

a. Prices

112. The initial issue we confront is how to analyze the wealth of price data in the record. Although the two major standard components of cellular prices are monthly, flat-rate access charges and per-minute airtime charges, customer bills are driven in part by other variables, including “free” airtime offered with certain pricing plans, termination charges (if any) and contract length (monthly or for a period of months or years). Such variables complicate the task of analyzing pricing data and raise two questions: (1) can the record data be categorized in a way that facilitates meaningful analysis; and (2) what data are the most meaningful?

113. The first of these questions is the easier to answer. In general, most parties, including the CPUC, analyze prices by focusing on monthly price for standardized usage levels (*e.g.*, 60, 120, 480 minutes).²⁵¹ Although this is not the only way to address the data, we agree it is a reasonable one.

114. There is less agreement among the parties on the second question. The CPUC claims that each carrier’s “basic” monthly rate supplies the most meaningful point of reference for price analysis. They argue that nominally cheaper packages typically require the customer to sign a long-term contract (one year or more) and thus are not necessarily better deals.²⁵² On the other hand, most carriers claim the “best price” available in the market at any given point in time should be the focal point of analysis, on the theory that customers for cellular service are rational consumers who may be presumed to respond to price incentives. This is not an academic debate. California notes that basic prices were largely unchanged during the 1989-1993 period to which the CPUC-supplied evidence relates.²⁵³ Carriers note that customers have, in fact, responded to price signals to the point where by 1994 less than 20 percent of cellular subscribers remain on a basic plan.²⁵⁴

115. All parties agree that prices are not going up. The CPUC claims that price data demonstrate poor market price performance from a consumer standpoint, however, given the returns that prices are generating for carriers. The CPUC also notes that the rates

²⁵¹ California actually uses price per minute. The use of price per minute for 60 minutes vs. price per month for 60 minutes is exactly equivalent.

²⁵² CPUC Petition at 37.

²⁵³ *Id.* at 40-42.

²⁵⁴ *See, e.g.*, CCAC Comments at 13 (Charles Rivers Associates study); L.A. Cellular Comments at 10-11, 18.

of major California carriers remain among the highest in the Nation,²⁵⁵ and claims that ‘‘regulation in California probably has prevented rates from being even higher and certainly has not contributed to higher rates.’’²⁵⁶

116. In contrast, the carriers claim that prices actually decreased substantially when nominal price changes are adjusted to account for inflation (yielding the ‘‘real’’ price change). They note that service coverage areas have improved, giving customers more for their money.²⁵⁷ Certain carriers also argue that their mix of customers has changed during the relevant period, resulting in a sharp decline in revenue per subscriber that also should be factored into our analysis.²⁵⁸ The carriers also assert that our analysis should focus on recent price movements because such movements provide a more accurate indications of the current state of market conditions. Finally, carriers assert that CPUC regulation is the principal cause of high cellular prices in California.²⁵⁹ Hausman, for AirTouch, estimates that such regulation causes California cellular customers to pay at least \$240 million per year in higher cellular prices.²⁶⁰ To illustrate this, he submits data on prices in 10 cellular service areas across the nation showing that, of those markets, four were state-regulated and those four had the highest prices.²⁶¹

117. The parties also vigorously debate the question whether the high price of cellular services in California, relative to prices in some other areas of the country, are driven by a shortage of spectrum. The CPUC views this question in the negative,²⁶² while other parties assert that spectrum scarcity is a major contributor to cellular rate levels.²⁶³

²⁵⁵ Petition 45-46. Their source for this statement is the U.S. General Accounting Office, *Telecommunications Cellular Service Competition*, Testimony before the Senate Committee on Energy and Public Utilities, Legislature of the State of California, Jan. 12, 1993, at 7.

²⁵⁶ CPUC Petition at 46.

²⁵⁷ Comments of Bakersfield Cellular Telephone Company at 10-11.

²⁵⁸ See, e.g., AirTouch Supplemental Comments at 9 (revenue per subscriber decreased 47 percent between 1990 and 1993).

²⁵⁹ AirTouch Opposition at 43-45.

²⁶⁰ AirTouch Opposition, Hausman Affidavit at para. 11 and AirTouch Comments to Confidential Data, Hausman Affidavit at para. 22 & n.9.

²⁶¹ Hausman at para. 9.

²⁶² CPUC Reply at 74-77.

²⁶³ GTE Comments, Appendix A at 8; AirTouch Opposition at 59.

118. Many of these arguments are unpersuasive. For example, the CPUC's focus on basic prices is unconvincing, because only a minority of customers remain on basic plans, and that minority gets smaller each year. As a result, focusing on movements of basic prices does not provide an accurate picture, or a reasonable surrogate indicator, of overall cellular market performance. The CPUC's argument that market conditions must be unreasonable because cellular prices are "too high" (*i.e.*, they exceed accounting measures of underlying costs) also is unpersuasive, since on this record it appears the CPUC has never exercised its existing authority to require "cost-based" rates, and it presents no persuasive argument concerning the degree to which rates must be "cost-based" in order to fall within a zone of reasonableness. The carriers' claim that adjusting nominal price data for inflation would improve our analysis of price performance is theoretically sound, but it suggests that potentially countervailing technical adjustments would need to be made to preserve analytical integrity. Since the record does not contain the information needed to make even the most basic of these additional adjustments (*e.g.*, productivity), it is reasonable to limit our analysis to nominal prices.²⁶⁴

119. Before doing so we consider the carriers' principal argument. Essentially, they claim that no matter what condition the market is in, state regulation makes that condition worse from a consumer standpoint. As a threshold matter, it is not obvious that the quality or effectiveness of a state's rate regulations are necessarily matters of decisional significance in a proceeding under Section 332(c)(3)(B). We need not resolve that legal issue here, however, in view of the evidence the carriers and the CPUC offer on this point. California's assertion that its regulation keeps prices from being even higher is based indirectly on work by Shew.²⁶⁵ This is contrasted in this record by Hausman's work purporting to demonstrate that state regulation raises cellular prices.²⁶⁶ Both Hausman and Shew use econometric models in an attempt to determine what factors have a statistically significant impact on cellular prices. A key difference between Shew's and Hausman's work

²⁶⁴ In this regard, we note that the telecommunications portion of the consumer price index increased only about one percent for the whole period from 1989 through 1993. Productivity gains in the telecommunications sector of the economy are generally thought to have been much higher during this period.

