

Digital Television and the Allure of Auctions: The Birth and Stillbirth of DTV Legislation

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I. Introduction

President Clinton signed into law the Telecommunications Act of 1996 (1996 Act or the Act) on February 8, 1996.¹ The pen he used to sign the Act was also used by President Eisenhower to create the federal highway system in 1957 and was later given to Senator Albert Gore, Sr., the father of the highway legislation. Clinton's gesture highlighted Vice President Al Gore's eminence in telecommunications policy. It also related the 1996 Act's primary goal-to spur competition in the telephone and cable industries-to its secondary consequences-the creation of new information highways through liberalized and converged technologies. Ironically, the 1996 Act itself contained few provisions expressly designed to promote emerging technologies to pave the information highway. Those provisions concerning the nascent advanced digital broadcast television technology (DTV)-the long-heralded twenty-first century broadcast television system-were among the few crafted to serve this purpose.

The DTV provisions, set forth in section 201 of the 1996 Act (to be codified at 47 U.S.C. § 336), constitute only a small piece of the 1996 Act, but they took on an importance disproportionate to their legal significance. The provisions themselves do not alter the authority of the Federal Communications Commission (FCC or Commission) to assign DTV licenses as it could have done (and seemed inclined to do) anyway.²

The significance of the provisions was magnified by the controversies that swirled around and followed after their creation. The controversy over auctioning spectrum was the most notable of these.³ More generally, the DTV provisions focused attention on the intensely disputed issue of how spectrum should be assigned among various services and users, and what the respective roles of the FCC and Congress should be. Discussions on this second point arose during the deliberations leading to the 1996 Act and extended into congressional hearings that followed the Act's enactment. Thus far, Congress has decided that it will not go beyond the 1996 Act with respect to DTV legislation and that the expert agency should conclude the DTV proceeding on its own.⁴ This article will explore how that decision was made and preview the repercussions of that decision on spectrum management policy of the future.

II. Origins of the DTV Provisions of the 1996 Act

By February 1996, the FCC proceeding on DTV (previously referred to as ATV or Advanced Television Services) was almost nine years old and Congress, with the 1996 Act, was inserting itself into a mature regulatory process nearing completion. As discussed below, the FCC tentatively had decided to assign to each of the more than 1600 existing television broadcast stations a second 6 megahertz (MHz) channel (the standard bandwidth for North American television) to begin broadcasting DTV signals. Broadcasters would have six years from the issuance of a DTV license to construct a second station and get a DTV signal on the air. In approximately fifteen years, with the presumably widespread penetration of digital sets in the home, the analog service would be discontinued, and broadcasters would revert to a single 6 MHz channel.⁵ What the FCC had *not* considered in any detail was the use of auctions to assign the DTV channels. In fact, the FCC did not have the authority to use auctions to assign *any* licenses until 1994 and, even after 1994, the FCC lacked the authority to assign broadcast licenses by auction. But there were other reasons too few seriously considered DTV auctions. Until the congressional debates over the 1996 Act, the DTV transition was viewed as a necessary and expensive technical upgrade to be soldiered through, not a coveted prize to be bid for. The congressional debates of 1994 and 1995 changed this. Not only did these debates raise the prospect of an enlarged FCC auction authority, but they also altered the public's perception of what the transition to DTV might mean.

A. The Regulatory Process

By the late 1970s, it had become apparent to many broadcasters that the existing broadcast technology, developed in the 1930s, would have to be updated. This existing technology, known as "NTSC",⁶ was an analog transmission system that had been adapted to accommodate color and stereo, but was unlikely to support additional significant improvements in picture and sound. On the horizon was high definition television (HDTV) which would permit the transmission of pictures with wider dimensions and much better definition. The difficulty was that the decentralized nature of broadcast television, transmitted from more than 1600 local stations to more than 200 million sets, made a system-wide upgrade extremely complicated. The question was how, all at relatively the same time, each of these local stations could convert its facilities to a new technology, the television networks and program syndicators could provide compatible new programming, and consumers could purchase new sets. In addition, the question was how this technical and logistical feat could be accomplished without disrupting the existing broadcast system serving more than 98 percent of the public—the system that functioned as the nation's video dialtone.

In 1987, a group of broadcasters petitioned the FCC to begin answering these questions by opening an inquiry on how to upgrade the nation's broadcast television service.⁷ That same year broadcasters sponsored a demonstration of HDTV in Washington.⁸ By this time Japanese and European entities (generally government-backed) were well on their way to implementing HDTV technology and exporting that technology to the United States. The Japanese government-supported Nippon Hoso Kuyokai (NHK) broadcasting company had proposed an analog HDTV system for use in the United States. From a technical perspective, this system was ill-suited to the locally based, relatively narrowband U.S. broadcasting system.⁹ Perhaps more importantly the prospect of both transmission and receiver technologies developed abroad was untenable from a domestic policy perspective.¹⁰

Thus, the FCC launched a proceeding in 1987 with the goal of improving the sound and picture of the nation's broadcast system and spurring American industry to develop an HDTV system.¹¹ To this end, the FCC established the Advisory Committee on Advanced Television Service (ACATS)—a joint government and private industry group, chaired by former FCC Chairman Richard Wiley, and charged to work under the FCC's direction to evaluate candidate transmission systems and to recommend a national DTV standard.

In 1988, testing of more than twenty-three advanced television system prototypes began at the Advanced Television Test Center (Test Center), based in Alexandria, Virginia.¹² Most of the prototypes were analog systems. Then, in 1990, the FCC made a decision that shaped how the ACATS process would progress.¹³ It

announced that advanced television signals would have to be broadcast simultaneously with conventional NTSC signals.¹⁴ As a result of this "simulcasting approach," either additional spectrum outside the broadcast band would be necessary to transmit advanced television or advanced television systems would have to use spectrum already allocated for broadcast service.

Not surprisingly, given the increasing competition for available spectrum, the latter course prevailed. Because television stations are assigned so as to minimize interference from stations in different markets on the same channel and stations in the same market on adjacent channels, a number of channels in each market are unusable. The challenge facing the FCC and designers of advanced television systems in the early 1990s was to fit another 1600 stations into these buffer channels without creating unacceptable interference to analog stations. Only digital systems could meet this challenge because only digital signals are robust enough to be transmitted between analog signals without deteriorating or causing unacceptable interference to the surrounding analog channels.

In 1992, the General Instrument Corporation proposed to ACATS the first all-digital HDTV transmission system that was compatible with the existing television channel scheme. This system, and others that followed, had three distinct advantages over the competing analog systems. First, as noted above, the digital systems could facilitate the efficient use of the existing broadcast spectrum by rendering the buffer and "taboo" channels usable for the first time. Second, the use of digital compression technology enabled DTV channels to carry five times the information that can fit into analog channels of the same size. Third, digital television promised competitive advantages that could carry over-the-air broadcasting into the next century. As Congressman Markey (D-Mass.) stated in 1996, "[I]t's in the broadcast industry's long-term interest to go digital. . . . The phone, cable, wireless and satellite industries are all moving to digital technology. Digital technology is the equivalent of technological Esperanto."¹⁵ Digital's clear advantages were reflected in the ACATS testing process in which just two analog and four digital advanced television systems progressed. In mid-1993, pursuant to an ACATS recommendation, the seven companies that had been proponents of the four digital systems joined in a "Grand Alliance" to create the optimal DTV system.¹⁶

The Grand Alliance designed its system with several goals in mind.¹⁷ First, as a result of FCC directives, it aimed to transmit HDTV within the existing broadcast spectrum, over 6 MHz channels and with minimum interference to NTSC transmissions. Second, recognizing the increasing prevalence of computer interfaces, it sought to make DTV broadcasting interoperable with computer (supporting the adoption of square pixel and progressive scan formats) and ATM applications (supporting the adoption of data packet formats). The result was a system that could make use of the buffer channels in the existing broadcast spectrum to produce a television picture that rivaled film for clarity and vividness. HDTV has a resolution of more than 1000 lines (an increase from 525 lines on NTSC), a wide aspect ratio of 16 inches by 9 inches (an increase from 4:3 on NTSC), and CD-quality sound.¹⁸ Testing of the Grand Alliance system proceeded at the Test Center through 1994 and well into 1995. In November 1995, ACATS delivered its final report to the FCC recommending the adoption of a DTV transmission standard based on the Grand Alliance system.¹⁹

The advent of a digital system for DTV delivery was the single most important technical development in the decade-long pursuit of advanced television. It meant that the broadcast channel would no longer be limited to one stream of programming, but could become a pipe for an array of bits just like wire or cable. As a result, DTV could be used flexibly to transmit a single HDTV program, as many as five programs of lesser resolution (therefore requiring fewer bits and a narrower bandwidth), or a combination of broadcast programming and data. The system would also permit the opportunistic use of the bitstream so that a channel mostly devoted to HDTV could still be used simultaneously to transmit data on the unused portions of the channel.²⁰ As discussed below, it was the desire of broadcasters to employ this flexibility that brought DTV issues to Congress's attention in 1994. Similarly, it was the prospect of flexible use that increased the pressure on the FCC and Congress to auction the DTV spectrum.

In the regulatory arena, of equal importance to the development of the digital technology, was the FCC's

tentative decision in 1992 to limit initial eligibility for the advanced television licenses to existing broadcasters—that is, broadcasters who had applied for, or received, analog broadcast licenses as of that date.²¹ Behind this decision was an important notion that was to become a cornerstone of broadcasters' arguments in later spectrum battles. This was that DTV would not, strictly speaking, constitute a "new" service. Rather, it would revamp and supplant the public's existing broadcast service and ensure that broadcast television remained a viable option for those who could not or would not pay for subscription video services. In the early 1990s, it was clear that free over-the-air television was competing against increasing cable penetration and wireless technologies. But whereas companies providing these subscription services could upgrade their technologies at will,

broadcasters could do little without FCC approval. Operating a decentralized service easily degraded by interference on government-regulated airwaves and lacking any ability to control the receiving end of their systems (i.e., the television sets), broadcasters could only upgrade in a coordinated, industry-wide fashion.

