A key issue in the digital transition is that the millions of analog televisions that rely on over-the-air broadcasts will no longer work once the analog signal is turned off. According to a Government Accountability Office survey, 19% of U.S. households (21 million) do not subscribe to a cable or satellite service and rely exclusively on over-the-air broadcasting. The GAO found that low-income, non-White, and Hispanic households are more likely to rely on over-the-air television broadcasting.³ The Federal Communications Commission (FCC) estimates that 15% of TV households are exclusively over-the-air.⁴ The Consumer Electronics Association (CEA) has estimated that less than 13% of TV households currently rely on over-the-air TV broadcasts.⁵

² Comments of the National Association of Broadcasters and the Association for Maximum Service Television, Inc., *In the Matter of Over-The-Air Broadcast Television Viewers*, FCC, MB Docket No. 04-210, August 11, 2004.

³ See U.S. Government Accountability Office, Testimony before the Subcommittee on Telecommunications and the Internet, Committee on Energy and Commerce, House of Representatives, *Digital Broadcast Television Transition: Estimated Cost of Supporting Set-Top Boxes to Help Advance the DTV Transition*, February 17, 2005. Available at [<http://www.gao.gov/new.items/d05258t.pdf>]. Viewed July 7, 2005

⁴ FCC, *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Report FCC 05-13, MB Docket No. 04-227, released February 4, 2005.

⁵ Statement of Gary Shapiro, President and CEO, Consumer Electronics Association, before the House Committee on Energy and Commerce, Subcommittee on Telecommunications and the Internet, May 26, 2005. Available at [<http://energycommerce.house.gov/108/Hearings/05262005hearing1533/Shapiro.pdf>]. Viewed July 9, 2005.

- In June 2005, the Consumers Union and the Consumer Federation of America issued a joint study⁶ that estimated that approximately 16 million households would lose all TV reception when analog signals are cut off. Based on an estimate of a \$50 price to purchase a converter box, the report concluded that “the direct government-imposed costs on consumers to preserve the usefulness of [analog television sets] would be \$3.5 billion or more.”
- The GAO estimated that the cost of assuring over-the-air broadcasting by supplying converter boxes to households that only have analog television could total from \$460 million to \$10.6 billion, depending on a number of variables such as the cost of the boxes and the number of households eligible to receive assistance.⁷ The GAO cost estimates do not include the cost of implementing a subsidy program.
- Policy issues include whether some form of financial assistance (subsidies or tax credits, for example) should be provided by the federal government to enable over-the-air households to purchase converter boxes or digital televisions; whether such assistance should go to low-income households exclusively or to all households; whether subsidies, if warranted, should be financed by proceeds garnered by auctioning the analog spectrum; how much funding a subsidy program would require, and how much revenue is likely to be raised by auctioning the commercial portion of the reclaimed analog spectrum.
- Many cable households might wish to continue to use analog televisions after the transition. Cable companies might offer converter boxes to these customers. As an alternative, it is possible that cable providers might seek authority from Congress to “downconvert” the digital signal of selected local broadcast stations to analog format. To serve customers with digital televisions, cable providers would continue to provide digital signals as well (in other words, “dual carriage”). Under this scenario, a key issue is whether (and how) Congress should mandate which local broadcast stations would receive the benefit of “dual carriage” to cable customers, and for how long. A related issue is whether cable systems should be required to carry any or all digital multicasted channels transmitted by commercial broadcasters.
- The National Association of Broadcasters has announced that it expects “Congress will pass a DTV bill this year with a hard date for turning off analog television with minimal consumer disruption. NAB's priority

⁶ *Estimating Consumer Costs of a Federally-Mandated Digital TV Transition*, Consumers Union and Consumer Federation of America, June 29, 2005 at [http://www.hearusunow.org/fileadmin/sitecontent/DTV_Survey_Report-Final_6-29-05.pdf]. Viewed August 10, 2005.

⁷ GAO-05-258T, pp. 14-15.

continues to be the prevention of cable companies from blocking consumer access to local TV programming.”⁸

III. Spectrum Policy. The completed transition process will free up 60 MHz of spectrum in addition to freeing spectrum already allocated for public safety or sold for commercial use. Among the uses proposed for this 60 MHz are: to provide additional spectrum for public safety use; to assign spectrum for unlicensed use; and to auction licenses for the channels. Although the three uses are not mutually exclusive, it is assumed that the spectrum will bring substantial sums from an auction and therefore less spectrum to auction could mean lower proceeds from the auction.