²⁶⁵ See California Petition at n. 27; and AirTouch Opposition, Appendix G (Statement of Professor Kahn). California cited to comments by Alfred Kahn concerning an American Enterprise Institute study on cellular rates and regulation. AirTouch included a transcript of those comments, which revealed that the research was Shew's and was ambiguous on the impact of regulation.

²⁶⁶ AirTouch Opposition at Appendix E. Hausman also uses a table (at Appendix E, 4) of cellular prices in the top 10 MSAs to illustrate that cellular prices are higher in markets with state regulation than in markets without state regulation. We find this illustration unconvincing because we note that the populations in the those MSAs with state regulation in Hausman's table are much higher (about double on average) than in MSAs without regulation in that table. See Appendix B at 14. It is therefore unclear from that limited sample whether state regulation (as opposed to population density or some other cause) really causes higher cellular prices.

is that Hausman uses a single dummy variable for regulation, whereas Shew uses several more descriptive variables, including a variable for the number of days prior to a price change becoming effective (Filetime), a variable for whether regulatory approval is required for a price change, and a variable for a state legislative ban against state regulation of cellular.²⁶⁷ Shew finds that the threat of regulation lowers prices, but that specific regulatory regimes may raise prices. When one substitutes California's description of its current regulatory regime into Shew's equations, including one day for the Filetime variable, the results show the predicted impact of regulation is extremely minimal.²⁶⁸ Using thirty days as the Filetime variable yields a more pronounced impact. Although certain carriers claim that California mischaracterizes its regulatory regime, and this suggests it might be appropriate to use thirty days for the Filetime variable, the record on this point is not sufficiently strong to resolve the issue. Since these econometric models appear to produce results that are insufficiently robust with regard to the exact model specified, we do not accord them any weight in our analysis.

120. We also do not agree with the claim that price levels result in substantial part from spectrum scarcity. Essentially, this is an argument that market performance in California is not influenced by the number of licensed cellular systems. We are not persuaded by this argument. The theoretical case that the number of competitors in a market significantly effects rivalry therein is strong, and nothing on this record convinces us that this traditional thinking is inapplicable to cellular. Assertions about scarcity run counter to the carriers' demonstrated ability to accommodate additional demand by, inter alia, splitting cells and deploying digital technologies that vastly expand spectrum efficiency. Even in Los Angeles, where demand appears to be strongest, claims of capacity constraints are belied by continued subscriber growth.²⁶⁹

121. As a check on the reasonableness of the parties' presentations on the issue of cellular prices, we performed our own analysis of price and cost data. In so doing we created three indices of "best prices" available to a new customer for 60 minutes, for 120 minutes and for 480 minutes (80 percent of the minutes being peak use). To allow us to consider the price and cost data on a state-wide basis, we weighted the data by carrier-specific subscribership information supplied by the CPUC. Since data for every carrier during every time period were not supplied by the parties, we created several indices

²⁶⁷ W. Shew, Regulation, Competition, and Prices in Cellular Telephony, working paper prepared for American Enterprise Institute for Public Policy Research, June 2, 1994, at 57-62.

²⁶⁸ See Shew Table 5-1. Actually, the predicted effect is to lower prices by about two dollars per month.

²⁶⁹ Data supplied by the CPUC indicate that the 1993 customer base of the two licensees in Los Angeles is several multiples larger than the customer base of the two licensees in San Francisco that year. This differential does not appear to be attributable to differences in the relative sizes of the geographic areas served by licensees in those cities.

covering slightly different time periods and groups of carriers.²⁷⁰ We also focused on prices in a smaller geographic area (Los Angeles).²⁷¹ Finally, we created cost-per-subscriber indices to correspond to our price indices.²⁷²

122. Our analysis indicates that depending on the number of minutes, average nominal prices fell between 10.5 and 15.5 percent overall during the 5 year period for which data are available (1989-93). The bottom line is unambiguous: cellular prices are falling, and falling appreciably. Moreover, a major portion of the decline occurred in the last year. The average best 60 minute price fell from 1989 to 1990 by \$1.60, and by two more cents between 1990 and 1992. Between 1992 and 1993, however, this index fell \$4.56. Since 1993, prices have continued to fall. The best price in the Los Angeles area for a 60 minute plan fell by more than 15 percent during 1994 alone. Carriers also have offered promotions, such as waiving activation fees, not reflected in our indices but that clearly reduce the price available to consumers. Average revenue per subscriber is falling faster than the average cost of serving subscribers, demonstrating that carriers' per-subscriber profit margins are shrinking. On the whole, this evidence reflects a positive price performance pattern, and undercuts the CPUC's claim that market conditions fail to protect consumers adequately from unjust and unreasonable, or unjustly and unreasonably discriminatory rates.

b. Profits

123. The CPUC points to carriers' profits as evidence that conditions in the market for cellular services are unreasonable from a consumer standpoint. In brief, the CPUC argues that carriers consistently earn returns far above competitive levels, and that such returns are evidence of market power, as opposed to a reflection of the riskiness of the cellular business or spectrum scarcity.²⁷³ The CPUC argues that the numerical level of such returns are not unreasonable per se, but should be viewed as such in this context because they reflect a failure to compete, as opposed to being used to expand capacity and increase service availability.²⁷⁴

124. A few preliminary observations are in order before we address the merits of the CPUC's presentation in detail. First, we agree with the CPUC that the numerical level of an entity's profits, standing alone, generally does not determine whether such profits are reasonable. The appropriate measure of profits is whether they fall within a zone of

²⁷⁰ See Appendix B at Tables 2-3.

²⁷¹ See *id.* at Table 6.

²⁷² See *id.* at Tables 4-5.

²⁷³ See CPUC Petition at 46-50, 54-61.

²⁷⁴ See *id.* at 50-54.

reasonableness, which is defined by reference to consumer and investor interests viewed in the context of relevant public policy considerations. Second, it bears emphasis that the purpose of this proceeding is to determine whether the CPUC will retain cellular rate regulation authority by demonstrating that market conditions fail to protect consumers adequately against unjust, unreasonable, and unreasonably discriminatory cellular rates. The CPUC has raised the issue of profits in support of its argument for retaining such authority, and we are evaluating it on that basis and toward no other end. This is not a proceeding to determine whether any particular carrier's profits are reasonable or what rate of return (if any) is reasonable industry-wide.