In 1994, when the regulatory process slowed to allow the DTV system testing process to conclude, the FCC seemed poised to permit this industry-wide upgrade. The FCC would loan existing broadcasters second 6 MHz channels on which to introduce the new DTV service. Broadcasters would be expected to build DTV stations by installing new transmission equipment and often constructing new towers and studios. They would have to simulcast DTV and NTSC programming for fifteen years until, presumably, DTV would have achieved sufficiently high penetration levels to warrant discontinuance of the NTSC service. Because the new digital channels could be accommodated within about 60 percent of the spectrum currently allocated to television broadcasting, the DTV channels would be "repacked" at the end of the transition into a narrower band. As a result, large contiguous blocks of spectrum estimated between 130 and 150 MHz of spectrum would be available for reallocation after the fifteen-year transition period.²² Broadcasters were in basic agreement with this plan.²³

What sort of programs broadcasters could (or must) transmit on the DTV channels was unclear, although the FCC was considering strict requirements that broadcasters simulcast a high percentage of their analog programming on the digital channel.²⁴ Spectrum auctions, which were conducted for the first time for any service in 1994, were not then seriously contemplated for television broadcasting. Thus, when legislative debate swelled in 1994, the controversy was largely over what content the DTV channels would carry, and not over how those channels would be licensed. This would change abruptly in 1995 as Congress found itself sifting through the esoteric and highly technical issue of spectrum management.

B. The First Bills

Although the first bills explicitly containing DTV provisions were introduced in late 1993, unrelated legislation passed earlier that year would have tremendous impact on congressional consideration of DTV. That legislation, the Omnibus Budget Reconciliation Act of 1993 (OBRA), for the first time authorized the FCC to use auctions, rather than administrative proceedings and lotteries, to assign initial rights to radio spectrum.²⁵ Under OBRA, spectrum auctions are limited to situations in which "mutually exclusive applications are accepted for filing"²⁶ and "the principal use of such spectrum will involve, or is reasonably likely to involve, the licensee receiving compensation from subscribers."²⁷ OBRA thus did not give the FCC authority to auction advertiser-supported broadcast licenses. It also prohibited the agency from making spectrum assignment decisions in order to garner auction revenues so that the FCC would have to stick to its mission of managing spectrum, not raising revenue.²⁸

Notwithstanding these restrictions, OBRA provided the FCC with the means to deliver to the Treasury almost 18 billion dollars in auction revenues by 1996, the largest part of which came from auctioning spectrum for Personal Communication Services (PCS).²⁹ The size of this revenue stream loomed large in the DTV debates, especially when Congress began to focus on the flexible capabilities of the DTV system to provide subscription services akin to the services provided on spectrum that the FCC was already auctioning. Since television broadcasting operates on 402 MHz of spectrum in the desirable 54-806 MHz range, it is not surprising that the temptation to wring auction revenue from the broadcast spectrum was intense.

Congress first took up DTV broadcasting in Commerce Committees that focused not on spectrum auctions, but on the proper use of the DTV channel. As auction issues became more prominent in 1995, however, the legislative impulse moved to the Budget Committees where it was the line-item of auction revenues that drove policy.

1. The Commerce Committee Bills

Momentum towards major telecommunications legislation started in late-1993 and comprehensive telecommunications legislation containing DTV provisions had moved out of both Senate and House Commerce Committees by the first half of 1994. The vehicles for these provisions, ultimately similar in both the House and Senate, were H.R. 3636, introduced by Representative Markey (D-Mass.),³⁰ then Chairman of the House Telecommunications Subcommittee, and S. 1822, introduced by Senator Hollings (D-S.C.), then Chairman of the Senate Commerce Committee.³¹ DTV provisions in each bill permitted broadcasters to use the DTV channels for nonbroadcast and generally subscription-supported "ancillary and supplementary" services such as data transmission, so long as broadcasters paid a reasonable spectrum fee to the extent that they provided subscription services.³² Although similar provisions developed in both legislative chambers, it was on the House side that this notion of spectrum flexibility proved particularly controversial.

At the urging of broadcasters, Representative Tauzin (R-La.) first offered a "flexible use" amendment to H.R. 3636 in March 1994. This amendment proposed to allow television broadcasters to use their NTSC and DTV channels to provide ancillary and supplementary services.³³ The practical impact of this legislation with respect to use of the television channels was unclear. In fact, broadcasters had long been permitted to use their NTSC channels at least somewhat flexibly, although subscription businesses had never proved viable.³⁴ In addition, there was no indication that the FCC was going to prevent broadcasters from using the DTV channel flexibly to the full extent of the Grand Alliance system's capabilities so long as they provided a digital broadcast service and, possibly, some HDTV. Thus, H.R. 3636 was designed to make mandatory the flexibility that was already permitted with respect to NTSC channels and that probably would have been permitted under the existing FCC proposal with respect to the DTV channels.³⁵

Increasing interest in spectrum auctions prompted strong objections to the flexible-use amendment by then Commerce Committee Chairman Dingell (D-Mich.), Representative Boucher (D-Va.), and others. They contended that the spectrum flexibility proposal would reduce the revenue that the government could raise in pending PCS auctions by permitting broadcasters to offer PCS-like services without the burden of spectrum auction fees.³⁶ Representative Tauzin withdrew his amendment to H.R. 3636 in the face of this opposition.³⁷

The amendment, however, set off an inquiry that stirred additional opposition to the flexibility proposal. Representatives Dingell and Markey submitted questions to the FCC, the Commerce Department's National Telecommunications and Information Administration (NTIA), the Office of Management Budget (OMB), and industry representatives, asking how the flexibility proposal would affect HDTV development, how it would affect planned spectrum auctions for other services, whether broadcasters should be permitted to use spectrum for nonbroadcast services, how broadcasters' public interest obligations would be affected, and how minority ownership would be affected.³⁸

Broadcasters expressed their support for the amendment.³⁹ PCS and other potential competitors objected.⁴⁰ The Chairman of the FCC, Reed Hundt, wrote to Representative Markey that the FCC was the proper forum for resolving the questions Markey had raised in the ongoing DTV proceeding: "[F]or these reasons, we are of the view that as Congress considers the amendment, it should preserve the Commission's present ability to conduct a thorough review, which affords an opportunity to those affected to delineate, balance and weigh the many factors and implications and to advocate the proper resolution."⁴¹

Following this exchange, Representative Tauzin returned with an amendment quadrupled in size for consideration by the full Commerce Committee. To counter-balance the spectrum flexibility provisions, the new

amendment contained provisions requiring broadcasters to return either the NTSC or DTV channel when the transition to digital television was complete. The Committee adopted the amendment. Thus, section 204 of H.R. 3636, which was largely carried into the 1996 Act, provided that:

If the Commission determines to issue additional licenses for advanced television services, and initially limits the eligibility for such licenses to persons that, as of the date of such issuance, are licensed to operate a television broadcast station or hold a permit to construct such a station (or both), the Commission shall adopt regulations that allow such licensees or permittees to offer such ancillary or supplementary services on designated frequencies as may be consistent with the public interest, convenience, and necessity.⁴²

According to the House Commerce Committee Report, "permitting broadcasters more flexibility in using their spectrum assignments is consistent with the public policy goal of providing additional services to the public. Such a policy not only promotes more efficient spectrum use, but also encourages innovation."⁴³ Broadcasters had argued that it was impossible to divide the 6 MHz channel and still provide for the transmission of HDTV and that, therefore, denying them the opportunity to use the channel's excess capacity to provide supplementary services would deprive the public of such services altogether. The Committee took this argument to heart and based the grant of permission to offer ancillary and supplementary services on the assumption that such services would be offered on a frequency that was "indivisible" from the frequency used for DTV.

To address the concerns of the PCS community, the legislation required broadcasters to pay the fair market value of the spectrum used to transmit commercial nonbroadcast services.⁴⁴ It also provided for the eventual recovery of one of the two licenses by stipulating that the FCC "shall . . . require that . . . either the additional license or the original license held by the licensee be surrendered to the Commission."⁴⁵ This would take place when "the substantial majority of the public have obtained television receivers that are capable of receiving advanced television services" and should not "require the cessation of the broadcasting if such cessation would render the television receivers of a substantial portion of the public useless, or otherwise cause undue burdens on the owners of such television receivers."⁴⁶

Notwithstanding the allowance for flexible use of the spectrum, the bill was not intended to stand in the way of regulations designed to ensure the delivery of HDTV. The Commission was instructed to "adopt such technical and other requirements as may be necessary or appropriate to assure the quality of the signal used to provide advanced television services, including regulations that stipulate the minimum number of hours per day that such signal must be transmitted."⁴⁷ H.R. 3636, as amended, was adopted by the full Commerce Committee in mid-March and the full House in June 1994 by a vote of 423-4.

The Senate failed to approve legislation in 1994, however, and the process began anew in 1995 in a Republican-controlled Congress. In March 1995, Senator Pressler (R-S.D.) (then Chairman of the Senate Commerce Committee) introduced to the Senate S. 652, the Telecommunications Competition and Deregulation Act of 1995, which passed by an eighty-one to eighteen vote on June 15, 1995.⁴⁸ Section 201 contained broadcast spectrum flexibility provisions that were very similar to those of predecessor bills. They gave the FCC discretion as to whether it would assign the DTV spectrum to existing broadcast licensees, but required the FCC to allow licensees to make use of the DTV spectrum for "ancillary and supplementary services" if the licensee provided at least one free advanced television program service.⁴⁹ Significantly, the Senate bill did not mandate that the FCC limit initial eligibility for DTV licenses to existing broadcasters, but only stated that the FCC "should" do so. While providing for the recovery of one license, the Senate bill did not specify when this recovery should occur.⁵⁰

In August 1995, the House passed, by a vote of 305 to 117, the "Communications Act of 1995" (H.R. 1555).⁵¹ Unlike the Senate bill, section 301 of the House version *compelled* the FCC to assign the DTV spectrum to incumbent broadcasters if it assigned any DTV channels.⁵² Like the Senate bill, H.R. 1555 permitted flexible use of the DTV channel and required the FCC to charge broadcasters for ancillary and supplementary subscription

services. But unlike the Senate bill, H.R. 1555 expressly required broadcasters to surrender one of the two licenses on a date to be determined by the FCC on a market-by-market basis.⁵³ In setting this date, the FCC would have been required to consider whether: (1) the substantial majority of the public has television sets capable of receiving digital transmissions, and (2) the cessation of analog broadcasting would render obsolete the television receivers of a substantial portion of the public.

The Senate and House bills were held up in the conference committee for about five months through the fall and early winter of 1996. To reconcile the two bills, House Amendment 301 would have *required* the FCC to limit DTV licenses to existing broadcasters and to condition the license on return of one of the two channels after the transition to DTV. It also would have required that any license surrendered be reassigned through competitive bidding. The conference agreement adopted the House amendment with modifications.⁵⁴ It retained the requirement in the House bill that the FCC condition the issuance of a new license on the return, after some period, of either the original broadcast license or the new license. However, the conference agreement left to the FCC the determination of when such licenses would be returned and how to reallocate returned spectrum. The conference agreement adopted the Senate's position on initial eligibility, stating that *if* the FCC decided to issue additional licenses for DTV services, it *should* limit the initial eligibility to existing broadcasters.

