

substantially broadened array of programming options for increasingly specialized audiences.<sup>530</sup> In addition, consumers should receive more pricing options. Such rivalry may also be expected to provide a stimulus to more rapid development of new technologies and product innovation. At present, market performance in local cable markets does not yet reflect the benefits of this competitive rivalry. Therefore, lowering barriers to entry is likely to lead to significant gains in consumer welfare.

## 2. *Market Performance Indicators*

204. The effectiveness of the existing level of competition at improving *market performance*, i.e., the extent to which a given market satisfies consumer demand in the least costly manner, may be assessed using several *market performance indicators*. Among various alternative indicators of market performance, emphasis is placed on measures that provide insight concerning the current relationship of cable rates to the cost of production.<sup>531</sup> Empirical measures of market power provide such insight, and are discussed in the following paragraphs and Appendix H. Other indicators of market performance, such as the price effects of overbuild competition and improvements in cable services, are also considered.

### a. *Pricing Above Competitive Levels Indicates Market Power*

205. The following discussion emphasizes on two key indicators that suggest that cable systems are currently exercising market power: (1) the *q ratio*, a ratio of the market value of cable assets to the replacement cost of such assets; and (2) pricing analyses showing that prices in monopolized cable distribution markets exceed those in similar cable markets where there exist cable system competitors. If a firm can set its prices *above* its costs and earn excess economic profits for a sustained period of time, then the firm possesses *market power*.<sup>532</sup>

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<sup>530</sup> As more fully discussed in Appendix H, it is also possible that competition in some local cable markets might tend to emphasize rivalry between and among highly-differentiated program packages, rather than price competition for broadly similar program packages offered by competing video programming suppliers.

<sup>531</sup> No direct evidence is presented in this *Report* concerning the cost of producing basic cable services provided by local cable systems. As shown in Appendix H, *indirect* methods are used to infer the magnitude of the relationship between basic cable rates and the marginal cost of production.

<sup>532</sup> Market power sustained over a substantial period of time often signals the existence of some impediment to market entry, although the impediment need not constitute a *policy-relevant barrier to entry*. A policy-relevant barrier to entry (1) is any cost that a potential entrant must incur in the course of market entry that an incumbent firm need not incur, and (2) implies a net loss in consumer welfare if the barrier persists. See Appendix H.

206. In the past, the Commission has looked to the q ratio<sup>533</sup> as an indicator of market power.<sup>534</sup> Under conditions of perfect competition, potential buyers of the assets of a competitive firm which, by definition, does not earn excess economic profits, are unwilling to pay much more than the reproduction cost of the firm's tangible assets. As a result, the market value of a firm selling in markets that approximate the conditions of perfect competition is roughly equal to the reproduction cost of the firm's tangible assets. Given this logic, the q ratio of a firm supplying competitive markets and earning no excess economic profits over the longer term should equal one, *i.e.*, the market value of a firm's assets should equal their replacement value.

207. Alternatively, q ratios well in excess of one suggest that a firm, or a collection of firms in an industry, may be earning excess profits. Such a result is consistent with the presence and exercise of market power, inasmuch as excess profits are generated by price-cost margins that are greater than what may be required simply to recover the total cost of production in the presence of economies of scale.<sup>535</sup> If a q ratio is greater than one, then another firm would find it profitable to enter the market. Such entry would increase market supply, force prices and profits down towards a competitive level, and hence, reduce the market value of the incumbent firm or firms. When the q ratio reached one, entry would no longer be profitable.

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<sup>533</sup> The q ratio is subject to some theoretical limitations. *See infra* note 541. For a more thorough analysis of the q ratio from an industrial organization perspective, *see* Eric Lindenberg & Stephen Ross, *Tobin's q Ratio and Industrial Organization*, 54 J. BUS. 1-32 (Jan. 1981); Michael Smirlock, Thomas Gilligan & William Marshal, *Tobin's q and the Structure-Performance Relationship*, 74 AM. ECON. REV. 1051-60 (Dec. 1984). *See also* Appendix H (theoretical discussion of q ratios); *1990 Cable Report* ¶¶ 54-90, App. E, 5 FCC Rcd at 4997-5011, 5071 (contains a more detailed discussion of the q ratio).

<sup>534</sup> *See 1990 Cable Report* ¶¶ 55-59, 5 FCC Rcd at 4997-99. An alternative measure of market power is the *Lerner Index*, which is defined as the percentage difference between price and the marginal cost of production at the profit-maximizing level of production. As reported in Appendix H, the estimated Lerner Indices suggest that current cable industry prices substantially exceed marginal costs. The prevalence over time of prices in excess of marginal costs often indicates the existence of market power. However, if the technology of production implies substantial fixed costs and economies of scale, prices above marginal costs may *not* provide conclusive evidence of market power. As is shown in Appendix H, there exist both non-trivial fixed costs and economies of scale (albeit limited) in the cable industry. As explained in Appendix H, such cost characteristics complicate the interpretation of Lerner Indices as measures of market power. Consequently, the Commission does not place primary reliance on the Lerner Indices in this *Report*.

<sup>535</sup> The definition of economies of scale and empirical estimates of such economies in the cable industry are provided in Appendix H.

208. Professor Paul MacAvoy, currently Dean of the School of Organization and Management at Yale University, submitted q ratio estimates in connection with the *1990 Cable Report*. His "best estimate" of the q ratio for the cable industry was 4.3 for September 30, 1989.<sup>536</sup> In connection with this *Report*, the Commission calculated some q ratios based on more recent data. The calculations are useful not only because they provide some indication of the current level of market power in the cable industry, but also because, with some qualifications, they permit a comparison of the market power levels in 1989 with those of more recent times.

209. There are two primary techniques for calculating market value, both of which were used by the Commission in the q ratio calculations that were prepared for this *Report*. One, which MacAvoy refers to as "public" market value, involves the calculation of the sum of a firm's liabilities and the value of its outstanding stock.<sup>537</sup> In order to utilize this technique, it is necessary to have a sample of firms that are involved only in cable television delivery. MacAvoy identified five such firms for 1989. The Commission was able to identify four such firms for 1993, only two of which are also in the MacAvoy sample. The second technique, which MacAvoy labels "private" market value, involves the calculation of the average (weighted by number of subscribers) of per subscriber selling prices of cable companies.<sup>538</sup> In this second method, only cash transactions are included, because it is difficult to determine market values for transactions that include non-cash components.<sup>539</sup>

210. There are also two primary techniques for calculating replacement costs. One is based solely on financial data, and consists of an estimate of the adjusted book value of tangible assets ("net plant"). The figure for net plant is adjusted for inflation, and then added to other tangible assets. The second method uses other tangible assets from financial accounts, but substitutes a construction cost estimate for net plant. The estimated cost of new construction per subscriber is depreciated by the average age of cable plant, and other tangible assets are added to calculate replacement cost. Once again, the financial data must come from firms that are involved only in cable television delivery. Because the bulk of tangible assets tend to be accounted for by net plant, the financial data play a smaller role in estimates that utilize construction costs. In calculating q ratios based on replacement costs that are estimated from construction costs per subscriber, MacAvoy chose the median of several construction cost estimates.<sup>540</sup>

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<sup>536</sup> *1990 Cable Report* ¶ 57, 5 FCC Rcd at 4998 (citing USTA Comments, App. 5, *1990 Cable Report*, MM Docket No. 89-600).