(1) Measures of Profits

125. We begin our analysis by considering available profit data. As a threshold matter, we disagree with commenters who claim that profit analysis is infirm insofar as it focuses on accounting rates of return.²⁷⁵ The CPUC could not be expected to provide a direct measure of economic profits because that would require financial data from an investment's beginning to end. Even assuming such data exist, they would be too dated to be meaningful for purposes of the instant proceeding, which is focused on contemporary market conditions. We agree with the CPUC that, with exceptions no party shows are present here, accounting profits tend to be high when economic profits exist.²⁷⁶ The contention that only economic profits should be considered is extreme and inconsistent with the reality that agencies such as ourselves and the CPUC must make decisions on available information. Thus, we conclude it is reasonable to use accounting data *as a baseline* for analyzing profits in the context of a Section 332(c)(3)(B) proceeding.

126. California provides a significant amount of data relating to profits, including after-tax rates of return and gross plant investment, for 16 of the 40 carriers in that state. These carriers serve markets covering about 90 percent of the state's population. We also reviewed financial reports filed by certain carriers with the CPUC, which added 7

²⁷⁵ Accounting rates of return measure the return for a company or subsidiary for a fixed period of time, typically annually. Economic rates of return measure the return for a specific investment or set of investments over the life of that investment. These two measures of return also differ in their treatments of certain costs. For example, depreciation rates for accounting purposes are determined by factors, such as the tax code, which may not perfectly correspond to the actual useful life of equipment. Economic rates of return are based on actual useful life. *See, e.g.*, Oppositions of AirTouch at 55-56 and Bay Area at 26.

²⁷⁶ California Reply at 38-41. *See also* F. Fisher & J. McGowan, *Firm Interdependence in Oligopolistic Markets*, 73 AM. ECON. REV. 82 (Mar. 1983); W. Long & D. Ravenscraft, *Misuses of Accounting Rates of Return: Comment*, 74 AM. ECON. REV. 494 (June 1984); S. Martin, *Misuses of Accounting Rates of Return: Comment*, 74 AM. ECON. REV. 501 (June 1984).

additional carriers to our data set.²⁷⁷ Using these data, we estimate the after-tax rate of return for these carriers as a whole, weighted by gross plant, to be approximately 30 percent for the period from 1989-1993.²⁷⁸

127. Several arguments in the record have a bearing on how this aggregate profit estimate should be evaluated. Hausman (for AirTouch) asserts that cellular is a riskier business than local wireline telephony, and therefore cellular carriers are entitled to a higher return than local exchange carriers.²⁷⁹ According to Hausman, this risk argues for use of a capital asset pricing model (CAPM) to estimate an appropriate return for cellular, a process that he claims results in earnings calculations exceeding 20 percent. We note that other record materials authored by Hausman disclaim the notion that cellular is a particularly risky business.²⁸⁰ Even if we assume it is, *arguendo*, we previously have determined that CAPM estimates often are distorted by firms' use of unrealistic risk assumptions and, consequently, have declined to adopt such methods when estimating appropriate returns.²⁸¹ Nothing in this record causes us to reconsider that determination.

128. We accord some weight to arguments that the baseline accounting data overstate rates of return because those data may not adequately reflect interest payment obligations. Interest expenses for some companies are known to be substantial, and some portion of these expenses undoubtedly is attributable to acquisition of cellular licenses in the secondary market.²⁸² The level of activity in that market was fueled to some degree by the

²⁷⁷ Cellular Communications Licensees (Wholesalers) Annual Reports to the Public Utilities Commission, State of California. These reports are publicly available. We also developed an econometric model to estimate rate of return and gross plant for the remaining carriers in California. See Appendix B at Table 16.

²⁷⁸ See Appendix B at Table 1.

²⁷⁹ AirTouch Comments, Hausman Appendix at 17.

²⁸⁰ AirTouch *ex parte*, Mar. 9, 1995, Hausman Attachment at 3 (assertions that demand for cellular service was clear and substantial prior to licensing of cellular spectrum during early 1980s). This expression of opinion by Hausman does not appear to be based on confidential data unavailable to other parties, and, in any event, we consider it only for the limited purpose indicated in the text.

²⁸¹ See, e.g., Represcribing the Authorized Rate of Return for Interstate Service of Local Exchange Carriers, 5 FCC Rcd 7507, 7518 (1990).

²⁸² For example, by one report McCaw had approximately \$9 billion in assets as of the end of 1993, of which \$1.6 billion was plant and equipment, \$4.0 billion was licensing cost and \$2.0 billion was other investments (such as an approximately 52 percent interest in Lin Broadcasting). See Standard & Poor's Industry Survey: Telecommunications, Basic Analysis, June 2, 1994, T40. McCaw also reported had \$5.1 billion in long term debt on its books that year. See Moody's OTC Industrial Manual (1994), 1887. McCaw has an interest in many licenses in California. See California Petition,

inefficiency of the lottery method we used to award cellular licenses initially. Since such acquisition costs were incurred after the initial grant of license, they normally would be excluded from the “rate base” used to calculate a carrier’s earnings under traditional regulatory accounting methods, which are designed to prevent companies subject to rate of return regulation from artificially expanding their rate bases through sham transactions. Cellular carriers in California never have been subject to rate of return regulation, so the question of whether the aforementioned accounting methods should be applied to them arguably is legitimate. The task of resolving that question is beyond the scope of this proceeding, however, in part because the record does not contain sufficient data to permit anything but the crudest estimate of the impact of this issue on the returns under review here. For purposes of this proceeding, it is enough to note that the potential impact is significant.²⁸³ The CPUC notes that this issue, if decided in favor of the carriers, has the potential to “erase[]” their reported profits.

