

identification. If existing broadcasters use the existing call sign of their NTSC channels for their ATV pairs, they will be able to benefit from the name recognition and good will associated with their present call signs. Use of the same call sign would facilitate consumers' transition to ATV by making clear that the ATV/NTSC channel pairs are associated with the same broadcaster. We might also add a suffix to each ATV call sign, such as -AT or -HD, to help the public distinguish between the ATV and NTSC channels of the pair. Use of the same call signs (with the exception of the ATV suffix) for the stations controlled by the same broadcaster suggests an identity between the stations. This approach would thus reinforce our simulcasting policy, which will at the earliest appropriate point require the transmission of the same program on both channels. Since it would not require assigning new call signs, this proposal also would be administratively efficient. For the above reasons, at the time an ATV construction permit is awarded to an existing broadcaster, we propose to assign the ATV channel the same call sign as the NTSC channel currently in use, with the addition of an appropriate two-letter suffix. We seek comment on this proposal and, specifically, on the suffix that would best identify the ATV channel.

## 2. Other Spectrum Uses: Reconsideration/Report and Order

31. In its comments, IMCC urges that we modify our regulatory approach to initial ATV implementation to allow ATV conversion channels that are not used during our initial application/construction period to be allocated for alternative non-broadcast use by other parties.<sup>102</sup> We agree with NAB and MSTV, however, that this approach would be inconsistent with our previous ruling to open such channels to other qualified television broadcast applicants.<sup>103</sup> On a related matter, Brechner asks that we permit proposed users of reversion channels that are to be returned by broadcasters (at the point of conversion) to expedite conversion by helping to finance its costs.<sup>104</sup> Although we make no decision on whether a marketplace solution of this nature might eventually be appropriate for ATV, we believe that it is prematurely raised at this time. We also find that the question of the appropriate use for the reversion spectrum that we will reclaim at the time of full conversion is beyond the scope of this proceeding.<sup>105</sup>

## IV. ALLOTMENT/ASSIGNMENT ISSUES

### A. Assignment Methodology: Report and Order

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<sup>102</sup> IMCC Comments at 4-5. IMCC also argues for alternative uses for spectrum reclaimed at the time of conversion. IMCC Comments at 5.

<sup>103</sup> NAB Reply at 8-9; MSTV Reply at iii, 8-9; Second Report/Further Notice, 7 FCC Rcd at 3344-45. See also Zenith Reply at 9.

<sup>104</sup> Brechner Comments at 4-5.

<sup>105</sup> See also discussion infra Section VI.D regarding NTIA's flexible use proposal.

32. The Second Report/Further Notice proposed an ATV assignment methodology.<sup>106</sup> Under this proposal, at the time the Further Notice proposing the Final Table of Allotments is issued, broadcasters would have a fixed period of time to negotiate with each other and submit plans for pairing NTSC and ATV channels either nationwide or on a market-by-market basis. Once the negotiation period ends, channels in markets where negotiations fail to produce an acceptable pairing plan would be assigned on a first-come, first-served basis. A "random ranking" procedure would be used in the case of simultaneously filed applications.<sup>107</sup> We defer a decision on assignment methodology until comments on the recently released Second Further Notice, supra, are submitted and we have decided on an allotment methodology.

B. Noncommercial Reserve: Report and Order

33. The Second Report/Further Notice adopted several special measures designed to protect vacant noncommercial allotments. For example, we stated that vacant noncommercial allotments will be used for ATV only where there is no feasible alternative for assigning an ATV channel to an existing broadcaster. Vacant noncommercial allotments will be left without an ATV channel pair only when there is no other practicable way to award an existing broadcaster an ATV channel, according to the Second Report/Further Notice.<sup>108</sup>

34. We agree with Public Television that, regardless of the assignment methodology ultimately adopted,<sup>109</sup> we should take an additional measure on behalf of noncommercial interests: creation of a noncommercial reserve. Such a reserve will ensure that ATV channels created for vacant NTSC noncommercial allotments are available only to qualified noncommercial parties. It will also ensure that noncommercial entities do not face renewal challenges from commercial applicants.<sup>110</sup> Should we decide to assign ATV channels by pairing them with NTSC channels, as some propose,<sup>111</sup> we will, as Public Television requests, create a reserve at that time.<sup>112</sup> Should we adopt another methodology, such as first-come, first-served, we will reserve noncommercial channels at the time initial assignments to noncommercial entities are made.

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<sup>106</sup> As a technical matter, spectrum space is "allocated" to a particular service. Allocated channels are then "allotted" to specific geographic areas, and "allotted" channels are then "assigned" to a licensee. Second Report/Further Notice, 7 FCC Rcd at 3370.

<sup>107</sup> Second Report/Further Notice, 7 FCC Rcd at 3349.

<sup>108</sup> Second Report/Further Notice, 7 FCC Rcd at 3350.

<sup>109</sup> See supra Section IV.A.

<sup>110</sup> Public Television Reconsideration at 2, 7-11.

<sup>111</sup> Public Television Reconsideration at 9-11; Joint Broadcasters Comments at i-ii, 4-10.

<sup>112</sup> Public Television Reconsideration at 9-11.

It is possible, however, that after initial assignments are made, vacant ATV allotments which correspond with NTSC noncommercial stations<sup>113</sup> or reserve channels will remain unassigned, and more than one channel will be available which could be assigned to a noncommercial station or vacant allotment. Should this occur, we will initiate a general rulemaking to determine the methodology we should employ for the designation of reserved channels.<sup>114</sup> We disagree with Public Television that even if first-come, first-served assignment is used, we should create a noncommercial reserve prior to initial assignments in a Final Table of Allotments.<sup>115</sup> We recognize, as we have previously, the unique importance of noncommercial stations.<sup>116</sup> The creation of a spectrum reserve and other measures we have taken reflect that concern. Nevertheless, the primary purpose of a first-come, first-served approach would be to give parties able to construct ATV stations expeditiously their preferred channels. It would contradict this objective to give priority to a reserve for parties that may not come forward to build for several years and may not even now exist. In addition, we do not believe that the differences between the ATV channels allotted will be so significant as to cause a serious disadvantage to any noncommercial broadcaster who receives a channel at the end of the assignment process.

#### V. LOW POWER AND TRANSLATOR SERVICES

##### A. Secondary Status and Other Issues: Reconsideration

35. The Second Report/Further Notice concluded that it would probably be necessary for new ATV assignments to displace at least some low-power television (LPTV) and translator service stations in major markets, although the impact of displacement would likely be less severe in rural areas.<sup>117</sup> We

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<sup>113</sup> This might happen under a first-come, first served assignment approach if an NTSC noncommercial station did not apply among the first stations in its community and there is more than one ATV allotment that could conceivably be paired with that station's NTSC channel.

<sup>114</sup> We thus decline to establish criteria such as Public Television suggests for setting aside reserve channels at this time. Public Television Reconsideration at 12 n.11.

<sup>115</sup> Public Television Reconsideration at 5,7.

<sup>116</sup> Second Report/Further Notice, 7 FCC Rcd at 3350.