2. Budget Actions

While deliberations over the telecommunications bills were proceeding in the House and Senate Commerce Committees, the issue of auctioning broadcast spectrum took on a higher profile and attracted the attention of the Budget Committees and the general press. In May 1995, the FCC's Office of Plans and Policy (OPP) sent a letter to Senator Lieberman (D-Conn.), responding to some of the Senator's questions about the auction value of DTV spectrum. OPP valued the DTV spectrum from 11 to 70 billion dollars and the value of the analog channels that would be returned at the end of the transition to DTV from 20 to 132 billion dollars.⁵⁵ These numbers figured prominently in the budget battles of the fall and early winter as the Chairmen of both Senate and House Budget Committee recommended DTV fees or auctions for deficit reduction. Specifically, the House and Senate Budget Committees ordered the Commerce Committees to come up with 14.3 billion dollars in spectrum revenue over the next seven years to help meet budget deficit reduction targets.⁵⁶ At the same time, a firestorm erupted in the press about a "spectrum giveaway" to broadcasters.⁵⁷

The combination of the deficit-reduction pressure, the lure of large auction revenues, and the increasing public interest in DTV spectrum resulted in the passage of a budget reconciliation conference agreement on November 15, 1995 that addressed DTV. This agreement included a provision that would have required the FCC to re-evaluate its tentative DTV transition plan and prohibited the issuance of DTV licenses for at least two years.⁵⁸ In addition to delaying equipment and broadcasting industry investments in technology, this agreement would have subjected broadcasters to another budget cycle, with all its deficit-cutting pressure, before any DTV licenses could be issued. The agreement was ultimately vetoed.

As 1995 drew to a close, two different auction proposals surfaced—one to auction the analog spectrum that would be returned to the Commission and one to auction the DTV spectrum before licenses were assigned. The Clinton Administration backed the analog spectrum auction. It also favored an accelerated transition to DTV. The Administration proposed to auction the analog channels in 2002 (presumably repacked into contiguous blocks) in advance of their actual availability for other uses and to require analog stations to vacate these channels by 2005.⁵⁹ Broadcasters attacked this plan as unfriendly to both consumers and broadcasters. They argued that the plan would require consumers to purchase DTV sets before their analog sets had worn out and before economies of scale had made DTV sets affordable to most. In effect, they argued this would constitute an equipment tax (commonly estimated at about 100 billion dollars). Stations likewise would suffer if required to shift to DTV without regard to the number of receivers in the marketplace. If the market were not sufficiently saturated, broadcasters concluded, stations would lose viewers as well as the ability to support the DTV service.⁶⁰

Representative Bliley (R-Va.), Chairman of the House Commerce Committee, also attacked this expedited

auction of the analog spectrum, stating that it "would wreak havoc on American television viewers or kill off digital altogether, before it ever has a chance to get off the ground." He also charged that an expedited auction, which Senate Majority Leader Dole (R-Kan.) had endorsed, would result in a "fire sale" that would minimize the government's revenues from the spectrum.⁶¹

A proposal similar to the Administration plan was introduced on January 26, 1996 by Chairman Kasich (R-Ohio) of the House Budget Committee. H.R. 2903, the Balanced Budget Act of 1995 for Economic Growth and Fairness, would have required a moratorium on analog licenses and stipulated that "[l]icensees for new services shall be selected by competitive bidding" by 2002.⁶² Notwithstanding this nod to the free market, the legislation would have restricted use of the channels to some extent. Specifically, each DTV licensee would be required to provide "at least one non-subscription television service," and the FCC would be required to "promulgate regulations to assure the dissemination of converter boxes or devices necessary to ensure access to digital TV to all households that desire this access at a reasonable cost."⁶³

The second type of proposal, backed by Senators Dole, McCain (R-Ariz.), and others in Congress, was to auction the DTV spectrum as early as 1997 to the highest bidders, who in turn would be free to use the spectrum as they liked so long as they offered a minimum amount of digital broadcast television (not necessarily HDTV) and did not interfere with other users.⁶⁴ Broadcasters vigorously opposed the up-front auction proposals, although their opposition would grow louder in the months to come. The Association for Maximum Service Television (MSTV) summarized broadcasters' position on behalf of the television networks and other broadcasting organizations in a letter to Senator Lieberman.⁶⁵ The letter argued that

auctioning the digital channels to all comers and for any uses would not only be an abdication of the Commission's statutory responsibilities but also would cripple or doom the important stake the public-all Americans-has in a successful and seamless transition of their television service to digital.⁶⁶

The letter also outlined critical distinctions between television broadcasting and other industries as well as the unique requirements of the transition to DTV. In essence, the arguments set forth in this letter and in other advocacy pieces were:

- (1) The television broadcasting industry must convert to DTV to remain competitive. Because this conversion will require significant investments without compensating increases in revenue, local stations will not be able to afford to bid against telephone companies and other potential participants in an auction.
- (2) An auction would most likely destroy the careful channel planning that is necessary to pack DTV channels into the existing broadcast spectrum without creating intolerable interference to the existing service.
- (3) If there are "holes" in the roll-out of DTV-that is, if a substantial number of localities do not bid for and build DTV stations-the DTV project may fail as the network of local stations falters and equipment manufacturers hesitate to mass produce DTV sets.
- (4) It would be unfair to require stations to bid for a DTV channel when they will have to relinquish their existing channel.⁶⁷
- (5) Once the transition to DTV is complete, it will be possible to auction off more than 100 MHz of spectrum in nationwide contiguous blocks cleared of any other uses. Such spectrum would be far more valuable than spectrum auctioned piecemeal before the transition is complete and the NTSC stations have been shut off.⁶⁸

These arguments would carry the day in the deliberations over the 1996 Act but, because they would not quell

the auction fever that had taken hold of Congress, the arguments would have to be reasserted throughout 1996.

C. The Passage of the 1996 Act

The 1996 Act, with its requirement that broadcasters be able to use the DTV spectrum flexibly, pay for any ancillary uses, and return a channel at the end of an undefined transition period, was brought to the floor of the House for a vote on February 1, 1996. The DTV provisions entered into the debate when Representatives Watt (D-N.C.) and Frank (D-Mass.) engaged Representatives Bliley, Fields (R-Tex.), Tauzin, and Dingell on the spectrum flexibility provisions. Watt expressed his concern that the legislation was "giving away seventy billion dollars of our assets."⁶⁹ Frank (who would vote against the legislation) supported Watt and alleged that the Republican Party had lost its faith in the free market with respect to the broadcast spectrum.⁷⁰ Bliley responded that "there is no giveaway in this bill. What we do is loan the spectrum to the broadcasters because they have to simulcast while they advance this new technology . . . [the] seventy billion dollars [estimate of the auction value of the DTV channels] is pulled out of the ether somewhere. There are no statistics to back it up."⁷¹ Similarly, Dingell, who had expressed questions of his own during the development of the legislation, commented that "this is a very regrettable red herring" raised in the context of the transition from analog to digital technologies. He pointed out that the loan of spectrum would give the public "the opportunity to make the changeover in an orderly fashion in a way which benefits everybody. The taxpayers will gain. There is no giveaway of anything."⁷² The House approved the 1996 Act by a vote of 414 to 16.

In the Senate, Senator Dole, who had fastened onto the DTV issue in late December 1995, threatened to delay a Senate vote on the 1996 Act until the DTV auction controversy was resolved. Ultimately, Senator Dole did bring the Act to a vote in the Senate after it had passed in the House, but only on the condition that the FCC would not assign DTV licenses until Congress had held hearings on the subject of auctions. In response, all five FCC Commissioners wrote to the congressional leadership, that they

share the determination of you, Senator Dole and others to protect American taxpayers. . . . [U]nder current law . . . the Commission lacks authority to auction, or charge broadcasters for the use of, the spectrum that has been identified for the provision of these broadcast services. . . . Any award of initial licenses or construction permits for Advanced Television Services will only be made in compliance with the express intent of Congress and only pursuant to additional legislation it may adopt resolving this issue.⁷³

This promise from the FCC effectively suspended the effect of the DTV provisions of the 1996 Act and allowed Congress to hold hearings on the management of spectrum in general and DTV spectrum in particular.

The congressional foray into DTV legislation resulted in a small piece of a large law essentially requiring what had already appeared likely to result from the ongoing FCC proceeding—that is, that broadcasters would be permitted to use the DTV spectrum flexibly if, in fact, they were loaned a DTV channel. In return, broadcasters would be required to return either their original license or their loaned license after the transition to DTV was complete. What the legislative process also yielded, which may or may not have arisen solely from the FCC proceeding, was auction fever.

III. The Aftermath of the 1996 Act

A. Setting the Stage

As 1996 and the second session of the 104th Congress unfolded, threats to auction DTV spectrum continued. The House and Senate Budget Committees continued to eye the spectrum for revenue, and the Senate Budget Committee held one of the first and most important hearings after the passage of the 1996 Act. Eager to exercise their jurisdiction over spectrum management and ensure that budgetary policy did not overrun telecommunications policy, the Commerce Committees of both chambers also held hearings. In all, five hearings were held between March and June 1996 (three by the Senate Commerce Committee, one by the House

Commerce Committee, and one by the Senate Budget Committee). In addition to the FCC *en banc* hearings held in December 1995 and March 1996 on related issues,⁷⁵ these congressional hearings permitted broadcasters the first full opportunity to make their case against spectrum auctions—a complex case that focused on the nature of the DTV system and the broadcasting industry. The congressional hearings also plunged legislators into the intricacies of spectrum management for which many, particularly in the Budget Committees, were unprepared and lacked expertise. Debate over the value of broadcast spectrum became, in part, a debate over the proper place of the FCC and the appropriate division of power between the FCC and Congress in assigning telecommunications licenses.

The appeal of spectrum auctions was clear and, at first blush, the prospect of auctioning spectrum for DTV seemed as sensible as auctioning spectrum for PCS. Broadcasters faced the challenge of explaining how advertising-supported and locally based over-the-air television service differed from the subscription services that had previously been auctioned and how DTV was a service upgrade rather than a new service capable of generating new revenue.⁷⁶ As arguments for and against broadcast spectrum auctions developed, an interesting thing happened: the focus on ancillary and supplementary services that had motivated congressional action on DTV service in the first place dissolved. Auction opponents, particularly broadcasters and consumer equipment manufacturers, refocused the discussion on broadcast television's traditional functions—namely, on free and universal television service. At the same time, auction proponents ceased to focus on the additional revenue DTV might bring by way of subscription services and instead simply highlighted the amount of money that could be gained by auctioning spectrum in the short term.