129. Notwithstanding this debate, we think the component parts of the industry-wide return we have calculated is more illuminating than the number as a whole, for several reasons. First, although the CPUC contends that carriers’ earnings are consistently high, the actual data per carrier present a different picture. Viewed by individual carrier, earnings differ substantially from year-to-year and from carrier-to-carrier. In 1993, for example, many of the carriers realized earnings at levels that raise no plausible concern.²⁸⁴ Some were only marginally profitable for the period as a whole.²⁸⁵ Earnings also differed appreciably between carriers in the same geographic area.²⁸⁶ This evidence undercuts the CPUC’s claim that earnings are largely a function of market power created by a duopoly licensing structure. Other factors are at work here. In particular, differences between carriers in the same area suggest that some carriers are more efficient than others, and this is not a cause for regulatory concern.

Appendix C, C-1. The financial reports those licensees submit to the CPUC do not appear to show interest expense burdens of the magnitude attributed to McCaw elsewhere. For example, L.A. Cellular reports to the CPUC show no debt. McCaw Communications of Stockton, Inc., had about \$800,000 interest expenses against about \$13 million in operating profits. *See* Cellular Communications Licensees (Wholesalers) Annual Report to the Public Utilities Commission, State of California.

²⁸³ *See* CPUC Petition at 56.

²⁸⁴ *See id.* (Fresno MSA LP, 10.7 percent; GTE MobileNet of Santa Barbara, 7.5 percent; Modoc RSA LP, -6.2 percent; Redding Cellular, 3.1 percent; Sacramento Valley LP, 6.4 percent; Salinas Cellular, 7.2 percent; Santa Barbara Cellular, 10.5 percent; Santa Cruz, 14 percent; US West Cellular, 2.9 percent).

²⁸⁵ *See id.* (US West: 9 percent (1990), -4.3 percent (1991), -7.4 percent (1992), 2.9 percent (1993)).

²⁸⁶ *Compare, e.g.,* Bay Area (49.5 percent) *with* GTE (18.1 percent) (1993).

(2) Capacity Utilization Rates

130. The CPUC's argument that market conditions are unreasonable places great weight on capacity utilization data. Extensive data of this kind are included in Appendix M to the CPUC Petition. These data show actual usage of each cell measured against a theoretical "peak load" level (*i.e.*, a level considered to constitute the point above which usage would produce an unacceptable percentage of blocked calls). The data show an uneven cell usage. We conclude that the CPUC's reliance on such data is misguided. As several carriers point out, no reasonable carrier would engineer its network to operate all or even most of cells at peak load capacity. Investment in cell sites tends to be "lumpy."²⁸⁷ In addition, carriers may legitimately construct additional capacity to improve quality beyond the peak load standard. This evidence does not support the weight the CPUC has asked it to carry.

(3) Growth

131. In assessing profit levels, the CPUC Petition does not address the relationship between reported earnings and industry growth. This oversight is significant. We believe the long term effect of growth on pricing and investment decisions is substantial, and is at least as important a consideration in evaluating cellular industry returns as the short term effect of such decisions on consumer surplus.²⁸⁸ Cellular is one of the fastest growing industries in this country, with carriers typically experiencing intramarket annual subscriber growth rates of 30 to 50 percent. Gross investment by California cellular carriers increased by 270 to 475 percent between 1989 and 1993 according to the data provided by the CPUC.²⁸⁹ This represents growth on a substantially different scale than one typically finds in other capital-intensive segments of the telecommunications industry, and it must be factored into any reasonable analysis of industry performance.²⁹⁰

²⁸⁷ CCAC Comments, Appendix A at 28.

²⁸⁸ The effect of market structure on investment and technological innovation is a major topic in industry organization economics. *See* Scherer and Ross, 613-60. Many economists have long believed that market power can in the long run lead to favorable results for consumers. *See, e.g.*, J. Schumpeter, *CAPITALISM, SOCIALISM, AND DEMOCRACY* (1942); L. Switzer "The Determinants of Industrial R & D," 66 *Review of Economic and Statistics*, 163-68 (Feb. 1984).

²⁸⁹ *See* Appendix B at Table 10.

²⁹⁰ Mature and emerging industries have different characteristics, and these differences are relevant to any analysis of industry performance. For example, some studies show that market share is significant determinant of rate of return on investment in mature industries but not in emerging industries. *See, e.g.*, J. Prescott, A. Kohli & N. Ven Katraman, "The Marketshare-Profitability Relationship: An Empirical Assessment of Major Assertions and Contradictions," *Strategic Management Journal*, Spring 1986, at 386.

132. A key element of the study of markets is the recognition that not all industries and markets are at the same stage of development.²⁹¹ Thus, the comparison necessary for determining whether rates of return are “too high” is not with mature industries, but with high growth industries. It has been shown that the rate of growth of output is one of the most important determinate of profitability; that is, all other things being equal, high growth firms (such as the cellular industry) tend to earn high profits.²⁹² Thus, a showing that reported cellular industry profits are higher than realized by other telecommunications service providers, such as local exchange carriers, is not automatically disturbing.

133. To illustrate this, we consider the interrelationship of growth of demand and plant investment. Demand growth can be modelled as a process of diffusion; that is, a learning process by consumers.²⁹³ Diffusion simply means that potential consumers “learn” how much consumer surplus (value above the amount they pay) they will receive from cellular service by observing actual consumers. This process is intertwined with carriers’ investment decisions. Specifically, while a cellular carrier’s failure to invest in additional capacity does not automatically discourage additional subscribership in the near term, ultimately it will have that effect because adding new customers without expanding system capacity will reduce service quality and, thus, consumer surplus. Potential subscribers will receive that signal and not sign up for service; existing subscribers may cancel service. Subscribership will not grow or, potentially, will decline. This negative subscribership pattern obviously does not characterize the cellular industry, which typically has experienced 30 to 50 percent subscriber growth in an environment historically marketed by somewhat static pricing and not particularly elastic demand.²⁹⁴

134. From a consumer perspective, the interrelationship of diffusion and carriers’ investment decisions is directly relevant to the issue of whether reported industry profits are “too high.” Imagine a situation in which cellular prices, and hence profits, were reduced. Lower prices would induce some additional consumers to take service, but lower

²⁹¹ For example, Prescott, Kohli, and Ven Katraman have shown that the determinants of rate of return on investment vary between mature industries and emerging industries. *See* J. Prescott, A. Kohli & N. Ven Katraman, “The Marketshare-Profitability Relationship: An Empirical Assessment of Major Assertions and Contradictions,” *Strategic Management Journal*, Spring 1986, 377-94. They found, for example, that high market share is correlated with high rates of return in mature industries, but not for emerging industries. *Id.* at 386.