<sup>117</sup> A low power television station (LPTV) is a broadcast television facility with secondary service status that is authorized at maximum power levels lower than those of full-service television stations. Low-power stations may retransmit the programs of a full-service station and may originate programming. Translators are low-power stations that do not originate programming in excess of 30 seconds an hour and that retransmit the signals of a full-service station. 47 C.F.R. § 74.701 (a), (f). A television translator may become an LPTV by filing a letter of notification. LPTVs and translators are governed generally by the same rules. See generally 47 C.F.R.

found that LPTVs and translators, as secondary services, must yield to new full-power ATV stations.<sup>118</sup> We found that there is insufficient spectrum to include LPTVs and translators in the initial eligibility for an ATV frequency on either a primary or secondary basis or generally to factor in LPTV displacement considerations in making ATV assignments.<sup>119</sup> However, we adopted several measures designed to help mitigate the effects of displacement, e.g., we continued to permit a displaced low power TV station to file for a noncompetitive replacement channel in the same community, and stated that we would initiate a rulemaking considering certain specific NTSC interference protection rule changes that had been requested.<sup>120</sup>

36. On reconsideration, Polar argues that the LPTV industry must be included in our regulatory approach so that ATV can be introduced as quickly and efficiently as possible. Polar also asks that the Commission assign LPTV-occupied channels as ATV channels if and only if there are no other technically suitable channels available for ATV broadcast by existing full-service broadcasters.<sup>121</sup> Polar requests that the existing service of LPTV broadcasters be protected vis-a-vis vacant full-service allotments, vacant noncommercial allotments, applicants for new NTSC permits filed after December of 1991, new NTSC or ATV allotments, and, where suitable alternative ATV channels are available, full-service broadcasters.<sup>122</sup> Polar also seeks a two-year competition-free application period for LPTV after the initial ATV assignments are made.<sup>123</sup> Polar believes that otherwise, the Commission's ATV objectives will not be met among the specialized audiences (e.g., local, minority, and isolated rural audiences) served by the low power television service.<sup>124</sup>

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Part 74, Subpart G.

<sup>118</sup> Second Report/Further Notice, 7 FCC Rcd at 3350-52.

<sup>119</sup> Second Report/Further Notice, 7 FCC Rcd at 3351. See also Second Further Notice, at para. 41; MSTV Reply at 11-12.

<sup>120</sup> Second Report/Further Notice, 7 FCC Rcd at 3352.

<sup>121</sup> Polar Reconsideration at 6, 13.

<sup>122</sup> Polar Reconsideration at 13. Skinner, while not petitioning for reconsideration, takes a similar position in its comments. We include Skinner's arguments for the sake of completeness. Skinner also advocates that those low power television stations with the largest populations served should be the last displaced. Skinner Comments at 11. We do not believe that this is the proper procedural context for revising our low-power television service rules and policies to make distinctions among displaced low-power television stations. Cf. Second Report/Further Notice, 7 FCC Rcd at 3351 n.118 (declining to establish displacement preference based on content).

<sup>123</sup> Polar Reconsideration at 6.

<sup>124</sup> Polar Reconsideration at 6.

37. We agree with MSTV that we should decline to modify our policy regarding the secondary status of LPTV as Polar requests.<sup>125</sup> We concur in Polar's view that ATV should be implemented as expeditiously as possible. We reiterate that low-power television service has a role in our regulatory approach to ATV.<sup>126</sup> As we previously stated, however, full-service stations, by definition, can reach larger audiences than the low power television service stations. It thus furthers our goals in this proceeding to permit full-service stations to take priority over the secondary services in the implementation of ATV, and we do not believe that this policy entails a comprehensive change in the secondary status of low-power television service stations.<sup>127</sup> As MSTV asserts, continuing low-power television service's secondary status, which requires it to yield to full-service stations, is consistent with our view that ATV is an advance in technology, not a new video service.<sup>128</sup> As MSTV observes, low power television service operators have been on notice since 1987 that they would be considered secondary to ATV and were subject to displacement by full-service ATV stations.<sup>129</sup> In addition, we observe that all meetings of the Advisory Committee and its sub-groups are open to the public. We encourage low-power television service interests to increase their participation in that body's activities.<sup>130</sup>

38. We also disagree that any other displacement approach than what Polar proposes would mean the loss of existing service merely to accommodate new speculative broadcast authorizations.<sup>131</sup> As stated in the Second Report/Further Notice, low power television service stations will continue to be permitted to operate until a displacing full-service ATV station is operational.<sup>132</sup> As we have previously stated, and our pending Second Further Notice bears out, it will be a challenge to provide existing full-service broadcasters sufficient ATV spectrum to satisfy their needs and the public's

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<sup>125</sup> MSTV Reply at 13-14. We have already addressed Skinner's argument that low power television is not secondary to ATV. Second Report/Further Notice, 7 FCC Rcd at 3351; Skinner Comments at 5-6.

<sup>126</sup> Second Report/Further Notice, 7 FCC Rcd at 3351.

<sup>127</sup> Second Report/Further Notice, 7 FCC Rcd at 3350-52.

<sup>128</sup> MSTV Reply at 13-14.

<sup>129</sup> MSTV Reply at 12 n. 7. See Advanced Television Systems and Their Impact on the Existing Television Broadcast Service, RM-5811, Mimeo No. 4074 at 2 n. 4 (released July 17, 1987).

<sup>130</sup> This would allay the concerns of some parties, see, e.g., Polar Reconsideration 11-12, Skinner Comments at 8-9, that low-power television service interests are not adequately represented in the Advisory Committee.

<sup>131</sup> Polar Reconsideration at 13.

<sup>132</sup> Second Report/Further Notice, 7 FCC Rcd at 3352.

interest in the broadest and most efficient dissemination of this new transmission mode.<sup>133</sup> We decline to further constrain the ATV allotment/assignment process by affording low power television stations priorities not generally afforded to services with secondary status.<sup>134</sup> We agree with MSTV that large markets will be particularly congested; that in other markets, low-power television channels may be the ones most likely to optimize or replicate coverage of existing broadcasters; and that low-power television channels will be necessary for full-service transition to ATV. We also believe that, in rural or small markets, substitute LPTV channels are likely to be available for displaced low-power television stations.<sup>135</sup> We concur with the concerns of MSTV and Public Television that Polar's proposal would give low power television stations priority over vacant noncommercial allotments, contrary to our previously articulated policies.<sup>136</sup>

39. We also adhere to our decision not to narrow the group of potentially ready, willing, and able applicants once the initial eligibility restriction is lifted.<sup>137</sup> We agree with MSTV's view that Polar's request for a subsequent two-year LPTV application period would mean a change in low power television's secondary status. It would prevent existing broadcasters or new full-service applicants from applying during that time.<sup>138</sup> Low power

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133 Second Further Notice, at para. 41.

134 Skinner argues that the displacement of low power television broadcasters in congested markets, coupled with our decision not to consider low power displacement when making allocation decisions, is patently unreasonable and inefficient and may amount to a taking of property in violation of the Fifth Amendment. Skinner at 8-10. We disagree and find that this argument would effectively circumvent low power television's secondary status. Moreover, such regulatory action would not constitute a taking under the Fifth Amendment. See Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419 (1982).

135 MSTV Opposition at 3.

136 Second Report/Further Notice, 7 FCC Rcd at 3350; MSTV Opposition at 3-4; Public Television Opposition at 3-4.

137 Second Report/Further Notice, 7 FCC Rcd at 3344.

138 See generally MSTV Opposition at 2. We also observe that service to specialized groups, which Polar alleges are often the low power television licensee's audience, is only one of many criteria we now use in evaluating license eligibility. See generally Reexamination of the Policy Statement on Comparative Broadcast Hearings, 7 FCC Rcd 2664, 2664-66 (1992).

We also observe, in response to Skinner and Island, that Island's previous allotment proposal was considered in formulating our draft Allotment Table. Second Further Notice at para. 42 n. 49; Skinner Comments at 9-10; Island Comments at 8-9. To the extent that Island or other parties have additional suggestions, we will consider such suggestions at the time we issue

television service broadcasters may, of course, apply for ATV channels when the initial eligibility restriction is lifted. At such point, open competition will determine who the most qualified parties are. We maintain our determination not to restrict further such competition beyond our three-year initial eligibility restriction.<sup>139</sup>

B. Low-Power Television Service Conversion: Report and Order

40. The Second Report/Further Notice concluded that low power television services should be free to broadcast in either the ATV or NTSC mode. We also proposed to require low-power television service stations to convert to ATV at the same time that full-service broadcast stations are required to convert.<sup>140</sup> After reviewing the comments on this issue, we now agree with those parties who argue that such a requirement would overly burden low power stations,<sup>141</sup> many of which are small, community-oriented enterprises.<sup>142</sup> Such a requirement might, as Telemundo suggests, ultimately result in a reduction of program diversity.<sup>143</sup> We agree with Telemundo that we tentatively should adopt a flexible approach that permits low power television service broadcasters to convert to ATV in response to local demand. We accordingly will not mandate at this time low-power television service conversion to ATV by a certain date.<sup>144</sup>

VI. CONVERSION TO ATV

A. Conversion Date: Reconsideration

41. The Second Report/Further Notice put broadcasters on notice that, when ATV becomes the prevalent medium, they will be required to convert to ATV -- i.e., to surrender their reversion channel and cease broadcasting in NTSC. We also concluded that establishment of a firm date for conversion would keep administration simple, assure progress toward freeing spectrum on a timely basis, and give affected parties the benefits of a clearly defined planning horizon.<sup>145</sup> No parties petition for reconsideration of this aspect of our

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a proposed Final Table of Allotments.