<sup>537</sup> USTA Comments, App. 5, *1990 Cable Report*, 5 FCC Rcd 4962 (MM Docket No. 89-600).

<sup>538</sup> *Id.*

<sup>539</sup> For details of the Commission's q ratio calculations, see Appendix I.

<sup>540</sup> See Appendix I.

211. The following table presents five q ratio calculations based on current data, and also sets forth the MacAvoy calculations to which they are most comparable. As explained in Appendix I, none of the current calculations are perfectly comparable to the MacAvoy calculations. However, the comparisons are at least suggestive of possible trends in cable market power. Appendix I contains a more detailed discussion of these calculations.

**TABLE 5.2:**  
**Estimated q Ratios for the Cable Industry**

<i>Method</i>	<i>Current q Estimates</i>	<i>MacAvoy 1989 q Estimates</i>
Public Market Value/Adjusted Book Value (Current, four firms; MacAvoy five firms)	4.47	4.30
Public Market Value/Adjusted Book Value (for two firms common to both samples)	4.52	4.17
Public Market Value/Median Construction Cost (Current, four firms; MacAvoy five firms)	5.23	4.56
Private Market Value (1993 transactions)/Median Construction Cost	4.11	6.2
Private Market Value (some 1994 transactions)/Median Construction Cost	3.95	6.2

Source: See Appendix I.

212. Even with the caveats enumerated in Appendix I, the current q ratios suggest that, overall, cable television operators possess substantial market power. The comparisons between 1989 and 1993/94 are inconclusive, however, allowing both the inference that market power may be increasing, based on the calculation that uses public market values, and the inference that market power may be decreasing, which is derived from the private market value calculation.<sup>541</sup>

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<sup>541</sup> As a measure of market power, the q ratio must be carefully interpreted. As noted in the *1990 Cable Report*, the q ratio is subject to some limitations. Accordingly, a conservative interpretation of a q ratio views it as an upper bound indicator of monopoly power, since it may also reflect monopsony power possessed by the firm or industry. *1990 Cable Report* ¶ 59, 5 FCC Rcd at 4999. Additionally, q ratios may also reflect certain financial risks unique to the industry or the ownership of a scarce resource that may not be generally available to competitors. Moreover, q ratios greater than one might indicate a current disequilibrium between market demand and supply as a consequence of sustained growth in demand over time. See *1990 Cable Report*, App. E, 5 FCC Rcd at 5071-82.

(continued...)

213. Price Effects Shown by Overbuild Competition and the Commission's "Competitive Price Differential." The Commission received significantly more reliable pricing information in this proceeding than was available at the time of the *1990 Cable Report*. The exercise of market power (pricing well in excess of marginal cost) in local markets is shown by (1) evidence concerning price changes in local cable markets following the entry of second cable companies, and (2) the Commission's cable rate reregulation orders, in which it estimated a "competitive price differential" by focusing primarily on the difference between prices charged by monopoly cable systems and those facing direct competition.

214. A number of empirical studies have addressed the effects of two-firm (duopoly) competition in cable television markets using published or survey data.<sup>542</sup> The focus of those studies has been primarily on how such rivalry affects prices. A simple test for the presence of competitive price effects is to compare prices in monopoly and duopoly cable markets. Those studies consistently show that prices in duopoly markets are *significantly lower* than in monopoly markets. For example, in a 1987 survey, the price of a package including basic service plus one premium service was found to be 23.5% lower in competitive cable markets than in monopolized markets.<sup>543</sup> More recently, a 1992 study found that basic rates were 21.9% lower in competitive markets than in monopolized markets.<sup>544</sup>

215. While studies using survey data show significant price differentials in duopoly cable markets, the survey approach fails to take into account the effects of local cost and demand conditions. For example, no consideration is given to *per capita* income in the cable market. If cable demand is sensitive to income levels, then ignoring that effect "biases" the estimate of the price effect of competition. Furthermore, the survey method fails to account for the number of available channels, the cable system size, regional wage rates, and other factors that are important determinants of the supply and demand for cable service.

216. An improved estimate of the effects of entry can be produced by using a methodology that accounts for demand and cost differences across markets. A number of

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<sup>541</sup>(...continued)

Given such possible qualifications, a q ratio only slightly greater than one need not necessarily represent conclusive evidence of market power. The magnitude of the estimated q ratios reported in the table above, however, suggests the presence of substantial market power, notwithstanding the possibility that the estimation methodology may be subject to the limitations that the Commission recognized in the *1990 Cable Report*. For further discussion of qualifications in the interpretation of q ratios, see Appendix H.

<sup>542</sup> See also *supra* Section III.B.

<sup>543</sup> See Thomas W. Hazlett, *Cabling America: Economic Forces in a Political World*, FREEDOM IN BROADCASTING 208-23 (C. Veljanovski ed. 1989).

<sup>544</sup> See *PK Overbuild Census*, *supra* note 527, at 4.

empirical studies have employed econometric techniques to estimate a competitive differential that is adjusted for demand and cost factors. Those studies support the findings of the more simple survey approach, and find cable rates in competitive markets to be significantly lower than rates in monopolized cable markets, even when other factors are held constant. For example, adjusting for a number of factors such as system size and the number and type of channels available, Stanford Levin and John Meisel found that cable rates are, on average, \$3.33 lower in competitive cable markets than in monopolized markets.<sup>545</sup> In a far more sophisticated study, Richard Beil, *et al.* estimated a competitive differential of \$3.85, other things remaining constant, which amounts to a savings of over twenty percent for basic cable service.<sup>546</sup> That study also found that systems in competitive markets priced premium services \$1.10 lower than did monopoly systems.

217. A few recent studies, including the Commission's re-calculation of the competitive differential for the purpose of rate regulation, have improved the measure of competitive price used in their statistical models to account for differences in the extent of competition across competitive cable markets. Those studies measure competition as the *degree of overlap* between competing systems. The application of this measure carries with it the assumption that competitive prices in cable markets *can* vary depending on whether the overbuilder competes over the entire market or only overlaps with the incumbent in part of the market.

218. When it re-calculated the competitive differential, the Commission adopted an overlap measure of competition, where competition is measured by the percent of the franchise market that both rivals serve. Adjusting for a number of variables including firm size, the number of available channels, and income, the Commission's analysis estimated a sixteen percent competitive differential, *i.e.*, that prices in areas served by two cable systems were sixteen-percent lower than prices in monopolized areas.<sup>547</sup> That differential, along with the differentials for other systems subject to effective competition as defined in the 1992 Cable Act, formed the basis for the rate rollback in the *1994 Rate Report & Order*.<sup>548</sup> Using the same measure of competition, a recent econometric study not only adjusted for demand and cost differences, but also accounted for other possible biases that might distort empirical estimates of the price difference between monopoly and duopoly cable distribution markets.<sup>549</sup> That study produced the estimate that a completely overbuilt system will have rates approximately twenty-percent lower than a monopoly cable system, holding other things constant. The study allowed for demand elasticity estimates for both monopoly cable systems

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<sup>545</sup> See Levin & Meisel, *supra* note 130, at 519-528.