During the deliberations over the 1996 Act and prior to the first congressional hearings on DTV spectrum, broadcasters increased their commitment to HDTV as they returned to first principles in seeking to make Congress and the public understand what was at stake. The first public forum in which representatives of the broadcast industry as a whole affirmed this commitment was another FCC rulemaking begun in August 1995.⁷⁷ Responding in November 1995 to a request for comments on how the DTV channel should be used, a group of more than 100 broadcasters, including all the major networks and trade associations, deemphasized ancillary and supplementary services, stressed the importance of HDTV and their support of the transition plan contemplated by the then-pending legislation.⁷⁸ Equipment manufacturers and others agreed.⁷⁹

Broadcasters amplified this commitment to HDTV in the FCC's *En Banc* Hearing on DTV implementation held in December 1995, while the 1996 Act was stalled in conference. Witnesses articulated three basic points that would be elaborated in the congressional hearings to follow: (1) that the very survival of broadcast television as a viable competitor to cable and other video services depended on television transmission of higher quality digital pictures; (2) that HDTV, not ancillary and supplementary services, would be the engine of DTV; and (3) that most broadcasters would have to struggle to afford the transition and would not be able to compete in an auction.

For example, the general counsel of ABC testified that the transition to DTV was a matter of life or death for the broadcast service and that HDTV must be central to that service:

Free over-the-air broadcasting will wither if it is forced to meet . . . competition through technologically stale NTSC offerings. And the public interest is hardly enhanced by limiting these digital breakthroughs to only the video-by-subscription world. At a time when we as a country are legitimately concerned about creating information have's and have not's, it simply makes no sense to deprive broadcasters of the means of providing the public an opportunity to have such enhanced video offerings available at no charge. . . . [W]e believe that the Commission should establish . . . a minimum HDTV requirement . . . to assure that HDTV receives a fair test in the marketplace and to shorten the transition so that one channel can be returned as promptly as possible for other uses.⁸⁰

The president of the NBC Television Network, Neil Braun, echoed these points and emphasized that the very existence of the television system was at stake. If broadcast television were not permitted to upgrade so as to be

able to compete with cable on a level playing field, the value that television adds (including the ability to launch programs later shown on cable, to launch new products and to enhance competition) would be lost. Lost too would be the unique characteristics of "[l]ocal and network broadcast television [which] remains this nation's great unifier-the one medium that provides the same high quality news, entertainment and sports programming to both the haves and the have nots-the most widely shared experience of our society."⁸¹ Braun also deemphasized the new nonbroadcast services that the DTV channel might provide:

Ancillary and supplementary digital broadcasting services will be important, incremental businesses, but they are unlikely to compare to our foundation-free over-the-air broadcasting. No matter how much flexibility Congress and the FCC give broadcasters to use digital technology for new ancillary and supplementary services, there is no way businesses like datacasting or paging will ever compare-in terms of scale and revenue potential-to the core broadcasting business.⁸²

Speaking especially on behalf of smaller broadcasters, the chairman of the National Association of Broadcasters' Television Board, made the point that profit margins for stations operating outside the top ten markets are dramatically smaller than those of stations in larger markets. For the smaller stations, the conversion costs of 2 million dollars (for the ability to pass through a network signal) to 10 million dollars (for the ability to originate HDTV programming) would be overwhelming.⁸³ Auctions on top of this would effectively put these broadcasters out of business.⁸⁴

B. The Congressional Hearings

These were the arguments that broadcasters and their allies in the equipment manufacturing industry would develop in the spring congressional hearings called for by Senator Dole. The first hearing, held by the Senate Budget Committee on March 14, 1996, was critical in framing both the economic debate over the value of the broadcast spectrum and the debate over the extent to which the public's interest in a functioning broadcast system outweighs the public interest in immediate auction revenues.

Economists disputed how much revenue the various broadcast spectrum auction proposals, now refined from what they had been earlier in the year, would yield. The first option, the "digital auction" proposal, was to auction the DTV channels as early as 1997.⁸⁵ The most obvious advantage of this option was its relative certainty and proximity. However, because the DTV channels were interspersed with NTSC channels and because different frequency bands would be available in each market, the value of the DTV channels might not be as high as spectrum that was uniformly available throughout the country and "zoned" for new services. Although never proposed in legislation, various economists evaluated this proposal as it had been reported in the press and other fora.

The second option, the early "analog auction" proposal, added to the Coalition Budget (H.R. 2530) in December 1995 and endorsed by the Administration, was to accelerate the auction of NTSC channels to 2002 (rather than when the transition was complete) and the cessation of NTSC service to 2005 (rather than the FCC's proposed fifteen years). In addition, broadcasters would be required to pay any difference between the estimated (17 billion dollars) and actual amounts the analog spectrum earned. The advantages of this option were that it might make available clear, contiguous blocks of spectrum because the DTV channels could be repacked into a tighter block after the transition was complete (and the channels that had been auctioned actually became available). On the other hand, an auction of spectrum that would not become available for years to come would be riddled with uncertainties. Broadcasters argued that the accelerated timetable was impractical and would jeopardize the transition.

The third option, the "FCC's original proposal," had the advantage of promising clear, contiguous blocks of spectrum without the uncertainties or unrealistic acceleration of the administration's proposal. According to broadcasters and equipment manufacturers, the original plan was also the most likely to protect the existing television service from destructive interference-a benefit of substantial value.⁸⁶ Unfortunately, the prospect of waiting fifteen years for revenue was untenable to many lawmakers.

In the first hearing before the Senate Budget Committee, an economist from the Congressional Budget Office (CBO) estimated the value of the digital auction proposal at 12.5 billion dollars⁸⁷ and the value of the early analog auction proposal at 11 billion dollars-the floor of the 11 to 70 billion dollar estimate first made by the FCC's Office of Plans and Policy. Illustrating the difficulty of coming up with reliable estimates, the CBO had initially estimated the analog auction proposal at 6 billion dollars, and the Administration's Office of Management Budget (OMB) had estimated it at 13 billion dollars, which the OMB later raised to 17 billion dollars. However, according to the CBO testimony, "In the uncertain world of auction receipts seven years in the future, one should view CBO's and OMB's estimates as being close together rather than far apart."⁸⁸ An MIT economics professor, specializing in econometric modelling, called the CBO estimate for the analog auction proposal much too low and the OMB estimate too high. He opined that an auction of the analog channels would earn more, even taking into account the lapse of time, than would the auction of the digital channels.⁸⁹

What the sparring economists did not estimate was the difference between the analog auction proposal and the FCC's original proposal which would make the same spectrum available, but only after the transition to DTV was complete. The task of explaining the difference between these two proposals (as well as attacking the digital auction proposal on policy grounds) fell mainly to broadcasters and their allies. These proponents of the original FCC proposal attempted to show what the transition would require and why rushing the transition before the mass of broadcasters could be expected to transmit DTV and the mass of consumers would receive it would lose more in television service than was gained.

Broadcasters began to make these points at the same Senate Budget hearing at which the economists testified and then hammered the point home over the next three months.⁹⁰ The technical challenges of doubling the number of television stations while minimizing increased interference to the picture was daunting. Even more daunting for the broadcast industry was the prospect of investing as much as 10 million dollars for each new local station before sets were widely available to receive the new signals. Station managers and group executives testified that even to make the rudimentary investments required to pass through a network DTV signal could require an annual payment of nearly half-a-million dollars. Stations would need to convince their lenders to make the loans even though the stations would see no new revenue from converting to digital. The digital auction proposal would deter many broadcasters from bidding and could jeopardize the service altogether. The analog auction proposal, with its arbitrary deadline for completing the transition, would add to the financial pressures stations faced and endanger the transition. According to one broadcaster, "[t]he losers in that equation are the consumers, who lose access to the benefits of digital technology."⁹¹

Senator Breaux took to heart broadcasters' message when he concluded that whatever the attractions of auction revenues, the potential risks to the television service and the successful introduction of DTV was not worth it. He wrote:

[T]his whole venture [is] highly complex, fraught with technical and economic implications. . . . Spectrum auctions will definitely generate immediate government revenues, but if we're not careful, they will also produce negative consequences that far outweigh the immediate economic benefits. They may end up costing American taxpayers and consumers far more than the spectrum is worth right now. We don't know enough to predict adequately what will happen. We don't know whether immediate uses of the new spectrum will interfere with existing channels, whether public safety services will be compromised, whether national channels will be possible, or whether development of new spectrum-based equipment will be impeded.⁹²

By the last hearing, held by the House Commerce Committee on June 20, 1996, it appeared that the congressional leadership had concluded either that broadcast spectrum was more valuable at auction later than sooner, or that the transition to DTV was too important and fragile to hazard spectrum auctions, or both. In any case, Congress decided to leave the choice of methodology for assigning DTV channels and for governing the transition to DTV, at least for the time being, to the FCC. Thus, in a letter to the FCC, the congressional leadership wrote that they

recommend that the Commission complete all actions necessary to prescribe rules to permit the deployment of over-the-air digital broadcasting no later than April 1, 1997. . . . [W]e would note that the Commission does not need any additional statutory authority to proceed with the assignment of digital licenses. We would, therefore, expect the Commission to proceed with bringing this exciting new technology to the American people without further delay.⁹³

IV. Conclusion

With Congress's blessing to proceed with the assignment of DTV licenses, the FCC went on to issue two more notices of proposed rulemaking and to begin to wrap-up the long-pending DTV proceeding.⁹⁴ Notwithstanding two-and-a-half years of congressional deliberation and at least five congressional hearings, the DTV regulatory process travelled much the same course it likely would have travelled without any legislative intervention-with one significant exception. The eagerness to recover spectrum would make the transition time shorter and DTV channels more tightly packed. In August 1996, in part as a result of the interest in auctions and spectrum management aroused by the 1996 Act, the FCC proposed a plan to concentrate DTV channel assignments between channels seven and fifty-one so as to free up spectrum (in particular, channels 60-69) for early auctions and embark on the process of repacking broadcast channels.⁹⁵ This is known as the "core-channel concept." Although the FCC had always stated its intention to assign DTV channels efficiently, it is likely that the core-channel concept was a direct result of the stir in late 1995 and early 1996 over broadcast spectrum auctions. By order of April 3, the FCC at long last assigned DTV channels to broadcasters.⁹⁶

Perhaps the larger importance of the 1996 Act's DTV provisions and the controversy they provoked lies in the attention directed at spectrum management. Two camps appear to have developed. One camp, supported by Senator McCain, now Chairman of the Senate Commerce Committee, views spectrum largely as a commodity that generally should be assigned by auction.⁹⁷ To the extent that spectrum is a fungible commodity, the expert management of the FCC becomes less important. Thus, proponents of this view also tend to support the downsizing of the FCC.⁹⁸ Despite the threat that auctions pose to the FCC's relevance, two FCC staff members released a paper in January 1997 entitled "Using Market-Based Spectrum Policy to Promote the Public Interest."⁹⁹ This paper, although acknowledging that market forces do not always produce the optimal public goods, argued for the use of explicit monetary subsidies rather than spectrum assignment procedures and service rules, to meet public interest goals. The paper urged the FCC to treat spectrum like a commodity and to allow licensees to use spectrum flexibility in terms of the service they provide, the technical modes they use, the channel size and geographic location in which they operate and the pace at which they build out their systems. In other words, previously encumbered rights to spectrum should become essentially interests free and clear of all obligations.