<sup>139</sup> Second Report/Further Notice, 7 FCC Rcd at 3351.

<sup>140</sup> Second Report/Further Notice, 7 FCC Rcd at 3351-3352.

<sup>141</sup> Skinner Comments at 7-8; SBA Comments at 5.

<sup>142</sup> Telemundo Comments at 8.

<sup>143</sup> Telemundo Comments at 8.

<sup>144</sup> In light of this decision, Polar's proposal that low-power television stations be afforded primary status upon mandatory conversion to ATV is moot. Polar Reconsideration at 13-15.

<sup>145</sup> Second Report/Further Notice, 7 FCC Rcd at 3353.

ruling. In the interest of completeness, however, we consider parties' comments on this question.

42. While EIA/ATV Committee favors establishment of a single nationwide conversion date, as opposed to market-by-market conversion, both it and Sony urge caution in setting a firm date now. Both believe that if a date is announced now, it could disrupt the near-term NTSC receiver market.<sup>146</sup> We believe, however, that consumers would benefit from knowing now about the future conversion of broadcast television to ATV. They thus will have the maximum amount of time to plan their investment decisions and perform the necessary adjustments to make the transition to ATV.<sup>147</sup> In addition, we also agree with Fox and AT&T that setting a firm date is the most expeditious way to achieve conversion.<sup>148</sup> In the interest of avoiding the establishment of a premature conversion date, however, we intend to periodically review our conversion deadline before its final imposition. Thus, if particular problems occur, we may adjust the deadline accordingly, as we describe more fully below.<sup>149</sup>

43. SBA in its comments opposes establishment of a firm date for conversion. SBA acknowledges that "stations which have made the investment in ATV equipment" should not "tie up" limited spectrum "for an indefinite period of time." It states, however, that smaller stations cannot afford the initial investment for converting to ATV and that requiring them to convert at a definite point in the future would be unfair and unrealistic. SBA fears that equipment suppliers will enjoy an artificial market and lack incentives for reasonable pricing.<sup>150</sup> We have already expressed some doubts concerning this argument.<sup>151</sup> Moreover, a station that has not made the investment in ATV equipment, as SBA posits will be the case for smaller stations, would be more likely to "tie up" spectrum resource than one who has actually made this investment. If we extended our conversion period to accommodate stations'

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<sup>146</sup> EIA/ATV Committee Comments at ii, 6-7; Sony Comments at 49-50.

<sup>147</sup> Moreover, establishment of a clear plan now will enable manufacturers to anticipate any consumer disruption that might occur from lack of accurate information regarding our policies. They are thus free to take appropriate steps to inform consumers correctly, to the benefit of both the consumer electronics industry and the viewing public.

<sup>148</sup> Fox Comments at 3; AT&T Comments at 1-3.

<sup>149</sup> MSTV opposes establishing a timetable for conversion, referring to equipment manufacturers' comments arguing that such a schedule is premature. MSTV Reply at ii, 16, 19-20. MSTV is skeptical, though, of equipment manufacturers' objection to a firm conversion deadline, suggesting that they fear the premature obsolescence of the profitable NTSC equipment market. MSTV Reply at 20-22.

<sup>150</sup> SBA Comments at 3-4.

<sup>151</sup> See supra Section III.A and infra Section VI.B.

individual decisions on when to invest in ATV technology, as SBA suggests, we would have no guarantee that the conversion channel would be used for any purpose in any reasonable period of time and no guarantee that the reversion channel could be reclaimed at any given point. We agree with NTIA, rather, that a timetable for surrender of reversion channels will expedite the freeing of spectrum of significant value to other users.<sup>152</sup> As NTIA states, existing broadcasters will probably be awarded most of the available ATV channels. As a result, they will not face unrestrained competition from new entrants that would have a strong economic interest in speeding ATV development, thus pressuring broadcasters to keep pace. We agree with NTIA that a timetable for ATV development acts as a partial surrogate for such competition and encourages broadcasters to meet consumers' needs in a timely fashion.<sup>153</sup> While we thus decline SBA's suggestion that we adopt an approach to ATV implementation that permits broadcasters to plan their own conversion schedules,<sup>154</sup> we underscore that, as discussed below, we are building in several reviews of the ultimate conversion date to preserve flexibility in the overall conversion process.

#### B. Conversion Date: Preliminary Decision

44. The Second Report/Further Notice tentatively concluded that we should establish a date for conversion that is 15 years from the date that adoption of an ATV system or a final Table of ATV Allotments is effective, whichever is later.<sup>155</sup> Fox, Zenith and AT&T believe that this is an adequate time frame,<sup>156</sup> and we agree with this assessment as a preliminary matter. It appears, as AT&T suggests, that this period will allow equipment manufacturers, broadcasters and consumers sufficient time to accept conversion without significant market disruption or uncertainty.<sup>157</sup> For the reasons elaborated below, we disagree with Joint Broadcasters and MSTV that there is insufficient evidence to support this 15-year period.<sup>158</sup>

45. Available studies suggest that in 15 years stations will have

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<sup>152</sup> NTIA Comments at 11. Specifically, NTIA proposes the use of private market transactions and competitive bidding to permit the reclaimed spectrum to be allocated and assigned to users who can derive the greatest value from that resource. NTIA Comments at iii, 18-19. A decision on the allocation of spectrum to be reclaimed is beyond the scope of this proceeding.

<sup>153</sup> NTIA Comments at 11.

<sup>154</sup> SBA Comments at 4.

<sup>155</sup> Second Report/Further Notice, 7 FCC Rod at 3353-54.

<sup>156</sup> Fox Comments at 3; Zenith Comments at 2; AT&T Comments at 2-3.

<sup>157</sup> AT&T Comments at 2-3.

<sup>158</sup> Joint Broadcasters Comments at 19-20 & n. 14; MSTV Reply at ii, 16-19.

implemented ATV to a degree justifying reclamation of their reversion channel. The longest typical period estimated by ISWP2 for station implementation of pass-through capability is slightly more than 3.5 years.<sup>159</sup> An additional 11.5 years for a station to implement whatever ATV studio production capability it deems necessary before requiring surrender of the NTSC frequency is not unreasonable.<sup>160</sup> This is so particularly if, as assumed in studies to date, equipment costs decline as a result of production scale and learning curve economies, and if economies result from the development of interchangeable ATV/NTSC equipment capable of replacing used NTSC equipment.<sup>161</sup>

46. The CBS Study considers station introduction of ATV beyond pass-through capability and on to full studio implementation.<sup>162</sup> As the Darby Report indicates, the CBS study projects industry implementation of full studio production capability within five to 14 years,<sup>163</sup> a period reasonably

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<sup>159</sup> ISWP2 projects the start to on-air time for a station constructing an ATV facility as ranging from a minimum of 16.5 months to a typical time of 25.5 months if a new tower is not required, and from a minimum of 22.5 months to a typical time of 42.5 months if a new tower is required. ISWP2 Fifth Interim Report at 9. "Start to on-air time" runs from the time the stations begins the implementation process to the station's going on the air with programming. Id.

<sup>160</sup> We impose no requirement regarding production standards or the timing of studio and production equipment conversion. See infra Section VI.F.

<sup>161</sup> See generally Darby Report at iv, 13, 16 (depending on assumptions of available cost studies regarding declines in equipment prices and suggesting that other economies may result should "fungible" ATV/NTSC equipment develop); CBS Study at 11-12, 15-16.