²⁹² D. Ravenscraft “Structure-Profit Relationship at the Line of Business and Industry Level,” *Review of Economic and Statistics*, Feb. 1983, at 22-31.

²⁹³ *See, e.g.*, N. Vettas, “Demand and Supply in New Markets: Diffusion with Bilateral Learning,” presented at Allied Social Science Associations Meeting, Jan. 8, 1995.

²⁹⁴ *See* Appendix B at Table 16. Some cellular growth must be attributed to reductions in the cost of end user equipment.

profits arguably would discourage carriers from expanding system capacity. Service quality degradation then would reduce available consumer surplus.²⁹⁵ Thus, consumers are not necessarily better off under a scenario in which carriers earn are precluded from earning some economic rents.²⁹⁶

135. It is not possible to determine what rate of return would be associated with optimal consumer surplus, but that is not our task in this proceeding. The relevant point for present purposes is that in that optimal consumer surplus in the context of a rapidly growing industry occurs at some *positive* level of economic rents, such as are reflected on this record, and that such rents do not necessarily show that market conditions fail to protect consumers adequately from unreasonable rates, as the CPUC contends.

(4) Investment

136. The CPUC observes that cellular profits are not improper “to the extent that cellular carriers used the profits to expand capacity and increase service availability to the public.”²⁹⁷ As a general proposition, we do not agree with the assertion that high profits are reasonable *per se* if they are reinvested in capacity expansion because it is easy to imagine instances in which such investment would be inefficient and contrary to the public interest. In the CMRS setting, however, Congress has expressed some degree of interest in facilitating investment in wireless infrastructure. Thus, in this setting, we consider evidence of sustained cellular investment material to the statutory standard for evaluating petitions filed pursuant to Section 332(c)(3)(B).

137. Although the CPUC presents this test of reasonableness in its Petition, it failed to examine whether cellular carriers, in fact, applied their earnings in the identified manner. This oversight is significant. For the period for which data are available, record evidence shows increases in gross investment per carrier on the order of between 180 and

²⁹⁵ Consider, for example, that our statistical model (Appendix B at Table 15, Regression 2) predicts that a 10 percent price reduction would only increase demand in the current period by about 4 percent, and growing 7 percent after two years, and to about 12 percent after five years. On the other hand, if reduced quality of service reduces consumer surplus enough to reduce the diffusion effect by 4 percent then the increase in customers would from the second year on would only be 4 percent. Reducing consumer surplus through reduced investment enough to reduce the diffusion effect by 10 percent would result in a *net* loss of customers of about 3.5 percent per year (16 percent over 5 years). Finally, of course, there is the direct loss of consumer surplus by actual consumers.

²⁹⁶ All of this analysis is consistent with the phenomenon that other things being equal, the effect of cash flow on investment tends to be larger for firms in growing sectors. In addition, cash flow effects investment more for young firms (under 12 years old) than for mature firms. See M. Devereux & F. Schiantarelli, “Investment, Financial Factors, and Cash Flow,” in *ASYMMETRIC INFORMATION, CORPORATE FINANCE, AND INVESTMENT* 279-306 (1990)(R. Hubbard, ed.).

²⁹⁷ CPUC Petition at 50.

475 percent.²⁹⁸ In fact, most carriers experienced a point when their accounting rate of return might be viewed as high yet, as a financial investment, their operations yielded no return because most or all of that return was reinvested to support expansion.²⁹⁹ Even in the largest markets, in certain years increases in net plant were substantially above after-tax operating profits. In 1990, over 80 percent of the net income earned in the top three markets was reinvested to increase net plant. Over the four-year period studied, LA SMSA, Bay Area and Pactel reinvested approximately 35 percent, 32 percent, and 47 percent of their profits. Many carriers in middle sized markets continue to reinvest beyond their profits. In 1993, Sacramento Valley, Fresno Cellular, Fresno MSA and GTE of Santa Barbara each increased net plant *by more than double* their net operating profits. By contrast, available evidence indicates that net plant of cable television fell over this same timeframe.³⁰⁰ The net plant of companies in more mature segments of the market for telecommunications services increased, but apparently by less than one percent per year.³⁰¹

138. This evidence strongly suggests that the California cellular industry is, in fact, using its profits “to expand capacity and increase service availability to the public,” thereby meeting the CPUC’s own test for evaluating whether profit levels are reasonable. We note that such investment has had beneficial effects. Without it, the quality of service would have declined as additional subscribers were added. We also stress that the money earned by serving cellular customers was applied to expand service to additional *cellular* customers. Thus, the class of customers who paid for the increased plant and equipment is the very same class of customers who benefited from the carriers’ pricing and investment decisions. We view this fact to be decisionally significant.

139. Apart from that, we note that such investment has important long-term competitive implications. Specifically, investment made in the 1990’s will be in place when cellular carriers face significant competition from broadband PCS providers. In theory, cellular carriers might have chosen the alternative strategy of “cashing-out” in the face of this competition. That is, cellular carriers might have decided that because they cannot sustain high returns on marginal investments made during the 1990’s, they would stop increasing net plant, possibly even let it shrink, so as to expand their rate of return prior to

²⁹⁸ See Appendix B at Table 8.

²⁹⁹ See, e.g., Appendix B at Table 9 (drawn from Standard and Poor’s, *Industry Surveys: Telecommunications, Basic Analysis*, June 2, 1994).

³⁰⁰ See *id.* at Table 12.

³⁰¹ See *id.* at Table 13. We express no opinion here on the adequacy of this investment or that of the cable television industry cited *supra*. The contrast is shown solely to illuminate the fact of pronounced reinvestment of profits by cellular telephone companies in California. Aggregate investment by the cited industries is substantial by any measure.

facing more intense competition. The data in this record do not demonstrate that carriers are pursuing this alternative strategy. This, too, is decisionally significant.