<sup>546</sup> See Beil, Dazzio, Ekelund & Jackson, *supra*, note 130, at 401-15.

<sup>547</sup> *1994 Rate Report & Order*, ¶ 97 (MM Docket No. 92-266).

<sup>548</sup> *Id.* ¶¶ 25-33.

<sup>549</sup> See Ford, *supra* note 130.

and systems in duopoly markets. The demand curve for firms facing direct competition was found to be *more elastic* than the monopolist's demand curve, implying that a cable system's market power is constrained by overbuild competition.

219. Excess Profits as an Inducement for Competitive Entry. New firms are likely to enter an industry if current and anticipated profits are supracompetitive. Large investments by competitors using alternative technologies, such as MMDS and DBS, and the history of attempted entry by overbuilding,<sup>550</sup> suggest that potential profits in the cable market are substantial, a perception that is consistent with the foregoing discussion of pricing in local cable markets. The proposed entry into video distribution by local telephone companies is also noteworthy, since the high cost of upgrading telephone networks in order to allow video distribution might not be justified if LECs did not believe that there was potential profit in video packaging and distribution. There may be other explanations for the interest in competing with the cable operators. The prospective entrants may believe that they can provide services at lower costs than the incumbents, or they may believe that the market demand for additional services that can be supplied with cable programming is large enough to support additional entry. Therefore, while interest in entry in this market may suggest that prices exceed costs, such evidence taken alone is not conclusive with respect to the potential profitability of additional entry in local cable markets.

*b. Other Indicia of Market Performance*

220. The finding of an exercise of substantial market power in local markets implies a loss of economic efficiency.<sup>551</sup> Market performance and consumer welfare are adversely affected by such losses. Other data suggest, however, that to some extent cable operators may be responding to consumer preferences and the resulting growth in demand for video programming. In this proceeding, the Commission has found that the demand for the multichannel programming services provided by local cable systems has continued to grow since 1990. The cable industry has responded positively to this growth in demand by

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<sup>550</sup> Although overbuild competition today is limited, it is difficult at present to reach definitive conclusions about the profitability of direct competition with incumbent cable systems. Any analysis of competitive market entry must account for the effects of the local franchising process that may block, delay, or otherwise discourage competitive entry, notwithstanding the prohibition of such behavior by the 1992 Cable Act.

<sup>551</sup> Economic efficiency in the consumption of goods or services, or in their production, is achieved if it is impossible to improve the economic welfare of at least one individual without simultaneously making some other person worse off as a result of a change in the existing allocation of resources. In general, output prices equal to the marginal cost of production result in an economically-efficient allocation of resources. The exercise of market power results in output prices that exceed the marginal cost of production. As a result, consumers purchase less output than they would if output price were equal to the marginal cost of production. The value of such foregone consumption is a measure of economic inefficiency, and represents a loss in consumer welfare.

increasing the number of homes that could receive cable service ("homes passed") to 92.9 million in 1993, an increase of 8% over the number of homes passed in 1990. Actual demand for cable services grew from 51.7 million households in 1990 to 57.4 million households in 1993. Accordingly, nearly 60% of all television households in the United States subscribed to cable services in 1993, up from 55.4% in 1990. Moreover, mean cable penetration (the fraction of households with access to cable services that actually subscribe) increased from 60.1% to 61.8% from 1990 to 1993.<sup>552</sup>

221. Broad consumer acceptance of the video programming services offered by cable systems is reflected in the growth in cable industry revenues from \$17.86 billion in 1990 to \$22.94 billion in 1993. That growth in revenues represents a greater than 28% increase from 1990 through 1993. As is more fully discussed above in section II, such revenue growth clearly suggests that consumers find the growing array of programming services offered by cable systems responsive to their preferences for such programming services.

222. Clearly, the cable industry continues to respond positively to the overall growth in consumer demand for more services and improved programming choices. Yet, growth in output has been accompanied by non-competitive pricing of services that may have suppressed subscribership, relative to that which would otherwise prevail if basic service rates were lower. As shown in Appendix H, the demand for basic cable service tends to be responsive to reductions in price (*i.e.*, demand is price elastic) at currently observed price levels. Therefore, price reductions would be expected to stimulate an increase in penetration levels while improving the net benefits that consumers derive from cable services. Accordingly, there remain today substantial opportunities for improving consumer welfare.

223. Other indicators of economic efficiency as a criterion of market performance include measures of technological change in production, product innovation, and industry expenditures on research and development. Unfortunately, useful data on such indicators of economic efficiency in the cable industry are limited. As a result, the Commission does not possess sufficient data for a complete empirical assessment of whether the cable industry is performing well by enhancing consumer welfare. Nevertheless, evidence developed in this *Report* facilitates a qualitative assessment of these indicators of industry performance.

224. Although difficult to measure and assess at present, the quality of multichannel video programming services offered by cable systems appears to have improved since 1990, when measured in terms of the number of channels available to subscribers. The record in this proceeding demonstrates that cable systems with the capacity for providing thirty or more channels accounted for over 77% of all cable systems for which information was available in 1993.<sup>553</sup> That percentage represents an increase from 67% in 1990. Growth in the number of programming networks is another rough indicator of improvements in the quality of cable

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<sup>552</sup> See *supra* Section II.

<sup>553</sup> *Id.*

service. The record reveals that the total number of networks increased by over 51% from 70 in 1990, to 106 at present. Those improvements in service quality should permit a closer alignment between diverse consumer tastes for video programming and the ability of cable systems to meet such consumer demand. Improved matching of consumer demand with the available supply of video programming through time represents an improvement in economic efficiency.

225. Industry investment expenditures represent a commitment by firms to meet current and future growth in consumer demand while improving both product quality and variety. Investment spending is the vehicle, therefore, for implementing improvements in the technologies of production, and for implementing product or service innovations. The record before the Commission shows that total cable industry capital investment has fluctuated around \$3 billion annually since 1990, but is projected to increase to \$3.8 billion in 1994.<sup>554</sup> Such spending reflects a commitment to implement technical change that will increase the quantity and improve the quality of cable service in the future.

226. As described in Section IV.C, *supra*, the ongoing installation of fiber optic distribution facilities in local cable systems will dramatically increase transmission capacity while expanding the number of services that cable systems may eventually offer their subscribers. Moreover, the cable industry supports a substantial research and development program through Cable Labs. That industry research effort may well result in a new cable network structure incorporating technical changes that will improve the quality and variety of services offered to subscribers over the longer term.