Moreover, PSWP5 has estimated that, assuming our previously articulated five-year application/construction period, in five years 150 stations will be equipped to the point of pass-through and local commercial insertion capability, serving 76 million TV households, or 83 percent of the total. PSWP5 1992 Study at 17.

<sup>162</sup> CBS Study at 6-7. The PBS Study considers the costs of such conversion without any assumptions or projections regarding the timing of such implementation.

<sup>163</sup> Darby Report at 12. Both the Darby Report and Joint Broadcasters are critical of the CBS Study and/or our use of it. The Darby Report states that the CBS Study "hypothesizes that the largest 30 stations will begin construction immediately after the necessary regulatory standards are defined and regulatory clearances are achieved, while the 640 or so smaller stations in GROUP 6 [the last group] begin five years later." Darby Report at 12. It also states that the CBS Study "assumes, without any explanation or analysis" that industry implementation will occur in 5-14 years. Darby Report at 12.

within our 15-year conversion deadline, although we are not mandating any particular ATV studio or production capability. Moreover, according to a PSWP5 preliminary report, since the CBS Study was published, a number of interim options have been investigated which may result in a 30 percent reduction in implementation costs projected in the study, and thus may encourage more rapid broadcast implementation.<sup>164</sup> ISWP2 also reports that there will be a sufficient quantity of programming available to implement ATV during the transition period and beyond.<sup>165</sup>

47. With respect to projections of ATV receiver penetration, a 1992

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We disagree that the CBS study lacks explanation or analysis. The CBS Study, which, as we have noted was a preliminary one, developed "transition scenarios" upon which it based the "transition schedule" alluded to in the Second Report/Further Notice, 7 FCC Rcd at 3354 & n.156. CBS Study, supra at 5, 17. CBS is an active participant in the ATV Advisory Committee process, the CBS Study was made part of the Advisory Committee's Fourth Interim Report, and the assumptions underlying the transition scenarios it projected in 1990 are rational and informed. The CBS Study's premises include, for example, that stations in the larger markets will implement ATV first, "not unlike the introduction of color television;" that stations in larger markets will complete the transition in a shorter time than smaller market stations, "again ... similar to the introduction of color;" and that the labor cost of transition is 20 per cent of the investment in capital equipment. CBS Study at 5. It is true as Darby suggests that CBS assumes lower power requirements for ATV than for NTSC and that this assumption is still being verified. Darby Report at 13. Nevertheless, projections to date are that average ATV power is likely to be lower than for NTSC. FCC Advisory Committee on Advanced Television Service, Implementation Subcommittee Working Party 2 on Transition Scenarios, Summary of Responses to Questions for Proponents at 11 (Aug. 24, 1992) (ISWP2 Summary of Proponent Responses).

We agree with Joint Broadcasters in so far as they suggest that the CBS Study's preliminary analyses are more properly characterized as projections than findings. Joint Broadcasters Comments at 19-20 n. 14. In fact, any study of future schedules for ATV implementation would result in conclusions more properly characterized as projections rather than findings. We clarify that this is our understanding of the import of the CBS Study as cited in the Second Report/Further Notice, 7 FCC Rcd at 3354 n. 156. Regardless of the terminology employed to describe them, however, such studies, where they are conducted by experts and based on rational and informed assumptions, constitute an acceptable source of data upon which to base regulatory guidelines for ATV implementation. See generally Telocator Network of America v. FCC, 691 F. 2d 525 (D.C. Cir. 1982) (reviewing court will not require complete factual support where agency's ultimate conclusions necessarily rest on judgment and prediction). Such data will be verified or modified based on actual experience as the ATV transition unfolds.

<sup>164</sup> PSWP5 1992 Study at 16.

<sup>165</sup> ISWP2 Software Survey at 1.

PSWP5 preliminary study has developed four curves, based on high and low perceived value and high and low prices.<sup>166</sup> The mean values of these projections suggest a six percent penetration five years from the time that we select a transmission standard and adopt a Table of ATV Allotments, and a 37 percent penetration in year ten. PSWP5 also stated, however, that because five percent of the present TV set market is comprised of large screen sets and because this segment is growing and expected to convert quickly to ATV displays, the penetration rate may be closer to the optimistic projection (high perceived value with low price). This projection calls for an eight percent penetration in five years, and 56 percent in ten.<sup>167</sup> Should this optimistic projection hold true, it is not unreasonable to require ATV conversion in year 15. This is particularly so if factors such as forward pricing strategies on the part of manufacturers, not considered in the projection, come into play.<sup>168</sup> The availability of suitable programming, as reported by ISWP2, should also attract consumers to buy ATV receivers and thereby help increase penetration.<sup>169</sup>

48. We recognize that, based on a study conducted four years ago, Darby projects only 25 percent penetration 15 years after an ATV standard is

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<sup>166</sup> "High perceived value" refers to market perception of ATV equal to the incremental value the market affords color TV over monochrome TV, while "low perceived value" ascribes a value to ATV in the eyes of the consumer of about one third that accorded color TV. PSWP5 has projected four curves, one based on high perceived value and high prices of receivers, a second on high perceived value and low prices, a third on low perceived value and high prices, and a fourth on low perceived value and low prices. PSWP5 1992 Study at iii, 3-4, Figure 2. When full primetime programming in color was achieved in 1966, and market penetration of color sets took off, the retail price of a color TV set represented 14.7 percent of the average per capita income. The equivalent 1992 price for a similar percentage investment would be \$3,700, according to PSWP5. From 1966 to 1970, market penetration for color rose from 9 percent to 34 percent, according to PSWP5. PSWP5 1992 Study at 4.

<sup>167</sup> PSWP5 1992 Study at iv-v. See also Results of 1992 International Summer CES On-Site Consumer Surveys (July 26, 1992) (published by PSWP5) (based on 963 exit survey responses from a total consumer attendance of 98,720, conservative analysis is that 8 percent would purchase ATV sets in five years, corresponding to 8 percent penetration in year five, the projection for high perceived value and low price).

<sup>168</sup> We also observe that PSWP5's figures do not consider that manufacturers may adopt "forward pricing strategies" in order to seed the market more rapidly and increase penetration. PSWP5 1992 Study at v. We understand the term "forward pricing" to refer to possible manufacturer pricing of ATV receivers lower than would normally be the practice based on costs at that initial stage of ATV development. Such "forward pricing" would be more closely aligned to what prices would be at a later stage, after economies of scale had occurred, hence the term "forward pricing".

<sup>169</sup> ISWP2 Software Survey at 1.

selected, rising to 50 percent three years later.<sup>170</sup> This underlying study, however, was completed prior to the beginning of system testing and the gathering of data on actual system performance, prior to substantial Advisory Committee input on the characteristics of the transition to ATV, and prior to the establishment of any regulatory framework for this transition. Nonetheless, should it appear at the time of our periodic reviews<sup>171</sup> that the Darby projections are accurate, we will not hesitate to adjust our timetable as appropriate. Our regulatory framework must of course provide for the possibility, as Darby suggests, that ATV conceivably may not be as successful as other consumer electronics innovations.<sup>172</sup> Our provision for periodic reviews will enable us to address this circumstance should it arise.

49. Based on the record thus far developed, we expect that the prices of ATV receivers by the end of the 15-year conversion period should be fairly comparable to NTSC set prices. Manufacturers estimate the prices of initial ATV receivers to range from 50 to 300 percent higher than their NTSC equivalents.<sup>173</sup> We thus agree with MSTV that projections of initial ATV receiver prices are high relative to NTSC receivers.<sup>174</sup> However, projections are that such prices will decline. For example, PSWP5 projects that in year ten, for a 50-inch display the high estimate of price will be \$2,000 and the low estimate \$900, while the high estimate in that year for a 25-inch display is \$1,100 and the low estimate \$450.<sup>175</sup> Again, should the market fail to develop so that such ATV receivers are likely to be affordable by most households by year 15, we can make the appropriate modification at our

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<sup>170</sup> Darby Report at vi, 29-31, Appendix C at 33-34. Darby's 1988 study based its penetration scenario on a composite of the growth patterns of several consumer product lines. Darby Report, Appendix C at 14-16.