The second camp views spectrum as a resource that must be allocated to different services according to strict technical criteria and assigned, sometimes by auction and sometimes by other means, according to the nature and requirements of the different services. This camp emphasizes the FCC's role in the assignment process.¹⁰⁰ Although these views may never again be as prominent as in the DTV debates, there is a growing skepticism about auctions and a belief that auctions may not be the most appropriate spectrum management tool in many contexts.

This skepticism was evident at the 105th Congress' first oversight hearing on spectrum management held by the House Subcommittee on Telecommunications, Trade, and Consumer Protection (February 12, 1997). The skepticism was prompted by two developments. First, there was a letter from the chief of the FCC Wireless Telecommunications Bureau to Senator Hollings urging Congress to reconsider its previous mandate, contained in Section 3001 of the Omnibus Consolidated Appropriations Act for 1997, that the FCC auction spectrum in the 2305-2320 and 2345-2360 MHz bands for wireless services by April 15, 1997.¹⁰¹ Specifically, the letter indicated that a number of factors might act to depress the auction value of the spectrum, including interference constraints that would limit the use of the auctioned spectrum and a lack of readiness in the telecommunications and financial communities. Second, the Clinton Administration released its budget, again

proposing an accelerated auction of the analog television channels and requiring that broadcasters pay the difference between expected and actual auction revenues.¹⁰² Only this time, it was rumored that the Congressional Budget Office thought the auction revenue predictions exaggerated. Sure enough, after the hearing, the CBO reported that it estimated the analog auction revenues to be about 5.4 billion dollars, not the 14.8 billion dollars that the administration predicted.¹⁰³ At the oversight hearing, Chairman Tauzin in particular questioned whether spectrum auctions were always the best policy when they risked dumping spectrum on the market too cheaply. And how could the government hold licensees responsible for the government's predictions of revenue when those predictions were so fallible?¹⁰⁴

The DTV transition will now play out at the FCC and around the United States as broadcasters apply for the channels that have been reserved for them and actually build DTV facilities. The 1996 Act's DTV provisions will have little to do with the success or character of the DTV service. But the fracas in Congress over DTV will have lasting impact. One of the results of the DTV controversy is that Congress is apparently more eager to exercise its oversight functions with respect to the FCC on spectrum issues so that the public interest in both service and auction revenues are taken into account as are the specific, often very technical, characteristics of each of the varied services now competing for spectrum.

On April 1, two days before the FCC adopted a DTV channel allocation scheme and service rules, Senator McCain announced that he would introduce a bill to bring order to the FCC's auction process. The spotlight that the DTV provisions of the 1996 Act focused on the FCC's spectrum management process will continue to shine once DTV leaves center stage. The tug between the drive to auction spectrum and the need to husband it without regard to auction revenues will persist.

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1. Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (to be codified in scattered sections of 47 U.S.C.).

2. In short, the DTV provisions simply provide that: (a) DTV licenses, if any, should be assigned initially only to existing broadcasters; (b) DTV licensees should be permitted to use their assigned channels flexibly so long as they do not interfere with advanced television services, including high definition television; (c) DTV licensees should pay fees for certain uses of the DTV channel; and (d) broadcasters should surrender one of their two licenses at some point in the future. 47 U.S.C.A. § 336 (West Supp. 1996).

3. The radio spectrum is a conceptual tool used to organize the physical phenomena of waves produced by electric and magnetic fields. These waves move through space at different frequencies. The group of frequencies from 3000 cycles per second (3 kilohertz (KHz)) to 300 billion cycles per second (300 gigahertz (GHz)) comprises what is known as the radio spectrum. Television broadcasting operates at the low end of this spectrum, between 54 megahertz (MHz) and 806 MHz, on channels 2-69 (each consisting of 6 MHz).

4. The FCC did conclude the DTV rulemaking on April 3, 1997 by adopting the *Fifth and Sixth Reports and Orders* in the DTV proceeding. As of this writing, the texts of those orders had not been released. See Federal Communications Commission, *Commission Adopts Rules for Digital Television Service (MM Docket No. 87-268)*, Report No. MM 97-8 (April 3, 1997)

<http://www.fcc.gov/Bureaus/Mass_Media/News_Releases/1997/nrmm7005.html> [hereinafter *DTV Rules*];

Federal Communications Commission, *Commission Adopts Table of Allotments for DTV; Establishes Policies and Rules (MM Docket No. 87-268)*, Report No. MM 97-9 (April 3, 1997)

<http://www.fcc.gov/Bureaus/Mass_Media/News_Releases/1997/nrmm7005.html> [hereinafter *DTV Allotments*].

5. See *In re Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, Memorandum Opinion and Order*, 7 FCC Rcd. 6924, paras. 16-28, 71 Rad. Reg. 2d (P & F) 375 (1992)

[hereinafter *ATV Memorandum Opinion and Order*]. In the rules it adopted on April 3, 1997, the FCC set an eight-year transition schedule set to conclude in 2008. See *DTV Rules*, *supra* note 4.

6. This system is named for the National Television System Committee, an industry group that developed the monochrome television standard in 1940-41 and the color television standard in 1950-53. See generally Denise Ulloa, *Advanced Television Systems: A Reexamination of Broadcasters' Use of the Spectrum From a Twenty-First Century Perspective*, 16 Whittier L. Rev. 1155, 1161 (1995).

7. A provocative perspective on this early history and on the subsequent development of DTV policy and technology appears in Joel Brinkley, *Defining Vision: The Battle for the Future of Television* (1997). Essentially, Brinkley argues that American broadcasters, led by the National Association of Broadcasters, seized on advanced television as a way to prevent the reallocation of UHF broadcast channels-channels that would be needed to implement advanced television-to the land of mobile service in 1987.

8. This demonstration was part of the first congressional hearing on HDTV on October 8, 1987. *High Definition Television: Hearings Before the Subcommittee on Telecommunications and Finance of the House Energy and Commerce Committee*, 100th Cong. (1989) [hereinafter *HDTV Hearings*]. Forward-looking broadcasters had fixed on the need to upgrade the television system years earlier. For example, the chairman of the Association for Maximum Service Television had testified before Congress in 1981 on the need to preserve spectrum for the future broadcast of HDTV. *Satellite Communications/Direct Broadcast Satellites: Hearing Before the Subcomm. on Telecomm., Consumer Protection, and Fin. of the House Comm. on Energy and Commerce*, 97th Cong. at 81-106 (1981) (statement of testimony by Wallace J. Jorgenson, President, Jefferson-Pilot Broadcasting Co. and Chairman of MST).

9. The NHK system originally was designed for the wider channels used in Europe and Japan, rather than the 6 MHz channels used in North America. In addition, the NHK system was developed for a satellite-only system of delivery, rather than for terrestrial broadcasts. For a description of the NHK and other early advanced television systems, see *In re Advanced Television Systems and Their Impact on the Existing Television Broadcast Service, Notice of Inquiry*, 2 FCC Rcd. 5125 (1987) [hereinafter *ATV Notice of Inquiry*]; *In re Advanced Television Systems and Their Impact on the Existing Television Broadcast Service, Tentative Decision and Further Notice of Inquiry*, 3 FCC Rcd. 6520, paras. 15-39, 65 Rad. Reg. 2d (P & F) 295 (1988).

10. *HDTV Hearings*, *supra* note 8, at 187 (Remarks of Rep. Markey) ("[T]he only point that I was trying to make . . . was that American manufacturers should have been doing what the Japanese have been doing over the last generation. I make no pre-judgment as to what we are to be doing in the country with regard to the introduction of these new systems other than that it has been a sad commentary upon the American manufacturers and it is clearly time for us to begin taking a close, hard look as to what the long-term implications will be for our country.")

11. See *ATV Notice of Inquiry*, 2 FCC Rcd. 5125, paras. 2-3 (1987).

12. The Test Center was funded initially by the major television networks and trade associations, and later, also, by the Electronic Industries Association.

13. For a good description of the ACATS process, see generally Richard E. Wiley, *The Challenge of Choice*, 47 Fed. Comm. L.J. 401 (1994).

14. See *In re Advanced Television Systems and Their Impact on the Existing Broadcast Service, First Report and Order*, 5 FCC Rcd. 5627, para. 7, 68 Rad. Reg. 2d (P & F) 163 (1990) ("[c]onsistent with our goal of ensuring excellence in ATV service, we intend to select a simulcast high definition system.").

15. *Fate of HDTV Is Now in Lawmakers' Hands*, *Electronic Eng'g Times*, Mar. 25, 1996, at 1.

16. See FCC Advisory Committee on Advanced Television Service, *ATV System Recommendation* (Feb. 24, 1993) available at <<http://www.atsc.org/papers/atvreport/>>. The members of the Grand Alliance are AT&T

(now Lucent), David Sarnoff Research Center, General Instrument Corporation, Massachusetts Institute of Technology, Philips Electronics North America Corporation, Thomson Consumer Electronics, and Zenith Electronics Corporation.

17. A technical review of the Grand Alliance system is provided in R. Hopkins, *Digital Terrestrial HDTV for North America: The Grand Alliance HDTV System*, EBU Technical Review, Summer 1994. See also *In re Advanced Television Systems and Their Impact Upon the Existing Broadcast Service, Fifth Further Notice of Proposed Rule Making*, 11 FCC Rcd. 6235, para. 1 (1996) [hereinafter *ATV Fifth Further Notice*].

18. See *ATV Fifth Further Notice*, 11 FCC Rcd. 6235, paras. 6-13.

19. See Federal Communications Commission Advisory Committee on Advanced Television Service, Advisory Committee Final Report and Recommendation (1995) [hereinafter ACATS Report]. The FCC adopted the majority of the recommended standard. Largely because of dissent from within the computer industry, the FCC did not adopt the picture formats. Thus, broadcasters may choose the aspect ratio and scanning formats as these specifications are not included in the adopted standard. See *In re Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, Fourth Report and Order*, 11 FCC Rcd. 17,771, 5 Comm. Reg. (P & F) 963 (1996) [hereinafter *ATV Fourth Report and Order*].