### c. *Conclusion*

227. Current market performance in the multichannel video programming distribution industry, when assessed in terms of several indicators of economic efficiency, is mixed. While the industry is responsive to growth in consumer demand, the output is supplied to consumers at prices that often imply substantial losses in economic efficiency. The industry continues to invest in the deployment of improved video distribution facilities, which should offer the consumer expanded video programming options. The industry also invests in research and development, which should improve the capabilities and performance of local cable networks and services in the future. The willingness of new entrants to invest substantial resources in competition with the incumbent cable systems suggests, however, that there exist further opportunities for improved market performance.

### 3. *Existing and Potential Impediments to Competition*

228. In this Section of the *Report*, the Commission addresses certain existing and potential impediments to competitive entry that may have a dampening effect on the extent of competition in the video programming delivery market. In particular, the *Report* addresses impediments flowing from the strategic behavior of incumbent firms, legal restrictions, and

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<sup>554</sup> *Id.*

technological bottlenecks. As will be discussed, in certain instances, those impediments may block potential entrants from entering the market altogether. More commonly, however, the impediments serve to increase the cost of a rival's entry, and hence its cost of production as compared with that of incumbent firms.

a. *Strategic Behavior to Deter Competitive Entry*

229. The cost of constructing a cable distribution network may be viewed as a sunk cost, *i.e.*, an operator's investment in its cable plant cannot typically be physically redeployed to some other profitable use if operation of the system were to become unprofitable.<sup>555</sup> The existence of those sunk costs creates strong incentives for the incumbent cable operator to engage in strategic behavior designed to protect that investment. While such behavior may take the form of vigorous competition, which enhances consumer welfare, cable operators also have the incentive to engage in strategic behavior designed to deter entry by potential rivals.

230. Access to Program Supply. Under certain conditions, agreements that restrict a supplier's right to deal with competitors of a dominant downstream firm can have the effects of raising its rivals' costs by restraining the availability of needed inputs and of decreasing the demand for programming. Through such exclusionary rights agreements, a dominant firm can deter competitive entry, and retain the power to raise prices in its output market.<sup>556</sup>

231. One example of such behavior in the cable industry involves efforts by cable operators to restrict the supply of programming to suppliers that use alternative distribution technologies. As Congress recognized in enacting the program access provisions of the 1992 Cable Act, by controlling access to programming supply, cable operators were able to inhibit competitive entry and maintain their monopolies over the distribution of programming in most markets.<sup>557</sup> In this proceeding, the Commission has found that following the implementation of the program access provisions of the 1992 Act, the cable industry's use of program availability as a means of deterring entry has, to a large extent, abated. The record also reflects a number of continuing concerns over potential strategic behavior by cable operators

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<sup>555</sup> The concept and economic significance of sunk costs are discussed in Appendix H.

<sup>556</sup> See Tom Krattenmaker & Steve Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, 96 YALE L. J. 209, 223-224 (1986). As recognized by Congress in the 1992 Cable Act, and discussed in Section IV, *supra*, exclusive contracts may not be inefficient or anticompetitive if the video programming and local distribution markets are sufficiently competitive.

<sup>557</sup> See *Court TV Exclusivity Order* (No. CSR-4231-P)

involving access to programming that are not within the purview of the current regulatory scheme.<sup>558</sup>

232. In particular, the program access provisions of the statute only apply to "satellite cable programming." Therefore, as discussed above, programming services distributed by any other means are not subject to the program access requirements.<sup>559</sup> As a result, some commenters raise the possibility that cable operators may have the incentive and ability to engage in strategic behavior designed to shift programming from satellite distribution to fiber optic or some other form of terrestrial distribution, thereby removing the programming from the purview of the program access provisions. In addition, regional clustering of systems combined with a system's ownership of one or more regional programming networks, may create additional incentives for the operator to engage in strategies designed to deny competing distributors access to its programming. One such strategy could include shifting regional programming to terrestrial distribution to facilitate denial of the programming to competitors.

233. A second area in which commenters argue that cable operators may have the continued ability to engage in strategic behavior with respect to program access matters involves the program access provision's limitation to programming supplied by vertically-integrated programming vendors, *i.e.*, vendors in which cable operators have an attributable interest.<sup>560</sup> Thus, commenters have suggested that cable operators, using their buying power over programmers, can extract concessions from non-vertically integrated programmers that raise rival operators' costs of obtaining programming or deny them access to programming altogether. Moreover, as the industry becomes further concentrated, the potential for collusion among operators jointly to pressure programmers to adopt what may be broadly thought of as pro-cable distribution policies, may be further enhanced.

234. To a certain extent, the potential for such conduct may have been limited by the Commission's recent decision amending its program carriage (as distinguished from the program access) rules.<sup>561</sup> The Commission has amended its rules to provide standing to MVPDs to file a complaint alleging that a cable operator has coerced a programmer, whether affiliated or not, into granting exclusivity to the cable operator.<sup>562</sup>

235. Other Entry Deterring Behavior. The record also reflects several other types of strategic behavior allegedly engaged in by cable operators that may have the effect of

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<sup>558</sup> See *supra* Section IV.B.2.a.

<sup>559</sup> See *supra* ¶¶ 182-83.

<sup>560</sup> See *supra* ¶¶ 179-180.

<sup>561</sup> *Carriage Mem. Opinion & Order* (MM Docket No. 92-265).

<sup>562</sup> *Id.* ¶ 40, App. A.

raising rivals' costs and thereby deterring competitive entry. For example, one SMATV commenter complains that a competing cable operator purposely impedes subscriber changeovers by failing to disconnect subscribers in a timely manner and refuses to coordinate the process with the alternative provider.<sup>563</sup>

236. In addition, there are allegations in the record of cable operators engaging in conduct that may impede the ability of MMDS operators to acquire needed licenses. In particular, it is claimed that cable operators have induced ITFS licensees not to lease their excess capacity to wireless cable operators.<sup>564</sup>

237. A final type of strategic behavior that may serve to delay entry and raise rivals' costs is the aggressive use of the legal process. For example, TCI filed a civil action seeking to overturn the award of a second franchise to Fibervision by the state of Connecticut. At the time the suit was filed one published report suggested that the suit could delay Fibervision's construction schedule and complicate its ability to raise financing.<sup>565</sup> That suit has recently been resolved in Fibervision's favor.<sup>566</sup> In a second situation, Warner Cable, a predecessor to Time Warner, filed various legal challenges which delayed the planned construction by the city of Niceville, Florida of a municipal overbuild. In one of these cases, the Supreme Court of the State of Florida rejected Warner's challenge to a lower court order authorizing the city to issue revenue bonds to construct the municipal overbuild.<sup>567</sup> In a second case, the Eleventh Circuit affirmed the lower court's rejection of Warner Cable's challenge to the municipal overbuild.<sup>568</sup> Despite these court victories, one published report noted that Niceville still had not begun construction of its system as of 1993.<sup>569</sup>

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<sup>563</sup> Liberty Cable Comments at 16-17.

<sup>564</sup> See *supra* ¶¶ 85-86.

<sup>565</sup> Geoffrey Foisie, *TCI Goes to Court to Block Overbuild*, BROADCASTING & CABLE, Apr. 25, 1994, at 38; Anthony Giorgianni, *Cable Company Complains Competitor Given an Edge*, THE HARTFORD COURANT, Apr. 1, 1994, at B1.