140. The record also provides no persuasive evidence that investment by cellular carriers represents an undertaking designed to deter entry.³⁰² That is, in some circumstances incumbent firms may aggressively invest in plant and equipment to send a message to potential entrants that “your entry would prove unprofitable, because my large capacity will allow me to compete vigorously.” All available evidence indicates that PCS entry is a certainty, which means incumbent firms have no apparent incentive to employ a predatory investment strategy. The far more reasonable interpretation of cellular carriers’ investment pattern is that they plan to be vigorous competitors for the foreseeable future. This, too, is decisionally significant.

141. Against this background, we conclude that carriers’ actual profitability arguably is lower than reported, and appears to satisfy the CPUC’s own standard of reasonableness because it has been devoted to a substantial extent to system expansion needed to serve consumer demand for cellular service. This evidence does not, as the CPUC claims, unambiguously demonstrate that market conditions fail to protect consumers adequately from unjust and unreasonable rates, or unjustly and unreasonably discriminatory rates.

VI. REGULATION OF OTHER TERMS AND CONDITIONS

142. Prior to OBRA, Section 332 prohibited the states from imposing “rate ... regulation” upon certain wireless telecommunications carriers.³⁰³ This prohibition was construed broadly to preclude almost all state regulatory activity.³⁰⁴ As revised by OBRA,

³⁰² See, e.g., J. Ordovery & R. Willig, “An Economic Definition of Predation: Pricing and Product Innovation,” 91 YALE L.J. 8 (1981).

³⁰³ The statute provided in relevant part that “[n]o state or local government shall have any authority to impose any rate or entry regulation upon any private land mobile service” 47 U.S.C. § 332(c)(3)(prior to revisions enacted by OBRA).

³⁰⁴ See, e.g., *Telocator Network of America v. FCC (Millicom)*, 761 F.2d 763 (D.C. Cir. 1985) (upholding Commission’s interpretation of Section 332(c)(1), 47 U.S.C. § 332(c)(1), in determining whether preemption provisions of that section apply to a given communications system). See also, e.g., *American Teltronix (Station WNHM552)*, 3 FCC Rcd 5347 (1988) (“Congress did not intend that a private land mobile licensee who, either intentionally or inadvertently, provides service to ineligible users would thereby subject itself to state regulatory authority, including possible sanctions, for operating as a common carrier.”), *recon. denied*, 5 FCC Rcd 1955, 1956 (1990)(note omitted) (“state entry and rate regulation of a communications service offered by a private land mobile radio system is preempted by statute [A]ccompanying legislative history reveals that Congress recognized the Commission’s broad discretion to dictate which land mobile systems are to be regulated as private.”). The Commission again stated its view of preemptive authority under that provision when it adopted a Notice of Inquiry respecting Personal Communications Services.

Section 332(c)(3) now prohibits states from regulating “the rates charged” for CMRS, but it expressly reserves to them the authority to regulate the “other terms and conditions of commercial mobile services.” Although there is no definition of the term “the rates charged” in the statute or its legislative history, there is legislative history regarding the “other terms and conditions” language. We believe it is sufficient to allow us to comment in a preliminary manner on what regulatory activities the CPUC is entitled to continue, despite our denial of its Petition.

143. The House of Representatives Committee on Energy and Commerce, reporting on the House bill that was incorporated into the amended Section 332, noted that even where state rate regulation is preempted, states nonetheless may regulate other terms and conditions of commercial mobile radio services. The Committee stated:³⁰⁵

By “terms and conditions,” the Committee intends to include such matters as customer billing information and practices and billing disputes and other consumer protection matters; facilities siting issues (*e.g.*, zoning); transfers of control; the bundling of services and equipment; and the requirement that carriers make capacity available on a wholesale basis or such other matters as fall within a state’s lawful authority. This list is intended to be illustrative only and not meant to preclude other matters generally understood to fall under “terms and conditions.”

144. Establishing with particularity a demarcation between preempted rate regulation and retained state authority over terms and conditions requires a more fully developed record than is presented by the California Petition and related comments. Thus, we will not expound at any length on this matter. The legislative history largely speaks for itself. It is possible to extrapolate certain findings from the legislative history, however, and we do so here in the interest of minimizing future proceedings directed at this issue.

145. First, although the CPUC may not prescribe, set, or fix rates in the future because it has lost authority to regulate “the rates charged” for CMRS, it does not follow that its complaint authority under state law is entirely circumscribed. Complaint

Amendment of the Commission’s Rules To Establish New Personal Communications Services, Notice of Inquiry, 5 FCC Rcd 3995, 3998 n.19 (1990):

If these services are considered to be, or classified as, radio common carrier telephone exchange services, then the states, under Section 2(b) of the Act, may impose entry and rate regulations upon intrastate operations. If we classify these services as private land mobile, such state regulation would be expressly preempted under Section 332(c)(3).

³⁰⁵ H.R. Rep. No. 103-111, 103d Cong., 1st Sess. at 261.

proceedings may concern carrier practices, separate and apart from their rates.³⁰⁶ In consequence, it is conceivable that matters might arise under complaint procedures that relate to “customer billing information and practices and billing disputes and other consumer matters.” We view the statutory “other terms and conditions” language as sufficiently flexible to permit the CPUC to continue to conduct proceedings on complaints concerning such matters, to the extent that state law provides for such proceedings.

146. Second, under the same logic, we also conclude that several other aspects of California’s existing regulatory system may fall outside the statutory prohibition on rate regulation. For example, a requirement that licensees identify themselves to the CPUC, or whatever other agency the state decides to designate, does not strike us as rate regulation, so long as nothing more than standard informational filings is involved. Moreover, nothing in OBRA indicates that Congress intended to circumscribe a state’s traditional authority to monitor commercial activities within its borders. Put another way, we believe the CPUC retains whatever authority it possesses under state law to monitor the structure, conduct, and performance of CMRS providers in that state.³⁰⁷ We expect that, to the extent any interested party seeks reconsideration on this issue, it will specify with particularity the provisions of California’s existing rate regulation practice at issue.