20. See *In re Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, Fourth Further Notice of Proposed Rulemaking and Third Notice of Inquiry*, 10 FCC Rcd. 10,540, para. 10 (1995) [hereinafter *ATV Fourth Further Notice*]; see also Remarks of FCC Chairman Hundt before the International Radio and Television Society (Nov. 21, 1995) ("[The Grand Alliance] has discovered a wondrous digital genie in a bottle. With it you can broadcast multiple signals of higher resolution than today's NTSC signal, or dozens of audio signal, or software packages, or thousands of pages of text, or a pair of very high resolution movies."). See generally Kevin Maney, *Going Digital Means Sharper Boob Tubes*, USA Today, Jan. 8, 1997, at B1.

21. See *In re Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, Second Report & Order*, 7 FCC Rcd. 3340, para. 2, 70 Rad. Reg. 2d. (P & F) 1102 (1992) [hereinafter *ATV Second Report & Order*]; see also *In re Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, Sixth Further Notice of Proposed Rule Making*, 11 FCC Rcd. 10,968, para. 9 (1996) [hereinafter *ATV Sixth Further Notice*] which proposed to permit new applicants to obtain DTV licenses on a case-by-case basis. The 1996 Act apparently codified this tentative decision, although, on its face, the legislation appears to expand the pool of eligible broadcasters to those existing (either permitted or operational) as of the date that DTV licenses are assigned. 47 U.S.C.A. § 336(a) (West Supp. 1996).

22. *ATV Memorandum Opinion and Order*, 7 FCC Rcd. 6924, para. 75, 71 Rad. Reg. 2d (P & F) 375 (1992) (stating that the goal of the transition was to permit the viewing public to make a nondisruptive transition to "TV and allow the reclamation of the second channel after that transition is complete"). The FCC ultimately settled on the recapture of 138 Mhz. See *DTV Rules*, *supra* note 4.

23. See, e.g., Joint Broadcaster Comments to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268 (Nov. 20, 1995).

24. *ATV Second Report and Order*, 7 FCC Rcd. 3340, para. 57, 70 Rad. Reg. 2d (P & F) 1102 (1992). The FCC later reopened this issue because it came to believe that the market would serve consumer demand by assuring the continued presence of good programming on NTSC channels. See *ATV Fourth Further Notice*, 10 FCC Rcd. 10,540, paras. 40-41 (1995). In the rules it adopted on April 3, 1997, the FCC decided against any simulcasting requirement until the last few years of the transition. It also rejected any HDTV minimum programming requirement. See *HDTV Rules*, *supra* note 4.

25. Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, §§ 6001-6003, 107 Stat. 312, 379 (codified at 47 U.S.C. § 309(j)). The FCC's auction authority, pursuant to OBRA, is set to expire in 1998.

26. 47 U.S.C. § 309(j)(1) (1994).

27. 47 U.S.C. § 309 (j)(2)(A) (1994). This language emerged from the Conference where it was decided to restrict competitive bidding to a limited number of types of licenses. *See* H.R. Rep. No. 103-213, at 481 (1993).

28. 47 U.S.C. § 309(j)(7)(A) (1994).

29. In testimony before the Senate Budget Committee, a Congressional Budget Office analyst testified that the PCS auctions would ultimately yield \$18 billion. *See Hearing on Budgetary and Economic Implications of Alternative Spectrum Use Policies Before the Senate Budget Committee*, 104th Cong. (1996) [hereinafter *Senate Budget Hearings*] (statement of David Moore, Senior Analyst, Congressional Budget Office); *see also Federal Management of the Radio Spectrum: Advanced Television Services: Hearing Before the Subcomm. on Telecommunications and Finance of the House Comm. on Commerce*, 104th Cong. (1996) [hereinafter *Management of Radio Spectrum Hearings*] (testimony of David H. Moore, Senior Analyst, Congressional Budget Office). The total has since climbed to \$24 billion, although a significant fraction of that total has not been collected. Mark Landler, *Airwave Auctions Falter as Source of Funds for U.S.*, N.Y. Times, Apr. 3, 1997, at A1.

30. The National Communications Competition and Information Infrastructure Act of 1994, H.R. 3636, 103d Cong. (1993). A bill dealing with related issues, the Antitrust and Communications Reform Act of 1994, was introduced in the Judiciary Committee the same day by Representative Brooks (D-Tex.). H.R. 3626, 103d Cong. (1993).

31. The Communications Act of 1994, S. 1822, 103d Cong.

32. The DTV provisions of H.R. 3636 are discussed below. Section 702 of S. 1822, provided that if the FCC issues DTV licenses to existing broadcasters, it should permit broadcasters to transmit ancillary and supplementary services

so long as the licensees provide without charge to the public, at least one advanced television program service as prescribed by the Commission that is intended for and available to the general public on the advanced television spectrum. . . . In determining the amount of such fees, the Commission shall take into account the portion of the licensee's total spectrum which is used for such services and the amount of time such services are provided.

S. 1822, § 702.

According to the Senate Commerce Committee Report, S. Rep. No. 103-367, at 100 (1994), the FCC should "strongly consider establishing" fees equal to auction revenues for similar services. The Report cautioned that, "[A]t the same time, the FCC should also make note of the fact that television licenses are assigned for limited terms of 5 years, compared to what may be licenses of indefinite terms assigned through competitive bidding. Licensees will use only a portion of their assigned spectrum to provide ancillary and supplementary services, and for only limited times of the day." *Id.*

33. Like S. 1822, the amendment also required payment of a reasonable fee (comparable to auction fees) for spectrum used to transmit commercial nonbroadcast services.

34. For instance, broadcasters have been permitted to use the "vertical blanking interval" of the 6 MHz channel to transmit nonbroadcast programming, including subscriptions. *See In re Amendment of Parts 2, 73, and 76 of the Commission's Rules to Authorize the Offering of Data Transmission Services on the Vertical Blanking Interval by TV Stations, Report and Order*, 101 F.C.C.2d 973, para. 2-3, 57 Rad. Reg. 2d (P & F) 832 (1985).

35. In fact, the *ATV Fourth Further Notice* indicated an inclination to permit flexible use of the DTV channel and requested comment on the degree of flexibility that should be permitted. *ATV Fourth Further Notice*, 10 FCC Rcd. 10,540, para. 23 (1995). The Commission ultimately allowed broadcasters to use the DTV channel flexibly so long as they maintained one channel of free broadcast programming on the DTV channel. *See DTV*

Rules, supra note 4.

36. See Peter Lambert, *Comcast, MCI, Nextel Form National PCS Alliance*, *Multichannel News*, Mar. 7, 1994, at 1.
37. See *Telemedia Watch*, *Brdcst. & Cable*, Mar. 7, 1994, at 10.
38. See *Markey Outlines Broadcast Spectrum Concerns*, *Comm. Daily*, Mar. 10, 1994, at 1.
39. The broadcast industry, represented by the National Association of Broadcasters, responded that it "should not be precluded from bringing valuable services to the public . . . that may augment their revenues so as to provide the best possible over-the-air service." Some broadcasters made the further point, understood by few, that a channel used to provide HDTV had extra capacity only at certain times and could not be divided for use by other licensees if HDTV was to be a commercially viable service capable of reaching a mass audience. See *Bashed in Comments to Hill on Spectrum Flexibility*, *Comm. Daily*, Mar. 9, 1994, at 2.
40. The Personal Communications Industry Association and others in the business of providing subscription wireless services objected that broadcasters' entry into their businesses, without the burden of auctions, would be unfair and deleterious. The other major industry group to be heard from was the equipment manufacturing community, which had played a large role in the development of HDTV technology. For example, General Instrument Corporation commented that spectrum should not be made available for any purpose other than HDTV except on a comparative licensing or auction basis. See *id.* In comments filed Nov. 20, 1995 to the *ATV Fourth Further Notice*, consumer equipment manufacturers urged that the FCC require a certain amount of HDTV programming, but also supported flexible use of the DTV channel. See Comments of the Grand Alliance to the *ATV Fourth Further Notice* in MM Dkt. 87-268, at 4 (Nov. 20, 1995) (urging HDTV minimums and flexible use); Comments of General Instrument Corporation to the *ATV Fourth Further Notice* in MM Dkt. 87-268, at 6, 19-20 (Nov. 20, 1995) (advocating HDTV minimums, flexible use, and mandatory carriage for some DTV programming); Comments of Thomson to the *ATV Fourth Further Notice* in MM Dkt. 87-268, at 4 (Nov. 20, 1995) (urging HDTV minimums and flexible use), and Comments of Zenith to the *ATV Fourth Further Notice* in MM Dkt. 87-268, at 3, 5 (Nov. 20, 1995) (advocating HDTV minimums). Cable industry commenters proposed that, if flexible use was permitted, cable should not have to carry any more than a single stream of broadcast programming. See Comments of InterMedia to the *ATV Fourth Further Notice* in MM Dkt. 87-268, at 4-5 (Nov. 20, 1995); Comments of National Cable Television Association to the *ATV Fourth Further Notice* in MM Dkt. 87-268, at 2-16 (Nov. 20, 1995); Comments of Tele-Communications, Inc. to the *ATV Fourth Further Notice* in MM Dkt. 87-268, at 5-19 (Nov. 20, 1995); and Comments of Turner Broadcasting System to the *ATV Fourth Further Notice* in MM Dkt. 87-268, at 2-6 (Nov. 20, 1995).
41. *FCC Asks Congress Not to Disturb HDTV Deliberations*, 14 *Comm. Daily*, Mar. 15, 1994, at 1.
42. H.R. 3636, § 204, 103d Cong. (1993).
43. H.R. Rep. No. 103-560, at 87 (1994). The Committee Report also stated that the flexible use provision "in no way precludes the Commission's decision-making in developing standards and requirements for advanced television services." *Id.* Congress later, by way of Sen. Pressler's draft "Grand Spectrum Bill" entitled the "Electro-Magnetic Spectrum Management Policy Reform and Privatization Act" circulated on May 9, 1996, took up the question of whether it did in fact want to constrain the power of the FCC to set standards. The Grand Spectrum Bill, which was never introduced, would have expanded the FCC's authority to auction spectrum and make it permanent, allowed flexible use of all spectrum, and required broadcast licensees to pay down a deposit for each year of use of the DTV channel up to 15 years when the broadcaster would give back one of two channels for return of deposit (without interest) or forfeit 20% of deposit for each year's delay. It would also have prevented the FCC from adopting a DTV technical standard.
44. See H.R. Rep. No. 103-560, § 204(d), at 21; see also *id.* at 88 ("The Committee intends that the Commission establish fees which are, to the maximum extent feasible, equal to the amount the public would have received had the spectrum for such services been auctioned publicly under section 309(j)").

45. *See* H.R. Rep. No. 103-560, § 204(c)(1), at 21.