<sup>171</sup> See infra Section VI.C.

<sup>172</sup> Darby Report at 31.

<sup>173</sup> Zenith Comments at 2-3 (50 to 100 percent more); EIA/ATV Committee Comments at ii, 8 (100 to 300 percent more).

<sup>174</sup> MSTV Reply at 18-19.

<sup>175</sup> PSWP5 1992 Study at Tables IV, V. PSWP5 projects initial prices of ATV receivers with a 50-inch display at a high estimate of \$5,000 and at a low of \$2,800. It projects initial prices for a 25-inch display, first available four years after a standard is selected and an ATV Allotment Table adopted, at a high estimate of \$2,700 and at low estimate of \$1,300. PSWP5 1992 Study at Tables IV, V. Zenith projects that a market for 25 to 27 inch sets, comprising 25 percent of today's market, would develop after an initial large screen rollout, followed in a few years by smaller size 19-20 inch sets, now comprising 45 percent of receiver sales. Zenith Comments at 3-4. See infra Section VI.C for discussion of 13-inch and smaller set market. EIA/ATV Committee estimates that by year 15, ATV receiver prices could drop to 20 to 50 percent above NTSC receivers of comparable size. EIA/ATV Committee Comments at 8.

periodic reviews. In this connection, it is our expectation that cable and other alternative media will contribute to the programming mix offered to ATV viewers, thereby spurring ATV penetration and exerting a downward pressure on the cost of ATV receivers by making ATV more attractive to consumers.<sup>176</sup> In addition, manufacturers and proponents estimate that the cost of consumer downconverters could drop to the \$200 range by about the time of conversion.<sup>177</sup> Because the cost and availability of converters will significantly influence the implementation of ATV technology, we will also evaluate those factors during our periodic reviews of the conversion date.

50. We also believe that our conversion period will give consumers adequate time to realize the full value of their existing NTSC investment. Zenith, for example, states that purchasers of new television sets expect to get seven to 10 years of use from them, so that the majority of those purchasing NTSC receivers prior to introduction of ATV will obtain satisfactory use of their NTSC equipment.<sup>178</sup> Joint Broadcasters agree that 15 years will permit full use of NTSC consumer investment purchased prior to introduction of ATV. However, they argue that we fail to consider the number of NTSC receivers purchased after the introduction of ATV.<sup>179</sup> We note that ATV broadcasting could be introduced as early as the third year of the application/construction period<sup>180</sup> and that, at the end of a five-year period, as many as 76 million TV households could be receiving ATV service over the

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<sup>176</sup> Sony believes that consumers will only invest in ATV receivers if more than one delivery media, e.g., cable, DBS, VCRs, is also available on them. Sony Comments at 37. In this regard, PSWP5 projects that it is possible that ATV cable service may be inaugurated in some major metropolitan areas shortly after selection of a terrestrial transmission standard and when display units are available. PSWP5 1992 Study at 9. But see Darby Report at 38 (variety of constraints on the incentive and ability of cable industry to implement ATV capability). PSWP5 also believes that DBS households will help increase ATV penetration. PSWP5 1992 Study at 13. See also Darby Report at 42 (ATV may provide marketing tool for DBS to differentiate its service from cable).

<sup>177</sup> Zenith Comments at 2,5 (projecting initial prices at about \$500, falling by half over time); EIA/ATV Committee Comments at 8-9 (initial downconverters may cost \$500 to \$1,500 or more, falling to \$100 or \$300 after 15 years); AT&T Comments at 4 (cost of downconverters could fall to \$200 by the end of the 15-year conversion period). GI states that the electronics cost of downconversion, while not insignificant, will not be major compared to other parts of an ATV receiver. GI Comments at 6-7.

<sup>178</sup> Zenith Comments at 2.

<sup>179</sup> Joint Broadcasters Comments at 20.

<sup>180</sup> ISWP2 Fifth Interim Report at 9-10 (using "typical" times; less conservative "minimum" times are even shorter).

air.<sup>181</sup> We note that NTSC receivers purchased during that period would still "live out" consumer expectations of a seven-to-ten-year life span before conversion at the 15-year mark. Furthermore, based on these assumptions, we believe it reasonable to expect that a large number of consumers will be aware relatively early in the transition period of the regulatory framework governing ATV. In addition, it is possible, as Sony suggests, that non-broadcast uses of NTSC will continue to give value to consumer NTSC equipment even after conversion to ATV.<sup>182</sup>

51. Contrary to the views of several parties,<sup>183</sup> professional equipment suppliers or their representatives estimate that costs for ATV transmitting equipment and antennas will be fairly comparable to NTSC.<sup>184</sup> EIA/ATV Committee believes that ATV transmitters will be available about one year after approval of an ATV standard, and that they will cost about 10 percent more than their NTSC counterparts.<sup>185</sup> ISWP2 projects that, with appropriate planning on the part of broadcasters, sufficient numbers of transmitters and antennas should be available.<sup>186</sup> EIA/ATV Committee states that the CBS and PBS studies on costs of studio conversion are now being refined by the Advisory Committee.<sup>187</sup> There are estimates that a full ATV capability (transmission, studio and production) installed over a five-to-nine year period will cost less than \$12 million for a station in one of the top ten markets and about half that for the very smallest station.<sup>188</sup> Net investment may be even less, depending on the interchangeability of ATV and

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181 PSWP5 1992 Study at 17.

182 Sony Comments at 46-48.

183 Joint Broadcasters Comments at 19; SBA Comments at 3-4.

184 EIA/ATV Committee Comments at 9. Micro, an antenna manufacturer, states in its comments that a type of antenna that it has been supplying to the international market in quantities of 3,000 to 5,000 a year, an "all band antenna," could accommodate NTSC and ATV signals at the same time. Micro states that there should be no problem in meeting the industry's antenna requirements. Micro Comments at 1-2.

185 EIA/ATV Committee Comments at 9. We recognize, as Darby suggests, that a complete assessment of the costs of transmission has yet to be performed. Darby Report at 6. See supra note 46.

186 ISWP2 Transmitter and Antenna Manufacturer Survey at 1, 6.

187 EIA/ATV Committee Comments at 10.

188 Darby Report at 19. Darby states that the cost for a network affiliate to upgrade plant to permit network pass through is likely to be about \$1.5 million for a large station and about half that for the very smallest, assuming that the latter is permitted to implement ATV at a significantly later date. Darby Report at 19.

NTSC equipment and the timing of the retiring of NTSC equipment.<sup>189</sup> We are not, however, mandating that broadcasters convert studio and production capacity to ATV by any deadline.<sup>190</sup> Moreover, given these projections, broadcasters desiring to have an ATV studio and production facility in place by the time of conversion will have the full 15-year period to equip such a facility.<sup>191</sup>

52. On the basis of the foregoing and as MSTV suggests,<sup>192</sup> we cannot accept LMCC's position that 15 years is too long a period of time for conversion.<sup>193</sup> We have already stated that we will permit the voluntary surrender of an NTSC channel prior to conversion by a broadcaster awarded a corresponding ATV channel on a case-by-case basis, considering in particular whether ATV receiver penetration in the affected community demonstrates that consumers will not be prematurely deprived of the use of their NTSC receivers.<sup>194</sup> We thus have already provided for prompt recapture of spectrum in those cases where the ATV transition occurs ahead of our projected schedule.

#### C. Periodic Reviews: Preliminary Decision

53. We believe that a 15-year conversion period is reasonably supported by the data now available, and we adopt this period as a preliminary matter. We recognize, however, that the data upon which we rely consists largely of projections that are subject to change as more information regarding ATV is obtained. For example, as Sony observes, we do not yet know whether a direct view display technology that can be cost-effectively mass produced will be developed in the near future.<sup>195</sup> We also are determined to avoid making an inflexible decision that may be overtaken by future

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<sup>189</sup> Darby Report at 19.