147. Finally, we do not consider it necessary at this time to address the contention that we have jurisdiction over intrastate rates for CMRS, following termination of the CPUC’s rate regulation authority, which we can employ to protect resellers.³⁰⁸ The question whether we have jurisdiction over CMRS intrastate rates has been raised in petitions for reconsideration of the *CMRS Second Report and Order* and will be addressed some time in the future in the context of that proceeding. If we are persuaded upon reconsideration of the instant proceeding that it is necessary to address that issue here, we will do so, but only upon a showing by petitioners that resolution of the issue is necessary to resolve a material issue raised in this record. That showing must consist of evidence and argument establishing

³⁰⁶ *E.g.*, Section 208(a) of the Communications Act authorizes complaints by any person “complaining of *anything done or omitted to be done* by any common carrier subject to this Act, in contravention of the provisions thereof.” 47 U.S.C. § 208(a) (emphasis added).

³⁰⁷ We remind the CPUC that the certification process is precluded by the provision in amended Section 332 that categorically preempts state and local entry regulation and that the statute makes no provision for continuance or extension of this authority by this Commission. As of the effective date of the amendment, therefore, California’s certification jurisdiction over commercial mobile radio service was terminated. *See* H.R. Rep. No. 103-111, 103rd Cong., 1st Sess. at 261.

³⁰⁸ *See* Comments of McCaw at 6-7; Supplemental Reply at 5-6. McCaw contends that, absent a successful state petition, Federal regulatory principles of nondiscrimination and just and reasonable rates “are enforceable solely by *federal* regulators” and “are not terms and conditions to be implemented by the states.” *Id.* at 7 n.21 (emphasis in original).

such a nexus and supporting the substantive position argued, *i.e.*, that we have or have not inherited intrastate rate regulation over CMRS.

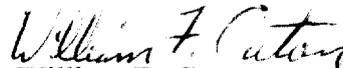
VII. ORDERING CLAUSES

148. Accordingly, pursuant to Section 332(c)(3) of the Communications Act, 47 U.S.C. § 332(c)(3), IT IS ORDERED that the Petition of the People of the State of California and the Public Utilities Commission of the State of California To Retain Regulatory Authority over Intrastate Cellular Service Rates IS DENIED for the reasons set forth above.

149. IT IS FURTHER ORDERED, that California's motion to strike, filed March 16, 1995, and directed to the supporting affidavit of Jerry Hausman (submitted March 8 by AirTouch as part of a written *ex parte* communication), IS GRANTED to the extent indicated herein.

150. IT IS FURTHER ORDERED, pursuant to Sections 1.4(b), 1.4(b)(2), and 1.106(f) of the Commission's Rules, that any petition for reconsideration of this order SHALL BE FILED within thirty days of the day after the day on which public notice of this action is given.³⁰⁹

FEDERAL COMMUNICATIONS COMMISSION


William F. Caton
Acting Secretary

³⁰⁹ Although we assigned the CPUC Petition a docket number for administrative convenience, this is an adjudicatory-type proceeding, not a rulemaking.

APPENDIX A

List of Parties Filing Comments

Party (and Short Title)

AirTouch Communications (AirTouch)

American Mobile Telecommunications Association, Inc. (AMTA)

Bakersfield Cellular Telephone Co. (Bakersfield)

Bay Area Cellular Telephone Co. (BACTC)

Cellular Agents Trade Association (CATA)

Cellular Carriers Association of California (CCAC)

Cellular Resellers Association, Inc., Cellular Service, Inc., and Comtech Mobile Telephone Company (Cellular Resellers)

Cellular Telecommunications Industry Association (CTIA)

County of Los Angeles (L.A. County)

E.F. Johnson Company (E.F. Johnson)

GTE Service Corporation, On Behalf of its Telephone and Personal Communications Companies (GTE)

Los Angeles Cellular Telephone Company (L.A. Cellular)

McCaw Cellular Communications, Inc. (McCaw)

Mobile Telecommunication Technologies Corporation (Mtel)

National Cellular Resellers Association (NCRA)

Nextel Communications, Inc. (Nextel)

Paging Network, Inc. (Pagenet)

Personal Communications Industry Association (PCIA)

Utility Consumers' Action Network and Towards Utility Rate Normalization (UCANTURN)

US West Cellular of California, Inc. (US West)

List of Parties Filing Reply Comments

AirTouch Communications (AirTouch)

Cellular Carriers Association of California (CCAC)

Cellular Resellers Association, Cellular Service, Inc., and ComTech Mobile Telephone Company (Cellular Resellers)

Cellular Telecommunications Industry Association (CTIA)

County of Los Angeles (L.A. County)

GTE Service Corporation, On Behalf of its Telephone and Personal Communications Companies (GTE)

Los Angeles Cellular Telephone Company (L.A. Cellular)

McCaw Cellular Communications, Inc. (McCaw)

Mobile Telecommunication Technologies Corporation (Mtel)

Nextel Communications, Inc. (Nextel)

PageMart, Inc. (PageMart)

People of the State of California and the Public Utilities Commission of the State of California (CPUC)

Rural Cellular Association (RCA)

US West Cellular of California, Inc. (US West)

List of Parties Filing Supplemental Comments

AirTouch Communications (AirTouch)

Cellular Carriers Association of California (CCAC)

Cellular Resellers Association, Inc., Cellular Service, Inc., and ComTech Mobile Telephone Company (Cellular Resellers)

GTE Service Corporation, On Behalf of its Telephone and Personal Communications Companies (GTE)

Los Angeles Cellular Telephone Company (L.A. Cellular)

McCaw Cellular Communications, Inc. (McCaw)

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AirTouch Communications (AirTouch)

Cellular Carriers Association of California (CCAC)

Cellular Resellers Association, Inc., Cellular Service, Inc., and ComTech Mobile Telephone Company (Cellular Resellers)

GTE Service Corporation, on Behalf of its Telephone and Personal Communications Companies (GTE)

Los Angeles Cellular Telephone Company (L.A. Cellular)

McCaw Cellular Communications, Inc. (McCaw)