46. *See* H.R. Rep. No. 103-560, § 204(c)(2), at 21. According to the Committee Report, "[t]his provision is designed to ensure that licensees' use of 12 MHz would be for temporary simulcast purposes only, and that in due course one of the licensed channels revert to the Commission. It also requires that the Commission must base its decision regarding the surrender of the license on public acceptance of the new technology or on potential loss of reception for a substantial portion of the public."

47. H.R. Rep. No. 103-560, § 204(b)(5), at 20-21. The Committee Report provided that the "Commission should set reasonable minimum hours standards reflecting current reasonable expectations by consumers for the availability of television service. The Committee recognizes that, particularly at the inception of ATV services, there may not be a sufficient supply of TV programming to permit full service. The Committee recognizes that it may be appropriate for the Commission to establish a requirement that increased as the supply of programming increases." H.R. Rep. No. 103-560, at 88. Later, Chairman Hundt signalled a rejection of this approach, *see* Speech of Chairman Reed Hundt to the International Radio and Television Society (Oct. 18, 1996); *see also* Speech of Chairman Reed Hundt Before the National Assoc. of Broadcasters Leadership Conference (Feb. 24, 1997), and the Commission ultimately declined to adopt mandatory HDTV minimums. *See HDTV Rules, supra* note 4.

48. S. 652, 104th Cong., 141 Cong. Rec. S8417 (daily ed. June 15, 1995) (enacted). For debates, *see* 141 Cong. Rec. S8422-58, S8460-80 (daily ed. June 15, 1995); 141 Cong. Rec. S8305-76, S8379, S8413-15 (daily ed. June 14, 1995); 141 Cong. Rec. S8206-54 (daily ed. June 13, 1995); 141 Cong. Rec. S8134-76, S88-98 (daily ed. June 12, 1995); 141 Cong. Rec. S8055-58, S8061-77, S8085 (daily ed. June 9, 1995); 141 Cong. Rec. S7942-8019 (daily ed. June 8, 1995); and 141 Cong. Rec. S7881-7912 (daily ed. June 7, 1995).

49. S. 652, 104th Cong., § 206(a)(1)(A) (1995). The Senate bill also required broadcasters to pay a fee for any services delivered over existing or new spectrum for which they charge a subscription fee. The FCC was required to set these fees by taking into account the portion of the spectrum used for such services and the amount of time such services were provided. The fee could not exceed the amount paid by bidders to competing services in FCC auctions.

50. *See also* S. Rep. No. 104-23, at 35-36 (1995).

51. H.R. 1555, 104th Cong., 141 Cong. Rec. D992 (daily ed. Aug. 4, 1995) (enacted); *see also* H. R. Rep. No. 204, 104th Cong., pt. 1, at 1 (1995). This bill, introduced on May 3, 1995 by Rep. Bliley, slightly altered the thrust of H.R. 3636 although it maintained the balance of flexible use and fees.

52. This differed from H.R. 3636 which had not required the FCC to limit the initial eligibility for DTV licenses to existing broadcasters. *See* H.R. Rep. No. 104-204, pt. 1, at 116 (1995).

53. This also represented a change from H.R. 3636.

54. H.R. Rep. No. 104-458, at 160-61 (1996).

55. *See* Letter from Robert M. Pepper, Chief, Office of Plans and Policy, to Sen. Lieberman (May 5, 1995). In estimating the value of the licenses to be issued for DTV and the value of spectrum that would be returned to the government following full deployment of DTV, OPP used these proxies: (a) the results of spectrum auctions for other services at that time and (b) the results of private market transactions involving the transfer of television broadcasting licenses. As Pepper himself noted in subsequent congressional testimony, the estimates were necessarily very rough because: (a) the market value of any particular block of spectrum depends on its scarcity, which is difficult to predict years in advance; (b) conditions placed on spectrum use by law or regulation will affect spectrum value; (c) the amount of spectrum made available to potential licensees will affect value; and (d) although often treated as a commodity, the propagation characteristics of different bands make different frequencies and different agglomerations of frequencies differentially valuable. *See Management*

of Radio Spectrum Hearings, supra note 26, at 81-85 (testimony of Robert M. Pepper, Chief, Office of Plans and Policy, FCC).

56. *See* Christopher Stern, *Congress Looking for Spectrum to Sell*, *Brdcst & Cable*, Sept. 4, 1995, at 8.

57. *See, e.g.*, William Safire, *Stop the Giveaway*, *N.Y. Times*, Sept. 4, 1996 at A21; William Safire, *The Greatest Auction Ever*, *N.Y. Times*, Mar. 16, 1995, at A25; Karen Kerrigan, *Hijacking the Broadcast Spectrum*, *Wash. Times*, Aug. 21, 1995, at A17; *GOP Giveaway*, *Wall St. J.*, Sept. 12, 1995, at A26; Karen Kerrigan, *Mr. Dole Fights a Big Giveaway*, *N.Y. Times*, Jan. 19, 1996, at A28; Edmund L. Andrews, *Dole Steps up Criticism of Telecommunications Bill*, *N. Y. Times*, Jan. 11, 1996, at D2.

58. The House-passed version would have required the FCC to use auctions for the assignment of all spectrum, but the House bill specifically exempted from auctions spectrum that would be used by broadcasters for advanced television services. The Senate bill contained similar language protecting broadcast spectrum, but because Sen. Pressler (R-SD) (then Chairman of the Senate Commerce Committee) supported the auction of broadcast spectrum, the Senate bill was revised to delay the assignment of DTV licenses.

59. *See* *Comm. Daily*, Dec. 4, 1995 at 6-7; *see also* Congressional Budget Office, *Reducing the Deficit: Spending and Revenue Options 352-53 (1996)*. H.R. 2530, popularly called the "Coalition Budget," proposed adding the Administration's television transition plan to the spectrum auction provisions of the Balanced Budget Act passed by the Congress. The FCC ultimately adopted a plan that was consistent with the administration's proposal by fixing 2006 as the transition's projected end date.

60. *See* National Association of Broadcasters, *Assault on Free Television: A Call To Arms for Television Broadcasters (1996)*.

61. Commerce Comm. News Release, Jan. 17, 1996, *available in* LEXIS, Nexis Library, Legislative File.

62. *See* H.R. 2903, 104th Cong. § 3002(B) (1996). This bill was similar to one that had been introduced on Oct. 25, 1995 by Rep. Orton (D-Utah) CH.R. 2530, the Common Sense Balanced Budget Act of 1995. Section 3103 of that bill, entitled "Auction of Recaptured Analog Licenses", would have required the Commission not to renew any NTSC license beyond 2005 or one year after the determination that at least 95% of households in the U.S. could "receive and display video signals, other than video signals transmitted pursuant to an analog television license." H.R. 2530, 104th Cong., § 3103(a) (1995). The provision of an alternative transition deadline made this bill less extreme than the administration's proposal. The bill further would have required DTV licensees to provide "at least one nonsubscription video service" for at least five years after analog licenses were revoked. *See id.* § 3103(d)(2).

63. H.R. 2903, 104th Cong. § 3002(B)(4) (1996).

64. This proposal was often discussed, but never formally introduced until Sen. Dole floated a proposal on Feb. 14, 1996 to auction the spectrum as part of a debt-limit increase and deficit-reduction package. Dole's plan called for auctioning the unused channels between 2 and 56 that were to be used for DTV. The plan went even further and called for the auction of channels 57-69, whether used or unused. *See* *Cong. Q.*, Feb. 17, 1996, at 17.

65. MSTV is a trade association representing more than 300 local broadcast television stations. Since 1956, it has been the television trade association most involved in spectrum issues.

66. Letter from Margita White, President, MSTV, to Sen. Lieberman (Sept. 14, 1995).

67. *See id.*

68. *See* Edward T. Reilly, MSTV Chairman, *Remarks at the MSTV Ninth Annual ATV Update (Nov. 9, 1995)* (on file with author); *see also* National Association of Broadcasters, *The Hidden Costs of Up Front Spectrum Auctions (Sept. 5, 1995)*; Association of Local Television Stations, *Auctioning Advanced Television*

Spectrum (Feb. 1996).

69. 142 Cong. Rec. H1166 (daily ed. Feb. 1, 1996) (statement of Rep. Watt).

70. *Id.* at H1167 (statement of Rep. Frank). In late July, Frank would introduce an amendment to appropriations legislation to bar the FCC from issuing DTV licenses. The House defeated the amendment by a large margin on voice vote. *See* Comm. Daily, July 25, 1996, at 3.

71. 142 Cong. Rec. H1166 (daily ed. Feb. 1, 1996) (statement of Rep. Bliley).

72. *Id.* at H1167 (statement of Rep. Dingell).

73. Letter from Chairman Hundt, Commissioners Barrett, Chong, Ness, and Quello to Reps. Bliley, Gingrich, and Sens. Lott and Pressler (Feb. 1, 1996).

74. *Senate Budget Hearings, supra* note 29; *Management of the Radio Spectrum Hearings, supra* note 29; *Spectrum Use and Management: Hearing Before the Senate Comm. on Commerce, Science, and Transportation, 104th Cong. (1996)*; *Broadcast Spectrum and Television Standards: Hearing Before the Senate Comm. on Commerce, Science and Transportation, 104th Cong. (1996)* [hereinafter *Broadcast Spectrum Hearings*]; *Federal Government Use and Management of Spectrum: Hearing Before the Senate Comm. on Commerce, Science and Transportation, 104th Cong. (1996)*.

75. *En Banc* Hearing on Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service Before the Federal Communications Commission in MM Dkt. No. 87-268 (Dec. 12, 1995) [hereinafter *FCC ATV Hearing*]; *En Banc* Hearing on Spectrum Policy Before the Federal Communications Commission (Mar. 5, 1996) [hereinafter *FCC Spectrum Policy Hearing*].

76. Sen. John Breaux (D-La.) attempted to define the difference between broadcasting and other services:

Other industries that use the spectrum can share a fee for their services. Cable does. Cellular companies do. Satellite companies do. So do cab companies and utilities. . . . Television stations don't do that and can't do that. They must absorb the higher costs of doing business or try to pass those costs along to their advertisers. But the costs we're talking about with up-front auctions are too large to be absorbed or to pass along. And those other industries don't have the obligation that broadcasters do to operate in the "public interest, necessity and convenience" compact between government and broadcasters that dates back to the Communications Act of 1934.

Sen. John Breaux, *Don't Sell Spectrum by Selling Out Broadcasters*, Roll Call, Mar. 11, 1996.

77. *See ATV Fourth Further Notice*, 10 FCC Rcd. 10,540 (1995). In April 1995, the MSTV Board publicized a resolution that HDTV, rather than ancillary and supplementary services, was the first priority of their membership of more than 300 local stations:

The MSTV Board reaffirms its goal and commitment to broadcast high definition television . . . [including] a reasonable minimum amount of [HDTV], as determined by FCC rules. The goal of public policy and of the local television station community should be to transition as rapidly as feasible and practical, consistent with the unique nature of each market and the needs of our communities, our nation's free and universal television broadcast system to the digital era.