<sup>190</sup> As explained supra Section III, broadcasters are only required to transmit programming in the ATV format. They may continue to broadcast upconverted NTSC programming, for example.

<sup>191</sup> As Darby states, the financial burden of ATV investment may be lessened by spreading out associated expenditures. Darby Report at 25. Our refraining from requiring any mandatory level of ATV production capacity by the conversion date permits stations to spread out the considerable costs of studio and production conversion as the market dictates. As stated above, broadcasters need only be transmitting an ATV signal, which may be largely satisfied by pass-through capability, to meet our six-year application/construction deadline. See supra Section III.

<sup>192</sup> MSTV Reply at 9-10.

<sup>193</sup> LMCC Comments at 5.

<sup>194</sup> Second Report/Further Notice, 7 FCC Rcd at 3344.

<sup>195</sup> Sony Comments at 28-29.

events.<sup>196</sup> We thus adopt a schedule of periodic reviews of our conversion deadline. Doing so will also enable us to address any special issues that may arise concerning the very small (13-inch and under) receiver market<sup>197</sup> and issues relating to consumer investment in second NTSC receivers.<sup>198</sup>

54. Most commenters agree with our proposal to review, at the close of the application/construction period, the propriety of any conversion date we establish.<sup>199</sup> While we tentatively had established 1998 as this date, this date has now become 1999 with the preliminary modifications we make herein to our application/construction period. Commenters recognize, as do we, that our preliminary scheduling of a conversion date is based on our best projections of the progress of ATV implementation.<sup>200</sup> A 1999 review will better allow us to determine whether the informed but necessarily preliminary judgments we make now comport with marketplace developments as the process continues.<sup>201</sup> Although we do not believe that 1999 is too soon to make an interim assessment of the suitability of our 15-year conversion date, we do agree with NTIA's recommendation that we seek additional periodic information updates and review ATV progress to adjust, if necessary, the timetable

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<sup>196</sup> Joint Broadcasters Comments at 20; MSTV Reply at 14, 16, 20. Sony Comments at 11, 30-31 (because of the wide range of factors that may impact consumer behavior, including consumer perception of the difference between ATV and NTSC, availability of ATV programming, and diversity of ATV delivery media, it is not yet possible to define precisely the likely ATV transition scenario).

<sup>197</sup> Sony Comments at 46, 53-54 (suggesting possible problems with portable small-screen receiver conversion, as small-screen sets may not realize the full benefits of the advanced technology and, being often put to portable use, must be fed over-the-air). But cf. Zenith Comments at 3-4 (rollout of 19-20 inch ATV sets expected after market for large screen and 25-to-27-inch sets develops).

<sup>198</sup> Specifically, we are concerned with protecting consumer investment in second or third NTSC sets after a primary ATV set is purchased. Possible solutions include equipping NTSC sets with downconverters or equipping an ATV set with a downconverter and an external downconverting feed for "neighboring" NTSC receivers. See generally Sony Comments at 39-40. We expect the nature and extent of this problem to become clear as the conversion process moves forward, and we wish to retain the flexibility to take appropriate action.

<sup>199</sup> Joint Broadcaster Comments at iii, 20; Fox Comments at 3, 8; Zenith Comments at 4; EIA/ATV Committee Comments at ii, 7.

<sup>200</sup> See, e.g., Zenith Comments at 4 (suggesting that ATV implementation conceivably may not proceed as swiftly as we now envision).

<sup>201</sup> See, e.g., Fox Comments at 8.

adopted.<sup>202</sup> We also agree with NTIA that we should establish these reviews prior to key points, such as the imposition of the 100 percent simulcasting requirement and the final deadline for returning one simulcast channel.<sup>203</sup> We accordingly adopt the following schedule for periodic review of information relating to the conversion deadline:

1. 1999, at the close of the application/construction period.<sup>204</sup>
2. 2002, prior to implementation of the 100 percent simulcast requirement.<sup>205</sup>
3. 2008, prior to full conversion to ATV.<sup>206</sup>

We believe that these reviews will permit us to monitor the progress of ATV implementation and to make any necessary adjustments promptly.<sup>207</sup> We also agree with AT&T that the conversion schedule should not be modified without a substantial showing that the change is in the public interest.<sup>208</sup>

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<sup>202</sup> NTIA Comments at ii, 4, 14. Cf. Sony Comments at 54-55 (arguing for reviews later in time than 1998, keyed to penetration rates); AT&T Reply at 1 (implementation schedule can be adopted, if necessary, at an appropriate mid-point in the development of ATV in light of actual experience).

<sup>203</sup> NTIA Comments at ii, 4, 14.

<sup>204</sup> We will also review our temporary suspension of the dual network rule at this time. See supra Section IIC.

<sup>205</sup> At the 1999 and 2002 reviews, we will also review our regulatory approach to simulcasting. See infra Section VII.A.

<sup>206</sup> We will also review our policy regarding suspension of the dual network rule at these times.

<sup>207</sup> Sony recommends a review at one percent penetration, and again at ten per cent, stressing that this will clearly identify the rate of "take off" of ATV and permit the more sensible prediction of an ATV conversion date. Sony Comments at 54-55. We believe that the dates we establish adequately satisfy Sony's underlying concerns. PSWP5, for example, under all of its scenarios (high/low value, high/low pricing) projects achievement of one percent or greater penetration by year six, the date of our 1999 review, and ten percent or greater penetration by year nine, the date of our 2002 review. PSWP5 1992 Study at Figure 2. Darby projects one per cent penetration by 2003, a year in which we have scheduled a review, and over 10 per cent (in fact, 25 per cent) penetration by 2008. Darby Report at 29. We also stress that the purpose of these reviews is to permit us to make adjustments as necessary. Based on all relevant factors, including penetration, should we find that we also must adjust the times for review, we will do so. Beyond the foregoing, we decline to base the conversion schedule or the review calendar more directly on receiver penetration levels.

<sup>208</sup> AT&T Comments at 3.

D. Election: Reconsideration/Report and Order

55. We do not agree with those parties who contend that we should depart significantly from our overall conversion plan by allowing broadcasters a virtually indeterminate period in which to choose whether and when to convert to ATV.<sup>209</sup> GHI and Brechner, for example, both argue that stations that have not converted to ATV by the established date should be allowed to broadcast in NTSC and convert their NTSC channel on a voluntary basis at a later date. GHI specifically states that licensees should be permitted to broadcast in NTSC until they are economically able to convert and should suffer no sanction beyond the requirement that they surrender the second channel at the point of conversion.<sup>210</sup> NTIA, while strongly supporting our decision to require broadcasters to give up one of their two channel assignments by a specific deadline, disagrees with our proposal to require that all broadcasters utilize the remaining channel only for ATV service. NTIA argues that broadcasters should be allowed to offer either ATV or NTSC service, and to surrender the corresponding unwanted channel, in a particular market, at any time, up to and including an "election" deadline which could be set at 15 years.<sup>211</sup>

56. We reiterate that we are awarding broadcasters interim use of an additional 6 MHz channel to permit a smooth, efficient transition to an improved technology with as much certainty and as little inconvenience to the public and the industry as possible. We clarify that, in general, broadcasters who do not convert to ATV will nevertheless have to cease

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<sup>209</sup> GHI Reconsideration Comments at 6; Brechner Comments at 5; NTIA Comments at ii-iii, 4, 15-17.

<sup>210</sup> GHI Reconsideration Comments at 6. GHI proposes that an ATV allotment remain paired with the NTSC channel during the entire 15-year conversion period to eliminate the risk of applicants going to the trouble and expense of resolving all their construction problems only to have lost their ATV assignment.

GHI's assertions that this Commission may not revoke a license for failure to convert to a new technology, and that it may not consider the technical quality of the service provided as an element of renewal expectancy, are without merit. GHI Reconsideration Comments at 6. Contrary to GHI's assertions, this Commission has ample authority to require adherence to the technical standards it sets for television broadcast. 47 U.S.C. §§ 303(a), (b), (e), (f), 308, 309, 312 (a).