<sup>566</sup> *Overbuild Appeal Denied*, BROADCAST & CABLE TELEFAX, Sept. 13, 1994.

<sup>567</sup> *Warner Cable Communications v. City of Niceville*, 520 So. 2d 245 (Fla. 1988).

<sup>568</sup> *Warner Cable Communications v. City of Niceville*, 911 F.2d 634 (11th Cir. 1990), cert. denied, 501 U.S. 1222 (1991).

<sup>569</sup> Bob Boyle, *Florida Municipal Overbuilders in Wait Mode*, MULTICHANNEL NEWS, Oct. 18, 1993, at 37; Bell Atlantic Comments at 4 n.6.

238. The filing of sham litigation has long been recognized as a means of raising rivals' costs that is actionable under the antitrust laws.<sup>570</sup> On the other hand, such claims may have a legitimate basis (beyond deterring entry), and, therefore, constitute protected conduct. For example, Time Warner commented that actions it brought against Niceville to enjoin construction of a municipal overbuild were not a "delaying tactic," as asserted by Bell Atlantic.<sup>571</sup> Rather, Time Warner claims that it initiated the litigation to vindicate its due process and First Amendment rights.<sup>572</sup>

*b. Regulatory Impediments*

239. The record in this proceeding also reflects various regulatory impediments to competitive entry. One regulatory impediment to SMATV and wireless entry arises from the Communications Act's definition of a "cable system." As discussed herein, a SMATV or wireless system that connects separately owned buildings with a wire (even if the wire does not cross a public right-of-way) is deemed a "cable system" under the Communications Act and would be required to obtain a local franchise.<sup>573</sup> As an alternative to submitting to the franchising process, operators either use more-expensive microwave relays to distribute between adjacent buildings or forego service to the buildings altogether.

240. The record also reflects federal statutory schemes that prevent competitive entry altogether, or may prevent the most efficient form of entry. More importantly, under the Communications Act, LECs are prohibited from providing video programming directly to subscribers in their service areas. The Commission has established a VDT model by which LECs can operate broadband video distribution systems on a common carrier basis, consistent with this cable-telco ownership ban.<sup>574</sup> However, conditioning LEC entry on the provision of common carrier services may affect the manner in which LECs can most efficiently enter the market. For this reason, the Commission continues to advocate repeal of the cable-telco cross-ownership ban, subject to the imposition of appropriate safeguards to prevent cross-subsidization from local exchange services.<sup>575</sup>

241. Various state laws may also serve to impede competitive entry. For example, a recently enacted California statute allows municipalities to require video programming

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<sup>570</sup> See, e.g., *MCI Communications Corp. v. AT&T*, 708 F.2d 1081, 1156 (7th Cir.), cert. denied, 464 U.S. 891 (1983).

<sup>571</sup> See Bell Atlantic Comments at 4 & n.6; Time Warner Reply Comments at 11, n.12.

<sup>572</sup> Time Warner Reply Comments at 11 n.12.

<sup>573</sup> See *supra* ¶ 88.

<sup>574</sup> See *supra* ¶ 104.

<sup>575</sup> *Telco-Cable First Report & Order* ¶¶ 44-46, 7 FCC Rcd at 322-23.

distributors to undertake various actions in cities in which they offer video programming.<sup>576</sup> That requirement will potentially impose significant costs on alternative distributors. Similarly, despite limited preemption by the Commission,<sup>577</sup> local zoning regulations may inhibit competition from direct-to-home programming distributors, by preventing home users from installing HSDs and smaller DBS dishes.

c. *Potential Technological Bottlenecks*

242. The creation of technological bottlenecks in the telecommunications industry, historically, has been of great concern to the Commission. The record in this proceeding reflects a variety of potential bottlenecks, some as old as the industry itself, and others related to emerging technological developments.

243. In particular, concerns have recently reemerged with respect to utility poles as a potential bottleneck where cable operators themselves might be suffering competitive harm.<sup>578</sup> Many cable operators lease space on utility poles in order to string wires and deliver programming. The contract between the cable operator and the owner of the pole is known as a "pole attachment agreement." "[A]s a solution to a perceived danger of anticompetitive practices by utilities in connection with cable television service,"<sup>579</sup> Congress passed the Pole Attachments Act of 1978, which directs the Commission, with certain exceptions, to ensure that the "rates, terms and conditions [of such agreements] are just and reasonable . . . ."<sup>580</sup> At this juncture, the Commission notes that pole attachment is an area that could affect the status of competition in the delivered video programming market and may merit Commission attention in the future.<sup>581</sup>

244. The Commission notes that MSOs are currently investing in digital compression and encryption technologies, which could impact the manner in which "raw" video programming is distributed via satellite nationally, and possibly create a technological bottleneck to competing distribution media. For example, two commenters have expressed concern that TCI's National Digital Television Center might be used to block access to

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<sup>576</sup> 5 CAL. GOV. CODE 1(a) §§ 53088.1-2.

<sup>577</sup> See *supra* ¶ 76.

<sup>578</sup> See, e.g., *Selkirk Communications, Inc. v. Florida Power & Light Co.*, 8 FCC Rcd 387 (1993); *Heritage Cablevision Assocs. v. Texas Elec. Co.*, 8 FCC Rcd 373, *appeal denied sub nom.*, *Tex. Elec. Co. v. FCC*, 997 F.2d 925 (D.C. Cir. 1993).

<sup>579</sup> *FCC v. Florida Power Corp.*, 480 U.S. 245, 247 (1987).

<sup>580</sup> 47 U.S.C. § 224(b)(1).

<sup>581</sup> The Commission did not seek or receive public comment on the issue of pole attachments in this proceeding. Accordingly, this *Report* makes no conclusions concerning the status of this issue or the need for Commission or congressional action.

programming by competing MVPDs.<sup>582</sup> That facility would convert the analog feeds of participating programmers into a compressed and encrypted digital format and then uplink the feed to satellites for distribution to cable systems and home satellite users.<sup>583</sup> Commenters appear to be concerned that, over time, access to the Digital Television Center may become necessary in order to gain access to programming that is encrypted through that facility.<sup>584</sup>

245. Finally, as the cable industry converts to digital technology and two-way communications, issues concerning network architecture, standardization, and access may become important competitive issues as they have in the telephone industry. While this *Report* provides no analysis of the potential significance of such issues at this time, it is likely that such issues will require attention in future *Reports*.<sup>585</sup>

#### **4. *Extent of Competition in the Multichannel Video Programming Distribution Market***

246. Today, most local markets for multichannel video programming distribution services are supplied by monopoly cable systems. At present, competitive rivalry in most local multichannel video programming distribution markets is largely, often totally, insufficient to constrain the market power of incumbent cable systems. As the overbuild experience demonstrates, the entry of competitors to local cable systems over the coming months and years should exert a significant, favorable effect on market conduct and performance in local markets for multichannel video distribution services. Consequently, the outlook for improved market performance in multichannel video programming distribution markets as a consequence of increasing competitive rivalry remains promising.