See Brinkley, *supra* note 7, at 342.

78. *See* Broadcasters' Joint Comments to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 15-18 (Nov. 20, 1995); *see also* Comments of CBS, Inc. to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 7-8 (Nov. 20, 1995); Comments of Capital Cities/ABC, Inc. to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 7 (Nov. 20, 1995); Comments of Golden Orange Broadcasting to the *ATV Fourth Further Notice* in MM

Dkt. No. 87-268, at 2 (Nov. 20, 1995); Comments of National Broadcasting Company to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 7-8 (Nov. 20, 1995); Comments of New World Television, Inc. to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 11-15 (Nov. 20, 1995); Comments of the Association of America's Public Television Stations and the Public Broadcasting Service on the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 18 (Nov. 20, 1995); Comments of the National Association of Broadcasters, in the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 3-4 (Nov. 20, 1995).

79. *See, e.g.*, Comments of the Electronic Industries Association and the Advanced Television Committee to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 4-5 (Nov. 20, 1995); Comments of the Digital HDTV Grand Alliance to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 4-5 (Nov. 20, 1995); Comments of the General Instrument Corp. to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 5-6 (Nov. 20, 1995); Comments of Thomson Consumer Electronics, Inc. to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 4 (Nov. 20, 1995); Comments of Zenith Electronics Corp. to the *ATV Fourth Further Notice* in MM Dkt. No. 87-268, at 2-3 (Nov. 20, 1995).

80. Prepared Remarks of Alan Braverman, ABC, Inc., Before the *FCC ATV Hearing* in MM Dkt. No. 87-268 (Dec. 12, 1995).

81. Written Testimony of Neil Braun, NBC Television Network, Before the *FCC ATV Hearing* in MM Dkt No. 87-268 (Dec. 12, 1995).

82. *Id.*

83. *See* Written Testimony of Ralph Gabbard, NAB, Before the *FCC ATV Hearing* in MM Dkt No. 87-268 (Dec. 12, 1995). Gabbard testified that smaller market stations (that is, markets 61-70) average 11.2% the profit of stations in the top ten markets. In even smaller markets (that is, markets 151-175), the profits fall to 2.7% that of the larger markets. The average profit margins for all stations in the smallest group between 1991 and 1994 was not enough to finance DTV costs even using all annual profits, let alone enough money to pay for DTV spectrum at auction.

84. The issue of the effect of auctions on television service to rural areas was of particular concern in the hearings. Sen. Rockefeller (D-W.Va.) noted his concern that, just as airline deregulation had emptied many rural states of jet service, so spectrum auctions might make it unprofitable to operate television stations in places like West Virginia. *See Federal Communications Commission Oversight and Implementation of the Telecommunications Act of 1996: Hearings Before the Senate Comm. on Commerce, Science, and Transportation*, 104th Cong. 32 (1996) (Remarks of Sen. Rockefeller).

85. A wrinkle in this proposal was that the channels be used for DTV rather than any use, but that they be auctioned to broadcasters and potential broadcasters. This restriction on the use of the spectrum depressed the valuation of it from the high early estimates of 70 billion dollars.

86. MIT Professor Jerry Hausman, in the Joint Broadcasters Comments to the *ATV Sixth Further Notice* (Nov. 20, 1996) (Appendix D1: Statement of Jerry A. Hausman) [hereinafter *Hausman Report*], attempted to estimate the value of the broadcast service to the consumer. He did this in the context of the *ATV Sixth Further Notice's* proposal to make DTV channels in the 60-69 range available for an early auction. Using Channel 38 in Boston (a UPN station) as an example, he estimated that the loss in consumer value is between 3.5 and 4.7 times higher than the revenue that the FCC would raise in an early auction of the spectrum on which Channel 38's DTV channel would be located. The *Hausman Report* compared the estimated value of an early auction of the DTV "holes" in channels 60-69 with an auction of the entire band after the transition. By extrapolating from PCS auctions, he found that the market places a significantly higher value on the larger blocks of contiguous spectrum. He estimated that the proposal to delay the auctions for channels 60-69 would lead to 2.3 to 10.6 times greater revenue because of the ability to sell large spectrum blocks after the transition was complete.

87. *See Senate Budget Hearings, supra* note 29 (Mar. 14, 1996) (testimony of David H. Moore, Senior Analyst, Natural Resources and Commerce Division, Congressional Budget Office).

88. *Id.*

89. *See id.* (Mar. 13, 1996) (testimony of Jerry Hausman, MacDonald Professor of Economics, MIT), *available in Westlaw*, 1996 WL 134424.

90. *See id.* (Mar. 14, 1996) (testimony of Mike Burgess, KOB-TV, Albuquerque, and Howard Shrier, Nebraska Broadcasters Association), *available in Westlaw*, 1996 WL 145644; *Management of Radio Spectrum Hearings*, *supra* note 29 (testimonies of Alfred C. Sikes, President, Hearst News Media and Technology; Warren P. Williamson, WKBN Broadcasting Corporation; Kevin O'Brien, KTVUTV, San Francisco; Ray Rodriguez, Univision Television Network; David Griffin, KWTW, Oklahoma City; Patrick M. Scott, Fisher Broadcasting, Inc.; Robert Allen, KRCGTW and Iowa Broadcasters Association, Cedar Rapids; Elizabeth Murphy Burns, MorganMurphy Stations); *Broadcast Spectrum Hearings*, *supra* note 74 (testimonies of Ray Rodriguez, Univision; Robert C. Wright, National Broadcasting Company; James M. Keelor, Cosmos Broadcasting Corp.; William Sullivan, CPAXTV, Missoula).

91. *See Senate Budget Hearings*, *supra* note 29 (testimony of Mike Burgess, KOB-TV, Albuquerque and Howard Shrier, Nebraska Broadcasters Association) (Mar. 14, 1996), *available in Westlaw*, 1996 WL 145644.

92. Breaux, *supra* note 76.

93. Letter from Reps. Gingrich, Bliley, and Dingell and Sens. Lott and Hollings, to Chairman Hundt (June 19, 1996).

94. *See ATV Fifth Further Notice*, 11 FCC Rcd. 6235, paras. 8-16; *ATV Sixth Further Notice*, 11 FCC Rcd. 10,968, paras. 2-4; *ATV Fourth Report and Order*, 11 FCC Rcd. 17,771, 5 Comm. Reg. (P & F) 963 (1996). On April 3, 1997, the FCC also adopted rules to be reported in the *Fifth and Sixth Reports and Orders*. As of this writing, these writings had not yet been released. *See DTV Rules*, *supra* note 4.

95. *See ATV Sixth Further Notice*, 11 FCC Rcd. 10,968, paras. 21-37. Broadcasters opposed this option in their comments to the FCC on the grounds that such a concentration would increase the interference to the existing NTSC service, reduce DTV service, reduce much-needed flexibility throughout the transition, pre-judge the question of what spectrum band is optimal for DTV, and lead to an early auction of spectrum that could be reallocated more efficiently after the transition to DTV was complete. *See Hausman Report*, *supra* note 86, at 24-42. The FCC ultimately did assign DTV stations to channels 2-6 without reservation but, as a result of the heightened attention to the value of spectrum and competing users, marked some channels in 60-69 for a reallocation to public safety communications services and for auction before the transition to DTV is complete. *See DTV Rules*, *supra* note 4; *DTV Allotments*, *supra* note 4.

96. *See DTV Rules*, *supra* note 4; *DTV Allotments*, *supra* note 4. Even up to the last minute, there were calls to auction the digital channels. *See, e.g., Bob Dole, Giving Away the Airwaves*, N.Y. Times, Mar. 27, 1997, at A29.

97. Sen. McCain, in a January 9, 1997 letter to Chairman Hundt, said that he intended to introduce legislation to authorize the FCC to auction spectrum for broadcast licenses and asked that the FCC "take no action on new rules" for DTV licensing until Congress votes on any such legislation. *See Comm Daily*, Jan. 10, 1996 at 9; *see also McCain Favors Auctions of Analog TV Licenses*, Brdcast & Cable, Jan. 13, 1997, at 3. Sen. McCain did in fact introduce legislation that would have permitted the FCC to move ahead on DTV, but would have required that certain DTV channels be auctioned. *See Public Safety Act*, S. 255, 105th Cong. (1997).

98. *See e.g., Adam D. Thierer, A Policy Maker's Guide to Deregulating Telecommunications Part 5: Is the FCC Worth Its Cost?* (Heritage Foundation, Mar. 22, 1995).

99. Gregory L. Rosston & Jeffrey S. Steinberg, Federal Communications Commission, *Using Market-Based Spectrum Policy to Promote the Public Interest* (Jan. 1997).

100. *See, e.g., FCC Spectrum Policy Hearing, supra* note 75 (written testimony of Jonathan D. Blake for MSTV). This testimony argued that FCC spectrum allocations need to take into account distinctions between existing and new services, open systems (meaning a single operator lacks control of both the transmitting and receiving ends of a system) and closed systems, free and subscription services, and incompatible and compatible services. In addition, it made the point that market mechanisms to assign spectrum licenses are suitable only in certain situations, for example, in the assignment of new subscription services in which the integrity of existing services is not compromised, elusive disruption costs to the public are minimal or recoverable, and the market works as a proxy for the public interest.

101. *See* Letter of Michele C. Farquhar, Chief, Wireless Telecommunications Bureau, to Sen. Hollings (Feb. 5, 1997).

102. *See* Testimony of Larry Irving, Asst. Secretary for Communications and Information, U.S. Dept. of Commerce, National Telecommunications and Information Administration, Before the House Committee on Commerce, Subcommittee on Telecommunications, Trade, and Consumer Protection (Feb. 12, 1997), *available in* Westlaw, 1997 WL 60500.

103. *See* Budget Bulletin, Senate Commerce Majority Staff, 105th Cong., No. 9 (March 24, 1997), *also available at* <<http://www.senate.gov/comm/budget/releases/bulletin.htm>>.

104. *See* Remarks of Rep. Tauzin, Transcript of the Hearing Before the House Committee on Commerce, Subcommittee on Telecommunications, Trade and Consumer Protection (Feb. 12, 1997) *available in* Westlaw, 1997 WL 63078 ("The real true value [of spectrum] is what people in the marketplace actually offer for an actual bid at an actual auction. Why then can you conclude that well, because the real value turned out to be something less than CBO guessed, somebody else has to make it up? Isn't that a budgetary decision than a policy one? . . . [I]sn't that really driven by the need to find some money somewhere so you don't have to cut spending or raise taxes on the general public?").