<sup>211</sup> Under NTIA's proposal, broadcasters would be required to give back one of the two channels at the "election" deadline. NTIA Comments at ii-iii, 4-5. See also FIT Reply at 2; MSTV Reply at 20-22. Cf. Sony Comments at 31 (ATV service will vie with new multichannel, near video-on-demand, digital NTSC services for consumer attention and acceptance).

broadcasting in NTSC at the final conversion date.<sup>212</sup> Based on the projections cited above about the United States television market's likely acceptance of ATV over the conversion period, we see no reason to award an additional 6 MHz of spectrum to broadcasters who do not wish to convert to ATV, and who do not demonstrate such motivation by constructing an ATV facility within the required time. We are also concerned that such an "election" approach in the long run would impede the use of existing NTSC spectrum for services that the Commission ultimately deems to be in the public interest.<sup>213</sup> Moreover, all of our existing data indicates that consumer acceptance of ATV by the point of conversion should be sufficiently widespread that broadcasting exclusively in ATV will be economically attractive and that continued broadcasting in NTSC will be economically unattractive. We also expect that eliminating the need for both ATV and NTSC equipment will prove more convenient and less confusing to consumers. Moreover, our periodic reviews will take the extent of consumer acceptance into account before ratifying the important determination to eliminate NTSC broadcasting.

57. On the other hand, should our periodic reviews demonstrate that the conversion date should be generally advanced, we will consider accelerating the deadline during these reviews. In addition, should these reviews show that it will further the public interest to permit particular broadcasters to cease broadcasting in NTSC prior to the date set for full conversion, we will consider doing so.

E. Future Technological Advances: Reconsideration/Further Notice

58. Fox asks that this Commission remain open to the use of the conversion channel for digital compression techniques that may be developed in the future for ATV. Fox gives as an example digital compression of multiple ATV images on a single 6 MHz channel. Fox believes that should such an innovation ever be developed, it would place broadcasters on a more even footing with their multi-channel competitors.<sup>214</sup>

59. As we have indicated previously in this proceeding, one of our goals is to ensure that the ATV technical standard is sufficiently flexible to allow it to incorporate future advances in technology. Such advances could include

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<sup>212</sup> NTIA asks that we clarify this point. NTIA Comments at 15 n. 25. We reiterate, of course, that because ATV conversion requires that NTSC broadcast service cease, we are building in as much flexibility into the conversion timetable as possible and as would be consistent with our goal of making the transition prompt, smooth and certain.

<sup>213</sup> NTIA proposes that we initiate a rulemaking to determine how best to create large national or regional blocks of vacant radio spectrum and how to treat NTSC broadcasters that continue to occupy channels within blocks of spectrum that may have been largely vacated in order to achieve spectrum efficiency. NTIA Comments at iii, 18. We wish to avoid such significant implementation hurdles in the first place, however.

<sup>214</sup> Fox Comments at 13 n. 5.

improvements in ATV audio and video techniques, such as those mentioned by Fox, and interoperability with other video media, such as high resolution computer displays. We therefore intend to consider authorization of other advanced video applications, including future techniques that might provide for transmission of more than one ATV program service on a single conversion channel, so long as they are compatible with the ATV system we select. Such a development would be of potentially great significance to broadcasters' ability to compete in a multichannel environment. We note that a multi-camera ATV system might also be used to allow viewers to select from multiple channel angles or to provide them with interactive applications. We request comment on the possible operation of such advanced technologies on the ATV conversion channels.

F. Production Standard: Report and Order

60. Sony advocates that the United States adopt a single production standard, specifically, the SMPTE 240M-1125/60 production standard and the SMPTE 260M digital production standard. It cites this standard's acceptance as a "de facto HDTV production standard -- worldwide -- in multiple market niches."<sup>215</sup> Sony estimates that use of such a single worldwide standard will achieve considerable economies, and that cameras using different single-nation standards would cost considerably more.<sup>216</sup> AT&T and Zenith disagree. AT&T argues that the SMPTE 240M and 260M standards are not equally compatible with all of the ATV proponent systems and asserts, further, that the industry will need several levels of performance formats, rather than a single standard, to meet our goals of routineness and affordability for conversions among production formats.<sup>217</sup> Zenith argues that studio equipment manufacturers will not commit to build equipment until a U.S. transmission standard is adopted, making the adoption of a production standard now premature.<sup>218</sup>

61. We note, as Sony acknowledges, that SMPTE is still in the process of adopting several ATV production standards.<sup>219</sup> SMPTE is also a member of

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<sup>215</sup> Sony Comments at i, 5, 12. See also MPAA Comments at 9 (discussion of the benefits of a worldwide standard).

<sup>216</sup> Sony Comments at 23.

<sup>217</sup> AT&T Reply at 5-6.

<sup>218</sup> Zenith Reply at 2-9.

<sup>219</sup> Draft Proposed SMPTE Standard for Composite Analog Video Signal Widescreen NTSC T14.39-02/Rev. 5.0 (August 7, 1991) (private committee document -- not for publication); Draft Proposed SMPTE Standard for Television Signal Parameters 1050/59.94/2:1 and 525/59.94/1:1 Advanced Television Production Systems, T14.391/Rev. 4.2 (Sept. 6, 1991) (private committee document -- not for publication); Draft Proposed SMPTE Standard for Television Signal Parameters 787.5/59.94/1:1 and 1575/59.94/2:1 Advanced Television Production Systems, T14.392/Rev. 4.1 (Sept. 6, 1991) (private committee document -- not for publication). See also SMPTE Standard for Television-

ATSC and has been designated by that organization to develop studio/production technical specifications once an ATV system is adopted.<sup>220</sup> Historically, the FCC has not set broadcast production standards. We agree with AT&T that we should not intervene in the industry's traditional role of formulating production standards.<sup>221</sup> Such intervention would be particularly unwise in this case, where industry standards-setting bodies are actively engaged in and organized specifically for addressing this question. Accordingly, we are not proposing to adopt a production standard for broadcast ATV service.

G. Noncommercial Television Waiver: Reconsideration

62. In its reconsideration petition, Public Television requests waivers of our conversion policy for applicants proposing to build both NTSC/ATV facilities in an area unserved by a noncommercial station, if ATV penetration is insufficient to allow ATV-only operation.<sup>222</sup> We find such a request premature. We also observe that should such cases arise, we can address them individually or at the time of our periodic reviews.

VII. SIMULCASTING

A. Timetable for 100 Percent Simulcasting: Reconsideration/Preliminary Decision

63. The Second Report/Further Notice concluded that we should require 100 percent simulcasting of the programming on the ATV channel at the earliest appropriate point. We noted that such a requirement would help ensure that consumers are not prematurely deprived of the benefits of existing television receivers and other devices.<sup>223</sup> We stressed that the ATV channel is not a permanent grant of two 6-MHz channels to existing broadcasters, but rather is intended to facilitate the transition to full ATV service.<sup>224</sup>

64. We now conclude as a preliminary matter that we should impose a 50 percent simulcasting requirement one year after the six-year application/construction period ends. We also decide preliminarily to apply a

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Signal Parameters -- 1125/60 High-Definition Production System, SMPTE 240M-1988 (approved Mar. 14, 1988); Proposed SMPTE Standard for Television -- Digital Representation and Bit-Parallel Interface -- 1125/60 High-Definition Production System, SMPTE 260M (published for comment only); Sony Comments at 5.

<sup>220</sup> ATSC Comments, Annex I at 2-3.

<sup>221</sup> AT&T Reply at 6.

<sup>222</sup> Public Television Reconsideration at 17-18 n.18.

<sup>223</sup> Second Report/Further Notice, 7 FCC Rcd at 3355.

<sup>224</sup> Second Report/Further Notice, 7 FCC Rcd at 3355-6.

