PCS using existing infrastructure especially at low levels of market penetration during early deployment.

MCI raises the concern that while existing cellular carriers possess the requisite market power and institutional relationships to assure access to interconnection on acceptable terms and conditions, the overwhelming majority of new mobile telecommunication service (MTS) providers possess no such advantages. CRA believes that the greatest obstacle to the build out of a new PCS system may well be the landline backhauls from the cell sites, particularly as PCS requires at least three times the number of cells for the same geographic coverage as cellular service. Without unbundling and interconnection, CRA contends that the new PCS and ESMR entrants will be severely hampered in constructing their systems.

CRA questions the theory that duopolists compete against each other, citing as an impediment the interlocking ownership relationships that pervade the duopoly market structure throughout California. Four large cellular firms affiliated with former Bell System companies and local exchange giant, GTE, collectively have formed interlocking alliances through which they compete against each other in some markets and are joint partners in others. A total of 16 MSAs are affected by interlocking ownership. For example, AT&T/McCaw Cellular Communications, Incorporated (McCaw) controls Sacramento Cellular Company which ostensibly competes with Airtouch (formerly PacTel) which controls Sacramento Valley Limited Partnership. Yet, in the San Francisco Bay Area, McCaw and and Airtouch are joint partners of Bay Area Cellular Telephone Company.

b. <u>Discussion</u>

By this decision, we conclude that in light of the current state of the mobile service industry competitiveness, facilities-based cellular licensees remain dominant. We acknowlege cellular carriers argument that, by definition, cellular

carriers do not form a monopolistic bottleneck since there are two firms--not one--in each MSA. But the carriers essentially are engaging in an argument over semantics. Technically, the bottleneck is duopolistic, not monopolistic. The presence of two carriers instead of only one may serve to mitigate, but does not eliminate, the existence of a bottleneck. The evidence of market power resulting from duopolists' control of the bottleneck in the form of uncompetitive prices and excessive profits is discussed below.

We believe the pattern of interlocking ownership among major carriers provides further evidence of their lack of price competition. As noted in the OII, these arrangements might result in the sharing of pricing information in joint marketing efforts or they might blunt incentives to compete.

Other evidence of cellular carriers' market dominance is seen in the relatively small and diminishing market share of resellers compared to cellular carriers. While resellers were originally expected to enhance competition at the retail level, resellers' market share has been dwindling in the major markets in California where they had earlier made some progress at the retail level early in the late 1980s. Resellers' loss of market share is caused by several factors, including their inability to control the majority of their costs which are determined by the duopolists who control the bottleneck facilities. By keeping wholesale rates high, the duopolists make it more difficult for resellers to earn a sufficient margin to compete for business with the duopolists. The margin spread between wholesale and retail rates in the major MSAs are set forth in Appendix 3.

In the Los Angeles (L.A.) and the San Francisco Bay Area (S.F.) MSAs, the two busiest MSAs, resellers' market share has on the average declined to half of its level five years ago. At the end of 1993, resellers in the two markets combined had a little less than 20% market share, down from 35% in 1989. Resellers lost

market share at the rate of 4% each year while the cellular carriers garnered greater shares of the market.

The Los Angeles market has become more concentrated in 1993 than in 1989. In 1989, the duopolies controlled 64.6% of the cellular market. In 1991, their control increased to 76.6% and by 1993, to 86.3%. In the San Francisco MSA, the two duopolies controlled 60.6% of the market in 1989. In 1991, their control increased to 66.8%, and by 1993, to 75.3%. In the San Diego MSA, the market share of the duopolies increased from 87.3% in 1989 to 93.5% in 1993.

In response to parties' comments as to the appropriateness of our measure of control of spectrum in classifying carriers as dominant, we agree that such a measure may not be as meaningful once alternative ESMR and PCS providers become prevalent in the marketplace. For the present, however, we do not believe such alternative providers possess sufficient market power to effectively challenge cellular carriers, as discussed in Section IV.C.2. We also agree with DRA that the amount of spectrum held by a given competitor is not as relevant as the government protection against competitive entry afforded by licensing restrictions.

Consistent with the comments of various parties, we recognize that the specific proportion of the cellular bandwidth or mobile service bandwidth controlled by a given carrier is not, of itself, a definitive criteria for distinguishing dominant from nondominant providers. As such, we will subsequently consider additional criteria as a basis for reclassification to nondominant status in a separate phase of this proceeding. We may consider further revising our definition of market dominance once we determine that alternative wireless providers have begun to make meaningful inroads as a competitive challenge to cellular.

Based upon our consideration of the various measures of market power as considered in the following sections of this interim order, however, we conclude that cellular carriers clearly

qualify as dominant within our definition as used in Appendix B of the OII.