APPENDIX B

TABLE 1

After Tax Rates of Return on Net Plant and Equipment

Company	Starting Date	Pops	1989	1990	1991	1992	1993
Bakersfield Cellular	3/88	543477					61.5
Bay Area Cellular	9/86	5184169	43.7	48.1	43.5	31.1	49.5
Cagal Cellular	1/89	388222		1.2	17.6	17.0	35.8
California 2 Cellular	8/91	57015			-49.0	-55.0	
Contel Cellular of CA (RSA # 7)	10/90	109303		-32.2	-19.5	6.0	35.4
Fresno Cellular	10/87	979411	-19.6	11.9	24.0	31.3	25.7
Fresno MSA LP	4/86	1624357		8.0	7.6	11.2	10.7
GTE Mobilnet of California	3/85	6826133	22.8	15.8	16.4	20.0	18.1
GTE Mobilnet of Santa Barbara	11/87	369608	2.6	2.0	8.5	6.7	7.5
Los Angeles Cellular	12/86	13862513	71.4	58.5	52.4	51.6	47.0
LA SMSA LP	6/84	14531529	49.4	43.3	34.8	28.0	33.8
McCaw Communications of Stockton	12/87	857150		31.4	27.0	26.0	32.2
Modoc RSA LP	10/90	57015		-15.0	-24.4	-19.2	-6.2
Napa Cellular	4/88	451186		7.4	19.5	32.7	32.5
PacTel Cellular	8/85	2498016	33.0	32.9	23.9	21.4	30.4
Redding Cellular	3/89	237734					3.1
Sacramento Cellular	10/87	1477750	-2.9	21.4	22.1	22.2	17.4
Sacramento Valley LP	7/85	2836582	17.6	10.1	2.8	0.8	6.4
Salinas Cellular	3/89	355660		-21.6	-8.3	5.2	7.2
Santa Barbara Cellular	12/87	369608	-39.4	-10.4	-9.7	5.0	10.5
Santa Cruz	1/89	229734			-2.7	9.5	14.0
US West Cellular	4/86	2498016	5.2	9.0	-4.3	-7.4	2.9
Ventura Cellular	7/87	669016		39.3	27.1	21.5	24.5
Weighted Sum			34.4	33.2	28.7	26.7	30.2

Weighted sum is by gross investment and includes estimates for missing markets. See Appendix 71.

Source: Cellular Communications Licensees (Wholesalers) Annual Reports to the Public Utilities Commission, State of California for the Years 1989, 1990, 1993; California Petition at Appendices G and H.

Table 2***14 Carrier Monthly Price Indices**

Year	1990	1991	1992	1993
Best Price				
60	\$63.03	\$63.03	\$62.95	\$58.48
120	\$85.09	\$84.95	\$84.87	\$76.93
480	\$219.42	\$218.05	\$216.76	\$191.06

Table 3***11 Carrier Monthly Price Indices**

Year	1989	1990	1991	1992	1993
Best Price					
60	\$64.72	\$63.12	\$63.12	\$63.10	\$58.60
120	\$87.89	\$85.19	\$85.06	\$85.04	\$77.05
480	\$226.64	\$219.67	\$218.29	\$217.17	\$191.31

Table 4***14 Carrier Annual Operating Expense Indices**

Year	1990	1991	1992	1993
Annual Per Subscriber Operating Expense	\$701.53	\$699.51	\$662.11	\$589.63

Table 5*
11 Carrier Annual Operating Expense Indices

Year	1989	1990	1991	1992	1993
Annual Per Subscriber Operating Expense	\$685.43	\$669.79	\$680.01	\$654.76	\$586.10

*Source: California Petition at Appendices H and J. Averages are weighted by number of subscribers in 1991. Prices assume 80% of minutes are peak-use minutes.

**Table 6
Los Angeles Prices**

	Single User			Best Volume Discount Price		
	60 minutes	120 minutes	480 minutes	60 minutes	120 minutes	480 minutes
12/31/93	69.84	85.08	201.60	56.86	75.96	198.72
12/31/94	56.39	85.08	201.60	56.86	75.96	198.72
2/28/95	56.39	84.03	200.72	49.49	69.98	185.90

The technique used to develop this table is similar to that those used by the State of California and the carriers. These are best available prices for a new user on the given day. The best price is not necessarily the same for both carriers. The price shown is the best available from some carrier for a new customer. This table shows that prices have fallen since the data proved by California. For example, the best price for 60 minutes fell 19% between 12/31/93 and 12/31/94. This was due to a new rate plan, plus a temporary promotional plan available for the first few months the new plan was made available. Only one of the carriers had that promotion in effect on 2/28/95.

Sources: CPUC Petition at Appendix J; AirTouch *ex parte* (3/17/95); BellSouth *ex parte* (3/23/95).

Table 7
Hazlett's Estimates of q ratios for Cellular Telephone Markets

Market Size	Replacement Cost of All Tangible Assets (per pop)	Average Sales Prices (per pop)	q ratios
Small	\$19.67	\$131.46	6.68
Medium	13.59	168.62	12.41
Large	18.57	250.98	13.52

Source: Thomas W. Hazlett, "Market Power in the Cellular Telephone Duopoly," Report prepared for Time Warner Telecommunications, (1993) at 14.

**Table 8
Gross Plant and Equipment**

Company	1989 Average Gross Plant	1993 Average Gross Plant	% Change
Bay Area Cellular Telephone Company	\$60,944,400	\$167,085,340	274.16 %
Contel Cellular (RSA # 7)	\$843,876*	\$2,033,262	240.94 %**
Fresno Cellular Telephone	\$7,611,804	\$36,202,848	475.61 %
Fresno MSA LP	\$29,210,172*	\$59,878,844	204.99 %**
GTE Mobilnet of California	\$71,249,619	\$223,211,160	313.28 %
GTE Mobilnet of Santa Barbara	\$4,987,380	\$23,510,773	471.41 %
Los Angeles Cellular Telephone Company	\$103,256,492	\$356,808,969	345.56 %
Los Angeles SMSA LP	\$155,537,562	\$436,892,736	280.89 %
Modoc RSA LP	\$222,496*	\$406,134	182.54 %**
PacTel Cellular Corp.	\$25,171,848	\$74,410,848	295.61 %
Sacramento Cellular Telephone	\$17,783,992	\$75,240,207	423.08 %
Sacramento Valley LP	\$24,503,636	\$86,134,277	351.52 %
Santa Barbara Cellular	\$4,558,632	\$15,010,065	329.27 %
US West Cellular	\$20,500,963	\$62,091,140	302.87 %

*1990 Average Plant and Equipment.

**Percentage change between 1990 and 1993.

Source: Cellular Communications Licensees (Wholesalers) Annual Reports to the Public Utilities Commission, State of California, for the Years 1989, 1990, 1993.