100 percent simulcasting requirement two years thereafter, *i.e.*, three years after the six-year application/construction period ends and nine years after ATV implementation begins.<sup>225</sup> However, we will review this schedule both at the time of our initial review of conversion, in 1999, and immediately prior to imposition of 100 percent simulcasting, in 2002. As we stated in the Second Report/Further Notice, at the point that we impose a 100 percent simulcasting requirement (at the nine-year mark) ATV should be established, and the need to afford broadcasters some flexibility in starting up ATV operations and to cope with the new technical issues simulcasting will raise, will have diminished. At the same time, ATV receiver penetration, and hence revenues from ATV programming, should be increasing.<sup>226</sup> With the ascension of ATV service, the need to protect remaining NTSC viewers, provide for a smooth transition to ATV, and ensure surrender of the reversion channel will increase.<sup>227</sup> Imposition of 100 percent simulcasting at this juncture will protect consumer investment in NTSC, while at the same time promoting ATV implementation<sup>228</sup> and ensuring spectrum efficiency.<sup>229</sup> We recognize, however, the concerns of certain parties that our ability to impose simulcasting and ultimately to reclaim the reversion channel not be impeded by broadcaster reluctance to shift from complete programming flexibility to 100 percent simulcasting nine years after the ATV implementation begins.<sup>230</sup> We thus believe that to ensure as smooth a transition to full simulcasting as possible for both broadcasters and viewers, we should phase in this requirement. Accordingly, we will require 50 percent simulcasting<sup>231</sup> in year seven, one year after the application/construction period closes. This 50 percent requirement will continue to offer broadcasters some flexibility, including the flexibility to cope with technical issues raised by a complete

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225 Second Report/Further Notice, 7 FCC Rcd at 3356-57.

226 Second Report/Further Notice, 7 FCC Rcd at 3356. For example, the PSWP5 1992 Study at iv projects that the mean value of four different penetration scenarios results in 37 percent penetration 10 years after ATV standard/Allotment Table is effective. We believe that it would be advisable to impose a complete simulcasting requirement somewhat prior to such point, *i.e.*, -- at the nine-year mark.

227 Second Report/Further Notice, 7 FCC Rcd at 3356.

228 AT&T Comments at 4.

229 Second Report/Further Notice, 7 FCC Rcd at 3356. See also NTIA Comments at 13.

230 See, e.g., NCTA Comments at 4.

231 As discussed infra Section VII.B, we define simulcasting as the broadcast, on the NTSC channel, of the same underlying program as broadcast on the ATV channel, without also requiring the converse, that programs broadcast on the NTSC channel be broadcast on the ATV channel. We thus require broadcasters to simulcast 50 percent of each day's ATV programming on their NTSC channel at the seven-year mark.

simulcasting requirement, as they implement full ATV capabilities. It would also, however, prompt preparation for full conversion by ensuring that broadcasters do not use the conversion channel to develop a second programming service.<sup>232</sup> This staggered approach also intensifies the simulcasting requirement as ATV implementation progresses, ATV receiver penetration increases,<sup>233</sup> and a corresponding need to protect consumer investment in NTSC equipment begins to develop.

65. Our approach also will afford broadcasters seven years of initial flexibility to explore the creative potential of the ATV mode and to attract viewers to ATV, as most commenters argue is needed.<sup>234</sup> As NTIA suggests, the viability of ATV may hinge on consumers' ability to differentiate ATV from NTSC programming. Thus, broadcasters and program producers should be afforded sufficient time and flexibility to establish, as a technical matter, a distinctive ATV format in the marketplace.<sup>235</sup> Such distinction may be necessary, as Sony suggests, to enable broadcasters to compete with radically enhanced NTSC services such as video-on-demand.<sup>236</sup> According to Sony, consumers will only purchase ATV receivers in the volume necessary to have a significant impact on costs when sufficient ATV programming is available.<sup>237</sup> Thus, initial flexibility may be critical to the rapid development and ultimate success of ATV, to encourage broadcasters to air programming uniquely suited to the technical capabilities of the ATV mode. Moreover, as Fox states, broadcasters must be able to attract viewers to their ATV channel, and thus realize revenues from that facility, in order to fund their initial investment in the technology.<sup>238</sup>

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<sup>232</sup> Second Report/Further Notice, 7 FCC Rod at 3357.

<sup>233</sup> See generally PSWP5 1992 Study at iv (mean values of four different curves of ATV market penetration project six percent penetration five years after the ATV standard/Allotment Table becomes effective, rising to 37 percent in year ten).

<sup>234</sup> Fox Comments at 11-12; EIA/ATV Committee Comments at ii, 10.

<sup>235</sup> NTIA Comments at 13.

<sup>236</sup> Sony Comments at 7, 34-36. Cf. NAB Reply at 4 (enhanced resolution may not be sufficient to attract viewers to ATV; program diversity may also be needed); MSTV Reply at 23 (rigid requirements will handicap broadcasters in competing with cable, VCRs and DBS).

<sup>237</sup> Sony Comments at 7.

<sup>238</sup> Fox Comments at 5, 12-13. Although it is true, as NCTA states, see NCTA Comments at 12, that the spectrum is provided for broadcasters' use without a fee, they nevertheless have committed, through the Advanced Television Test Center, considerable sums in developing ATV technology, and will have to make significant investments to obtain ATV station capability. We of course expect that other media will participate in the transition to ATV, and recognize the investment that some of these alternative media have

66. In any case, initial flexibility also may be necessary from a purely technical point of view. As MPAA states, some programming produced for NTSC receivers may not be convertible to ATV, which has a different aspect ratio. Other NTSC programming, which may have been on film (in the wide-aspect required for ATV), may still require technical preparation to be received in ATV. Conversely, there may be particular difficulties associated with converting ATV programming (which has a wide, 16:9 aspect ratio) to NTSC (which has a 4:3 aspect ratio) without distortions. According to MPAA, programming produced specifically for ATV receivers would require considerable technical adaptation for NTSC reception.<sup>239</sup> Sony argues that broadcasters must learn new shooting techniques in order to permit downconversion of ATV programming to an acceptable NTSC picture.<sup>240</sup> In addition, contrary to NCTA's position,<sup>241</sup> given the low penetration rates likely to characterize initial ATV implementation,<sup>242</sup> it is unlikely that broadcasters will favor ATV over NTSC programming, to the detriment of NTSC viewers without ATV receivers.<sup>243</sup>

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already made in the development of ATV.

We also do not agree with NCTA that, if broadcasters are unable to accomplish the transition to ATV without some relief from complete and immediate simulcasting, we should open initial eligibility up to others. NCTA Comments at 13. We have previously found that existing broadcasters are the group most likely to implement ATV quickly. Second Report/Further Notice, 7 FCC Rcd at 3343. Moreover, opening up initial eligibility would make it more difficult, if not impossible, to phase in a simulcasting requirement and thus would make the transition to ATV more difficult for viewers.

<sup>239</sup> MPAA Comments at 4. MPAA states that the technical changes required for adaptation of ATV programming for NTSC transmission are similar to the technical changes necessary now for presentation on NTSC aspect-ratio channels of programs produced with wide-aspect ratios, as is the case with most theatrical motion pictures. To eliminate the distortion which such "downconversion" would cause requires considerable technical preparation, according to MPAA. MPAA states that conversely some NTSC programming would not be convertible at all to ATV, while other NTSC programming would require considerable technical preparation. MPAA Comments at 4.

<sup>240</sup> Sony Comments at 42-45.

<sup>241</sup> NCTA Comments at 4, 10-12; NCTA Reply at 1-3.

<sup>242</sup> See supra Section VI.B and infra note 256.

<sup>243</sup> See, e.g., NAB Reply at 9. Fox also observes that initial ATV receiver purchasers will likely retain their NTSC sets as well and that all ATV receivers will probably also be able to receive NTSC signals, so that early ATV receiver owners will continue to receive both NTSC and ATV. Fox Comments at 9. See also Zenith Comments at 5; Sony Comments at 48-49; NAB Reply at 5 (initial ATV receivers likely to be dual (ATV-NTSC) mode). Fox states that such TV households would be better served by more diverse, as