### **B. *Future Considerations and Recommendations for Promoting Competition to Cable Systems***

247. The Commission has, throughout this *Report*, identified several types of dominant firm strategic behavior, policy-relevant barriers to entry, and technological bottlenecks that could adversely affect performance in the multichannel video programming distribution market. The Commission has noted in this *Report* that several alternative distribution media are just now becoming operational and available to a significant number of

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<sup>582</sup> See WCA Reply Comments at 3-4; Direct TV Comments at 7-8.

<sup>583</sup> See, e.g., Peter Lambert, *MSOs Split on TCI's Headend in the Sky*, MULTICHANNEL NEWS, Mar. 28, 1994, at 1; Kate Maddox, *TCI Opens New Digital Tech Center*, ELECTRONIC MEDIA, Apr. 11, 1994, at 4; Cherian George, *Cable TV Stays Ahead with Technology*, THE STRAITS TIMES, May 5, 1994, at 7.

<sup>584</sup> WCA Comments at 3-4.

<sup>585</sup> Recent papers that address such issues from an economic perspective may be found in Symposium on Compatibility, 40 J. INDUS. ECON. 1-123 (Richard J. Gilbert ed. Mar. 1992).

consumers. In particular, the nation's first high-powered DBS operators, DirecTV/USSB, which project that there will be five to ten million households receiving DBS services by the end of the decade, have only become operational within the last six months.<sup>586</sup> Moreover, LECs hope to make available networks that are capable of delivering video programming to over twenty million subscribers by the end of the decade.<sup>587</sup> However, while numerous LECs are engaged in various trials of VDT service, such service has been authorized in only a single market. As a result, while the Commission believes that several specific reforms might improve market performance, most of the competitive issues raised in this *Report* will require ongoing monitoring as a more dynamic and competitive environment develops in this market.

248. The Commission's procedures for "effective competition" challenges to rate regulation are not designed to, and do not, provide enough information to monitor the extent of competitive entry on a nationwide scale.<sup>588</sup> In the coming year, Commission staff will endeavor to find a mechanism to collect, interpret and monitor the growth of alternative distribution media so future *Reports* will be able to provide a more complete picture of the status of competition at both the local and national levels.

249. In particular, consistent with the 1992 Cable Act's policy of encouraging cable overbuilding, the Commission will continue to collect data and information regarding the extent of cable overbuilding and the competitive checks that overbuilds have on the pricing behavior of incumbent cable systems.

250. The Commission will also monitor whether undue delays in granting final determinations on overbuild franchise applications interfere with the effectiveness of Section 621 of the Communications Act, which prohibits a franchising authority from refusing to grant a competitive franchise. Section 621 provides an applicant with the right to appeal the denial of an application to the Commission, but only from the "final" decision or determination of a franchising authority.<sup>589</sup>

251. In addition, the Commission will continue to monitor litigation involving the application of the Congressional ban on the granting of exclusive cable franchises to existing situations. The Commission believes that the approach of the Eleventh Circuit in *Cox Cable Communications, Inc. v. United States*<sup>590</sup> correctly interprets the statute, but notes the

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<sup>586</sup> USSB Comments at 2, 8; DirecTV Comments at 1, 16.

<sup>587</sup> See *supra* ¶ 118.

<sup>588</sup> See *supra* ¶¶ 51-53.

<sup>589</sup> See *supra* ¶ 56.

<sup>590</sup> 992 F.2d 1178 (11th Cir. 1993).

inconsistent holding of the court in *Jones Cable Partners v. City of Jamestown*.<sup>591</sup> If the holding of the *Jones* court gains approval in a United States Circuit Court of Appeals, the Commission will recommend that Congress revise Section 621 of the Communications Act to provide a clear expression of Congressional intent to have the provision apply to existing exclusive franchise agreements.

252. The Commission recommends that Congress consider modifying 47 U.S.C. § 522(7)(B) so as to exclude from the definition of a "cable system" not only commonly-owned, but also separately-owned, dwellings interconnected by wires which do not cross public rights-of-way. Such a revision would promote the growth of wireless cable and SMATV systems as competitors to cable systems by substantially reducing the costs of expanding their systems.

253. Besides these specific proposals, however, there are several other issues of strategic behavior, barriers to entry, and technological bottlenecks that the Commission believes merit future study through this annual report process. Because this market is dynamic and evolving, the Commission anticipates that, to a certain extent, this series of reports will be a work in progress in which certain parts are continually updated and revised.

254. At present, the Commission expects the following issues to be among those covered in next year's and subsequent competition reports: (a) changes and trends in cable industry performance; (b) the status of competing technologies; (c) horizontal concentration of MSOs, cable operator ownership of other distribution technologies, and investments by firms outside the cable industry, such as LECs, in the cable industry; (d) vertical relationships between MVPDs and programming interests; and (e) emerging technological advances, such as digital compression and encryption, and their impact on the cost structure for providers of video programming, and the potential creation of barriers or "bottlenecks." Future reports will also continue to provide updated information concerning application of the program access and program carriage rules administered by the Commission, as well as continuing analyses of the evolution of contracting practices between programmers and MVPDs in response to those rules. Finally, the Commission will report information regarding the number and character of cable systems deemed to be in "effective competition," and therefore no longer subject to rate regulation.

255. Because of these recurring issues, the Commission stated in its *NOI* that "it may be desirable to establish more systematic reporting procedures,"<sup>592</sup> and requested the industry to comment on the methods the Commission might use in the future to gather information. In particular, the Commission requested comment on whether surveys or questionnaires of MVPDs and video programmers would be an appropriate method of updating the various tables attached to this *Report*; whether the Commission should institute annual reporting requirements for all or some MVPDs as a method of tracking and evaluating

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<sup>591</sup> 822 F. Supp. 476 (M.D. Tenn. 1993). See *supra* note 126.

<sup>592</sup> *NOI* ¶ 78, 9 FCC Rcd at 2908.

the development of competition in the video programming marketplace; and how information on vertical relationships between cable systems and video programmers (already maintained pursuant to 47 C.F.R. § 76.504(e)) could be compiled and maintained for use by the Commission in these reports.<sup>593</sup> The Commission also sought comments concerning whether the information compiled pursuant to the *Primestar Consent Decrees* should be made available to the Commission,<sup>594</sup> and how the Commission could gather or examine proprietary or confidential data and protect information that is obtained.<sup>595</sup>

256. Several commenters note that a majority of the basic information sought by the Commission generally is available through public sources, such as company reports filed with the Securities and Exchange Commission, and the publications of Paul Kagan Associates Inc., NCTA and SBCA.<sup>596</sup> In addition, commenters state that the Commission will obtain pertinent information, such as data on industry pricing, through rate and program access complaints.<sup>597</sup> The majority of the commenters oppose as burdensome the imposition of any additional mandatory reporting requirements.<sup>598</sup> Several commenters also express concern about the collection of confidential and proprietary business information.<sup>599</sup> Some commenters dispute

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<sup>593</sup> *Id.* ¶¶ 79-80, 9 FCC Rcd at 2908-09.