Because of the presence of bottleneck facilities, we conclude that it is essential that interconnection arrangements with landline Local Exchange Carrier (LEC) networks be instituted for all providers of wireless service to promote a competitive market. Our conclusion is consistent with FCC's findings as expressed in its recent Second Report and Order on regulation of wireless services. Therein, the FCC recognized that:

> "We believe that commercial mobile radio service interconnection with the public switched network will be an essential component in the successful establishment and growth of CMRS offering... From a competitive perspective, the LEC's provision of interconnection to CMRS licensees at reasonable rates, and on reasonable terms and conditions, will ensure that commercial mobile radio service affiliates do not receive any unfair competitive advantage over other providers in the CMRS marketplace." (P. 89.)

We discuss in Section V our adopted interim procedures to promote interconnection of facilities.

2. Potential for Market Substitutes Other than Cellular Service

In terms of significant substitutes for cellular, the real candidates are newly emerging telecommunications services such as PCS and ESMR. The FCC defines PCS "as a family of mobile or portable radio communications services that could provide services to individuals or business and be integrated with a variety of competing networks." ESMR enhances the traditional functions of the dispatch-type specialized mobile radio services. ESMR employs existing spectrum allocations to provide cellular or cellular-like services in radio frequencies in the 800-900 Mhz band.

Parties were in significant dispute over the likely timetable for commercial deployment of PCS. Cellular carriers

believe that PCS technologies will be developed rapidly to become a viable competitor with cellular carriers.

The cellular carriers point to newly emerging competitors such as Nextel which will offer ESMR service and PCS providers as evidence that cellular carriers can no longer be viewed as duopolists--even assuming this was a correct label before. As such, the cellular carriers contend that the impending entry of PCS and ESMR providers will effectively put an end to the alleged duopoly bottleneck since the new providers will control separate facilities and spectrum. The FCC's broadband PCS licensing order requires licensees to "offer service to one-third of the population in each market area within five years, two-thirds within seven years, and 90% within 10 years of being licensed. The FCC plans to auction 2500 broadband and 5000 narrowband PCS licenses, with between three and seven licensees per territory. The FCC has awarded a "Pioneer's Preference" license to Cox Enterprises, Inc. (Cox) for 30 MHz of PCS spectrum in southern California and Nevada, with a 20 million population.

According to resellers and DRA, PCS providers will not be able to pose a viable competitive threat to cellular carriers for five or more years because of various hurdles that PCS providers must first overcome. First is the completion of the bidding process for broadband PCS which will likely be delayed until late summer or early fall. The delay is due to more than 60 petitions filed with the FCC and the need to "work out the bugs" in the auction process in the narrowband before moving on to the broadband licensing. Another problem is spectrum congestion. The 2 GHz frequencies allocated for PCS are currently used by microwave systems. PCS users must pay the cost of negotiating with incumbent microwave users to relocate to other frequency bands. The FCC's Office of Engineering and Technology estimates a nationwide cost of $2.7 billion for moving microwave users.

There is also uncertainty over the selection of PCS technology and the timing of its deployment. PCS infrastructure investment is projected to cost $15-45 billion compared with $9 billion already invested in cellular. Also, the PCS technology is untested. Industry debate continues over the preferred technology. After a technology is chosen, it will take at least a year to test and develop the PCS network. PCS providers will then have to design their systems so they can apply for construction permits. Equipment must then be procured, but present manufacturing capabilities for PCS equipment are very limited. The Personal Communication Industry estimates that PCS will only have a 3.1% penetration of the market by 1998. The FCC has proposed to require PCS licensees to offer service only to one-third of the population in a market within the first five years of the license.

Moreover, the propagation characteristics and penetration capabilities of the 2 GHz bands assigned to PCS are inferior to the 800 MHz band where cellular operates. PCS requires more cell cites and landline backhauls which increases the PCS cost relative to cellular.

MCI notes the recent pronouncements by the FCC indicating that further probable delay will occur in the potential roll-out of PCS services. FCC officials have recently indicated that major auctions for awarding PCS licenses will not take place until late 1994 or early 1995. The FCC has delayed its final consideration of specific arrangements to govern the PCS auction process such as terms under which companies may bid for a nationwide collection of frequencies.[5]

Respondents also offered comments as to the impact of PCS and ESMR market entry on mitigating the market share concentration

5 "FCC Discloses Rules on Auction of Airwaves" New York Times, March 9, 1994, p. D-2.

presently held by cellular providers. Under the DOJ Guidelines, market concentration is frequently measured using the Herfindahl-Hirschmann Index (HHI). The DOJ Merger Guidelines indicate that HHI values falling between 1000 and 1800 reflect a moderately concentrated market.[6]

In their comments, CCAC presented a study of HHI market share concentration prepared by Charles River Associates based upon values under four market configuration assumptions (reference: Tables K-N of CCAC Comments). These four scenarios assumed: (1) Two cellular and seven PCS providers; (2) two cellular, seven PCS and one Specialized Mobile Radio (SMR) providers; (3) two cellular carriers with PCS licenses and five PCS providers; and (4) two cellular carriers with PCS licenses, five PCS providers and one SMR provider. The Charles River Study found only moderate concentration in a range between 1220 to 1626 among the four scenarios.