- The Intelligence Reform and Terrorism Prevention Act requires the FCC to prepare a study for Congress evaluating whether additional spectrum should be made available for public safety and homeland security wireless communications. (Sec. 7502, due December 2005.)
- Some of the channels to be vacated by broadcasters have been assigned to public safety and some have been auctioned for advanced wireless communications services. There is widespread interest in using the remaining, unassigned channels for broadband wireless.
- Some of the companies that are interested in promoting wireless broadband have created the High Tech DTV Coalition.⁹ Coalition members have concluded that the release of spectrum at 700 MHz will “spark growth in the U.S. high-tech sector,” especially the market for advanced wireless services, a category that includes DTV broadcasting to next-generation wireless phones and computers.¹⁰
- The authority of the FCC to hold spectrum auctions is currently set to expire in September 2007. In Congress were to set a hard date for the transfer of analog spectrum, it could also address an extension of the FCC’s authority to auction this spectrum.
- Although estimates vary, spectrum auctions of frequencies in the 700 MHz band have typically been projected to gross \$20 billion to \$30 billion.¹¹ Revenue potential is dependent on a number of factors,

⁸ “Statement,” NAB Newsroom press release, June 29, 2005 at [http://www.nab.org/newsroom/pressrel/statements/062905_CU-CFA_Survey_Statement.htm]. Viewed July 6, 2005.

⁹ Members include Alcatel, Aloha Partners, AT&T, Dell, Cisco Systems, IBM, Intel, Microsoft, Qualcomm, Texas Instruments and a number of associations. Source, Press Kit, High Tech DTV Coalition, April 27, 2005.

¹⁰ “Analysis of an Accelerated Digital Television Transition,” prepared by the Analysis Group, sponsored by Intel Corporation, May 31, 2005 at [<http://www.itic.org/reports/DTV%20Transition%20Report.pdf>]. Viewed June 29, 2005. For a brief discussion of some of the technologies, see CRS Report RS20993, *Wireless Technology and Spectrum Demand: Advanced Wireless Services*.

¹¹ “Analysis of an Accelerated Digital Television Transition,” page 6.

including timing of auctions and the date at which spectrum will be cleared and available. The Congressional Budget Office has reportedly set a benchmark estimate of \$10 billion in revenue from auction of this spectrum.¹²

IV. Legislative Activity. Policymakers in the 109th Congress propose to allocate \$4.8 billion from 700 MHz auction funds toward meeting a Budget Resolution to reduce the federal deficit by the end of FY2010.¹³ They would like to accomplish this in a manner that maximizes the amount of 700 MHz spectrum available in a timely manner while minimizing the cost and inconvenience to TV-viewers and the television industry that might result from the transition.

- Beginning with the 107th Congress, Representative Jane Harman has introduced the HERO Act in each Congress, this legislation would assure the release of spectrum for public safety use (H.R. 1646, 109th Congress).
- Senator John McCain has introduced the SAVE LIVES Act (S. 1268, 109th Congress) that would release all the encumbered spectrum and fund subsidies to cover some of the costs of transition, among other provisions.
- Representative Joe Barton (Chairman, Committee on Energy and Commerce, House of Representatives) and Senator Ted Stevens (Chairman, Committee on Commerce, Science, and Transportation, Senate) are reportedly preparing bills covering the release of spectrum and the transition to DTV.¹⁴

¹² “Estimates Vary on Value of Spectrum,” by Drew Clark, Technology Daily, August 2, 2005.

¹³ For the House Committee on Energy and Commerce, the commitment could be \$14,734,000,000 for fiscal years 2006 through 2010; H. Con. Res 95, Concurrent Resolution on the Budget for Fiscal Year 2006, Title II, Sec. 201 (a) (2) (C). Reportedly the House would use \$4.8 billion of spectrum auction revenue to help meet this goal, see, for example, “DTV Bill to be Subsumed in Budget Bill,” Communications Daily, July 8, 2005.

¹⁴ “NAB Thwarting Return of Spectrum, McCain Says,” Communications Daily, June 15, 2005.