<sup>594</sup> *NOI* ¶¶ 86-87, 9 FCC Rcd at 2909-10. Viacom contends that it would be inappropriate for the Commission to compel disclosure of the information required by the *Primestar Decrees*, as this would discourage parties from entering into such agreements. Viacom Reply Comments at 4.

<sup>595</sup> *NOI* ¶¶ 88-89, 9 FCC Rcd at 2910.

<sup>596</sup> *See* NCTA Comments at 29-30; Liberty Media Comments at 14-15; SBCA Comments at 14-15, Appendix A; Viacom Reply Comments at 4.

<sup>597</sup> TCI Comments at 14; Liberty Media Comments at 15; PrimeTime 24 Reply Comments at 4-5.

<sup>598</sup> *See* TWC Comments at 37. *See also* TCI Comments at 14-15; Liberty Media Comments at 14; WCA Comments at 27-28 (wireless operators do not keep data on their wired competitors).

<sup>599</sup> *See, e.g.*, TWC Comments at 37-38; HBO Comments at 21; PrimeTime 24 Reply Comments at 4. GTE contends that any reporting requirements should be kept to a minimum, should be phased out when video distribution markets are found to be competitive, and should be collected from programmers in order to avoid double-counting of subscribers. GTE Comments at 3, 6, 9-10.

whether the Commission even has the authority to impose such reporting requirements.<sup>600</sup> In contrast, a few commenters favor some form of reporting requirements.<sup>601</sup>

257. The Commission believes that Sections 19(f)(2) and 3(g) of the 1992 Cable Act,<sup>602</sup> as well as its licensing authority and other sections of the Communications Act,<sup>603</sup> provide a sufficient legal basis for the Commission to establish and impose reporting requirements with respect to MVPDs and vertically-integrated programming vendors. However, the Commission is sensitive to the concerns expressed by the cable industry and others regarding the imposition of additional and costly administrative burdens. The Commission also is sensitive to the concerns of the industry regarding proprietary and confidential information.

258. Consequently, at this time, the Commission will not recommend any additional reporting requirements to facilitate preparation of future competition *Reports*. At present, for its next report, the Commission intends to develop information through a new notice of inquiry and submitted comments, limited voluntary surveys, and publicly-available information from trade and industry sources. The Commission will also review information already filed with the Commission, such as information provided in rate and program access complaints. In addition, as described above, Commission staff will endeavor to find a mechanism other than certification challenges to determine the extent of effective competition to cable nationwide.

259. Consistent with the requirement that the Commission annually report to Congress on the status of competition, future reports will be submitted to Congress by November 15 of each subsequent year.

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<sup>600</sup> HBO Comments at 19-21; TCI Comments at 13-14; TWC Reply Comments at 28-29; PrimeTime 24 Reply Comments at 3; *but see* Viacom Reply Comments at 4 (Commission "has ample authority" to collect data "in the context of a specific enforcement or investigative proceeding").

<sup>601</sup> NRTC Comments at 25-27; CSS Comments at 6; DirecTV Comments at 22; Bell Atlantic Comments at 10-11.

<sup>602</sup> 47 U.S.C. §§ 548(f)(2), 543(g).

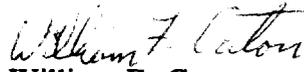
<sup>603</sup> *See, e.g.*, 47 U.S.C. §§ 154(i), 308(b), 403.

**VI.**  
**ADMINISTRATIVE MATTERS**

260. This *Report* is issued pursuant to authority contained in Section 19(g) of the Cable Television Consumer Protection and Competition Act of 1992, 47 U.S.C. § 548(g), and Sections 4(i) and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 403.

261. It is ORDERED that the Secretary shall send copies of this *Report* to the appropriate committees and subcommittees of the United States House of Representatives and the United States Senate.

Federal Communications Commission

  
William F. Caton  
Acting Secretary

APPENDIX A

Notice of Inquiry, Docket No. CS 94-48

<u>Comments</u>	<u>Date received</u>
1. Bell Atlantic . . . . .	(6/29/94)
2. BellSouth Telecommunications, Inc. . . . .	(6/29/94)
3. CellularVision of New York, L.P. . . . .	(6/29/94)
4. Consumer Satellite Systems, Inc., Programmers Clearing House, Inc., and Satellite Receivers, Ltd. . . . .	(6/29/94)
5. DirecTV, Inc. . . . .	(6/29/94)
6. GTE Service Corporation . . . . .	(6/29/94)
7. Home Box Office . . . . .	(6/29/94)
8. Liberty Cable Company, Inc. . . . .	(6/29/94)
9. Liberty Media Corporation . . . . .	(6/29/94)
10. National Cable Television Association, Inc. . . . .	(6/29/94)
11. National Rural Telecommunications Cooperative . . . . .	(6/29/94)
12. NYNEX Telephone Companies . . . . .	(6/29/94)
13. Peoples Choice TV Corporation . . . . .	(6/29/94)
14. Primestar Partners, L.P. . . . .	(6/29/94)
15. Satellite Broadcasting and Communications Association of America . . . . .	(6/29/94)
16. Tele-Communications, Inc. . . . .	(6/29/94)
17. Time Warner Cable . . . . .	(6/29/94)
18. Turner Broadcasting System, Inc. . . . .	(6/29/94)
19. US West Communications, Inc. . . . .	(6/29/94)
20. Wireless Cable Association International, Inc. . . . .	(6/29/94)

<u>Reply Comments</u>	<u>Date received</u>
1. American Telecasting, Inc. . . . .	(7/29/94)
2. Ameritech . . . . .	(7/29/94)
3. Bell Atlantic . . . . .	(7/29/94)
4. Comedy Partners . . . . .	(7/29/94)
5. Consumer Satellite Systems, Inc., Programmers Clearing House, Inc. and Satellite Receivers, Ltd. . . . .	(7/29/94)
6. GTE Service Corporation . . . . .	(7/29/94)
7. Home Box Office . . . . .	(7/29/94)
8. Liberty Cable Company, Inc. . . . .	(7/29/94)
9. National Cable Television Association, Inc. . . . .	(7/29/94)
10. National Rural Telecommunications Cooperative . . . . .	(7/29/94)
11. Netlink USA . . . . .	(7/29/94)
12. Primestar Partners, L.P. . . . .	(7/29/94)
13. Primetime 24 . . . . .	(7/29/94)
14. Southern Satellite Systems, Inc . . . . .	(7/29/94)

15.	Superstar Satellite Entertainment . . . . .	(7/29/94)
16.	Teledesic Corporation . . . . .	(7/29/94)
17.	Time Warner Cable . . . . .	(7/29/94)
18.	United States Satellite Broadcasting Company, Inc., Consolidated Comments and Reply Comments . . . . .	(7/29/94)
19.	Valuevision International, Inc. . . . .	(7/29/94)
20.	Viacom International Inc. . . . .	(7/29/94)
21.	Wireless Cable Association International, Inc. . . . .	(7/29/94)