DRA disputes the validity of the Charles River HHI values which assume the market will divide according to spectrum allocations and which fail to reflect the current market share of existing carriers or the service limitations of the competing technologies. CRA computes revised HHI values using the January 1994 forecast of market shares of the Personal Communications Industry Association (PCIA). According to the PCIA forecast, PCS will have only a 3.1% market penetration by 1998 compared with a 12% penetration for cellular. Even by 2003, while PCS is predicted to have a 10.4% market penetration, cellular is expected to have grown to 17.4%.

6 The HHI equals the sum of the square of the market shares of the respective competitors in a given market.

For purposes of computing HHI indices, CRA assumes two hypothetical market scenarios: (1) maximum market concentration allowed by the FCC occurs (40 MHz per competitor), and only one satellite and one ESMR competitor exist; and (2) minimum concentration occurs in which the PCS licenses are as distributed as possible under FCC spectrum allocation rules, with three ESMR competitors. The market shares for the respective PCS competitors are distributed according to the spectrum allocations authorized by the FCC. The market shares for the other technologies are distributed evenly among the assumed competitors. With these assumptions applied to the PCIA market penetration forecasts, CRA computes the following HHI forecasts:

Scenario	1998 Forecast HHI	2003 Forecast HHI
Max. Concentration	2771	2160
Min. Concentration	2463	1704

CRA notes that under the DOJ Merger Guidelines, HHIs over 1800 are considered to reflect "highly concentrated" markets, and that any merger that increases an HHI in this range by more than 100 points is likely to create or enhance the market power of the competitors. CRA's HHIs fall well above the "highly concentrated" floor. By 1998, the cellular carriers are expected to retain control over 68.7% of the total mobile telephone market. CRA concludes that such market power will permit cellular carriers to remain dominant price leaders. Thus, according to CRA, even to the extent the technical, institutional, and regulatory hurdles confronting the emerging PCS/ESMR industry can be somewhat overcome, the mobile telephone market will continue to be highly concentrated, with two cellular duopoly carriers maintaining a dominant position for at least five years.

Discussion

The question of whether the newly emerging technologies can presently be considered as viable competition for cellular

depends on the speed with which these technologies are expected to become commercial on a broad scale, as we review below. We agree that alternative technologies such as PCS and ESMR have the potential to ultimately become close substitutes for a large number of cellular customers on a widely available basis in the future. Such widespread substitutabilty is not currently a reality, however. We conclude that, at present, alternative wireless technologies must overcome the various impediments enumerated above before they can constitute viable substitutes for cellular service. As such, it is premature to expand the definition of today's cellular market to include these new technologies, except as marginal influences in certain limited areas. While we believe it is only a matter of time before these new providers overcome market obstacles to become viable competitors, it would be irresponsible to abdicate our regulatory oversight before those competitive forces are in place. We consider below the various constraints leading us to this conclusion.

As noted above, one of the emerging contenders in the wireless communications market is PCS. The FCC has recently opened up the potential entry of this market through allocation of 160 MHz of radio spectrum for PCS, subdivided into 120 MHz of licensed spectrum and 40 MHz of unlicensed spectrum. The FCC established eligibility for PSC spectrum allocation through a bidding auction that was originally to begin in May 1994 for narrowband PCS. As noted by GTE, it was intended initially that PCS systems would have no call-receiving capability and limited ability to handle movement across cell sites during a call. As now contemplated, at least some digital PCS systems will have these capabilities and thus be fully competitive with cellular.

The geographic extent of a typical mobile service market will likely expand in the future as new technologies are licensed and begin competing with cellular service. The FCC has designated much broader service territory boundaries for PCS providers

relative to cellular providers, using Rand McNally "Major Trade Areas" (MTAs) as market boundaries.

Another constraint involves the ability of alternative providers to shift their resources from one use to another to supply service in competition with another provider.