**Miscellaneous Filings**

**Date Received**

1.	Errata to NCTA's Comments filed June 29, 1994 (with attachments) . . . . .	(7/25/94)
2.	Letter from Deborah C. Costlow, Esq. to Cable Services Bureau Staff . . . . .	(8/12/94)
3.	Letter from Deborah C. Costlow, Esq. to Cable Services Bureau Staff . . . . .	(8/23/94)
4.	USSB - Supplement to Consolidated Comments and Reply Comments . . . . .	(8/19/94)
5.	NRTC Letter Response to USSB Supplement . . . . .	(9/02/94)
6.	USSB Response to Commission Request . . . . .	(9/13/94)
7.	DirecTV Letter Response to Commission Request . . . . .	(9/12/94)

**Note:** The Commission also received numerous letters in support of the NRTC's Comments in this proceeding.

## APPENDIX B

### GLOSSARY OF TECHNICAL TERMS AND ACRONYMS

Asynchronous Digital Subscriber Line ("ADSL") - A technology that utilizes compression of digital video signals to enable existing copper twisted pairs to carry multiple, simultaneous high-speed services to the subscriber.

Asynchronous Transfer Mode ("ATM") - An international standard set by the Consultative Committee on International Telegraph and Telephone ("CCITT") for high-speed broadband transport of packet-switched networks operating at specified digital transmission speeds. ATM switches facilitate efficient operation of networks transporting "bursts" of information that may include video signals. See Telecom Publishing Group, *Telecom Lingo Guide 6* (6th ed. 1991).

Broadband - A term used to describe any system capable of delivering multiple channels or services to its users.

Broadband Switch - A term used to refer to a technology designed to route broadband signals through a transmission system. ATM is a type of broadband switch.

Channel Service - A service whereby Local Exchange Carriers offer, on a common carrier basis, complete video transport services to cable operators from a cable system's headend to residential customers' premises. *Telephone Company-Cable Television Cross-Ownership Rules, Sections 63.54-63.58, Further Notice of Proposed Rulemaking, First Report and Order and Second Further Notice of Inquiry* ¶ 11, 7 FCC Rcd 300, 307 (1991).

Fiber to the Curb ("FTTC") - A type of architecture involving the installation of fiber optic cable from the trunk through the distribution network to the curb. A curbside "vault" typically will serve a dozen homes.

Fiber to the Home ("FTTH") - A type of architecture involving the installation of fiber optic cable throughout the network from the trunk to end-user premises.

Fiber to the Node ("FTTN") - A type of architecture involving the installation of fiber optic cable from the trunk, through the distribution network, to the neighborhood or the node. Typically, a node will serve between 400 and 500 homes.

Hybrid Fiber-Coax ("HFC") - A type of architecture involving the installation of fiber through part of the distribution network, with coaxial cable installed in the remainder of the network to the end-user. HFC architecture is generally used with either FTTC or FTTN, with coax replacing conventional copper wire to the end-user.

Instructional Television Fixed Service ("ITFS") - A fixed microwave station operated by an educational organization and used mainly to transmit educational information to fixed

receiving stations. Wireless cable operators have access to the channels allocated to ITFS on a leased, part-time basis. PUBLIC SERVICE DIVISION, FEDERAL COMMUNICATIONS COMM'N, COMMUNICATIONS GLOSSARY 10 (1993).

InterLATA - Telecommunications services that originate and terminate in different Local Access and Transport Areas ("LATAs").

Local Access and Transport Area - Contiguous local exchange areas developed in connection with the divestiture of AT&T within which Bell Operating Companies ("BOCs") may provide service. Pursuant to the Modification of Final Judgment ("MFJ"), BOCs are not permitted to transport calls across LATA boundaries but rather must connect them to interexchange carriers.

Local Exchange Carrier ("LEC") - Carrier which transports calls within a local exchange area and provides customers access to long distance telecommunications services. The term is sometimes used to refer to the Bell Operating Companies and other local telephone companies.

Modified Final Judgment ("MFJ") - Agreement between AT&T and the Department of Justice which, as amended by the federal courts, effected divestiture and imposed various restrictions on the Regional Bell Operating Companies (RBOCs). *United States v. AT&T*, 552 F. Supp. 131 (D.D.C. 1982), *aff'd sub nom. Maryland v. United States*, 460 U.S. 1001 (1983). See also LELAND L. JOHNSON, TOWARD COMPETITION IN CABLE TELEVISION 192 (1994).

Motion Picture Experts Group ("MPEG") - A group within the International Standards Organization that developed the digital compression standard for voice and video.

Multiplex - To transmit multiple signals over a single channel.

National Television System Committee ("NTSC") - A committee comprised of industry representatives that established the NTSC standard for black-and-white television in 1940, and color television in the early 1950s.

Optical Digital Loop Carrier System - System of routing calls through fiber optic cable originating from the central office of the LEC to remote distribution units. From these units, a conventional copper loop is used to connect subscriber premises.

Trunk - A single transmission channel between two points that are usually switching centers.

APPENDIX C<sup>1</sup>

**TABLE 1:  
Cable Television Industry Growth, 1987-93**

	1987	1990	1993	% change	
				'87-'90	'90-'93
U.S. Television Households ("HH") (mil.)*	88.6	92.6	96.4	4.51%	4.10%
Homes Passed ("HP") (mil.)	73.1	86	92.9	17.65%	8.02%
Basic Subscriptions at Year End ("subs") (mil.)	42.6	51.7	57.4	21.36%	11.03%
<i>National Saturation (HP/HHs) (%)</i>	<i>82.51%</i>	<i>92.87%</i>	<i>96.37%</i>	<i>12.57%</i>	<i>3.77%</i>
<i>Percentage of TV Households subscribing (%)</i>	<i>48.08%</i>	<i>55.83%</i>	<i>59.54%</i>	<i>16.12%</i>	<i>6.65%</i>
<i>Mean US Penetration (subs/HP) (%)</i>	<i>58.28%</i>	<i>60.12%</i>	<i>61.79%</i>	<i>3.16%</i>	<i>2.78%</i>

\* U.S. Television Households from A.C. Nielsen Co. as of January of the year following that listed. WARREN PUBLISHING, INC., 1988 CABLE TELEVISION FACTBOOK C-314, WARREN PUBLISHING, INC., 1991 CABLE TELEVISION FACTBOOK C-344, WARREN PUBLISHING, INC., 1994 CABLE TELEVISION FACTBOOK F-1.

Source: *History of Cable & Pay TV Subscribers & Revenues*, CABLE TV INVESTOR, March 31, 1994, at 9.

<sup>1</sup> For the tables that appear in this Appendix of the *Report*, the Commission has chosen to display information for three years -- 1987, 1990 and 1993. The year 1990 was chosen because it was the last time the Commission reported to Congress on the status of competition in the industry, and 1993 was chosen because it is the most recent year for which information is generally available. Accordingly, the rate of change is measured over a three-year period, and 1987 was chosen to provide a three-year period to be used as a basis for comparison.