At present, only one firm within California, Nextel, is positioned to begin to offer ESMR service beginning this year. On February 13, 1991, the FCC authorized Nextel to construct and operate ESMR systems in major US cities. Nextel began testing ESMR service in Los Angeles in August 1993 and now operates a Digital Mobile Network covering about 18,000 square miles in Los Angeles. Nextel anticipates completing its testing in the second quarter of 1994. Nextel has acquired 2500 SMR radio frequencies from Motorola. MCI has recently invested $1.3 billion in Nextel. Nextel expects to eventually compete with existing wireless services, including cellular licensees. Presently, there are only 500 ESMR California subscribers, all in the LA area. Thus, at the present time, ESMR is a viable market alternative to cellular service only for a limited number of customers in the LA area. In other MSAs outside of LA, ESMR is not even available. With consolidation of ESMR licenses, firms can acquire sufficient bandwidth to offer new services and compete in larger markets in the future. As stated by Fresno MSA, Nextel is positioning itself to become a one-stop provider for all-around communications, integrating cellular, paging, voicemail, textmessaging, and two-way radio into one piece of equipment. Fresno also notes that since Nextel is not subject to an FCC-mandated build-out requirement, it can concentrate on the more lucrative high usage areas initially and widen its coverage later. This provides Nextel a competitive advantage that was not available in the initial phases of the cellular industry.

As noted by Cellular Services, Inc. (CSI), ESMR providers are presently using their existing spectrum licenses for dispatch

and paging services. While digital technology enhances the utilization of the spectrum, it does not guarantee a major expansion of competition for cellular. Nextel's substantial construction costs will constrain it from offering rates that exert competitive pressure on cellular carriers.

As noted in the OII, until SMR providers are actually operational, the extent of direct competition to existing entrenched cellular providers who enjoy the use of substantial bandwidth in comparison to SMRs is unknown. In this OII, however, we consider the impact of their presence or potential entry on traditional wholesale cellular service prices. We also consider whether the arrival of effective competition will be expedited with regulatory safeguards geared at encouraging the development of a competitive market.

We also note that the FCC, itself, has recently concluded that current ESMR, SMR and potential PCS licensees possess no market power with which to impede competition for some time, because of cost and marketing constraints. (FCC Order, pp. 58-60.)

Even as ESMR and PCS providers progressively penetrate the mobile telecommunications markets within California, the industry estimates indicate that market share will remain concentrated in the hands of cellular carriers at least for the next few years. The high HHI market concentration estimates for cellular carriers computed by CRA support this view. We find CRA's HHI values, which are based upon actual industry estimates, more reliable than those of CCAC, which assume merely that the market share is allocated in proportion to the amount of spectrum held.

In summary, we conclude that cellular carriers are likely to retain significant market concentration for at least the next few years, particularly given PCIA industry forecasts of limited market penetration by PCS and SMR providers, as noted above. Given the limited availability and substitutability of alternatives to cellular during at least the near term, we must view the

cellular carriers as operating largely free of competitive challenges within the current mobile services industry. As stated above, under FCC licensing rules, only two facilities-based carriers may conduct business in any designated MSA. This market-entry restriction creates a duopoly market with respect to the cellular wholesale industry. Accordingly, an analysis of market concentration and availability of substitutes supports the conclusion that cellular carriers are not subject to significant competition in the majority of market sectors served at the present nor will they be in the near future.

3. Cellular Prices as Evidence of Market Competitiveness

A primary inquiry of this OII is whether cellular prices are unjust, unreasonable, or discriminatory, reflecting concentration of market power and lack of competitiveness. Respondents dispute whether cellular rates are uncompetitive and what inferences to draw from cellular price data as an indicator of competitive behavior.

As a basis for evaluating cellular pricing data, we are primarily interested in wholesale prices. It is primarily at the wholesale level where market power is concentrated in the hands of just two facilities-based duopolists, and where the potential to extract rents above competitive levels is most acute. In our analysis of prices, we also recognize the proliferation in recent years of various promotional contract plans which purport to offer savings to certain targeted customer segments. These plans usually require eligible customers to meet various restrictions and conditions as contrasted with traditional "basic service" which may entail a higher nominal rate but which do not impose the restrictions of the discounted plans.

a. Positions of Parties

Parties representing consumer groups, resellers, and alternative providers argue that cellular rates are too high, and

do not reflect a competitive market. They point to the fact that the rates for basic service charged by duopolists in major California metropolitan markets are identical and have remained unchanged for years while the cost of cellular equipment components has declined significantly. CSI presents a study of the National Cellular Resellers' Association dated January 24, 1994 which ranks cellular service prices in the 30 largest U.S. markets and compares 1988 versus 1994 prices in each market, based on the best rates available for 30 minutes of monthly airtime. The National Cellular Resellers Association (NCRA) study shows that the LA market was the second highest-priced cellular market in the nation, and that rates had not changed since 1988. The San Francisco market was the seventh most expensive, although the reported rates had been reduced about 20% since 1988.

As noted in testimony of DRA before the Senate Committee on Energy and Public Utilities (January 1993), basic cellular service rates in the two largest markets in California were identical between each set of duopolists and were also among the highest in the country based on a comparison with 8 other major cellular markets. (See Appendix 2.)

Nationwide Cellular (a reseller) provided the research study of economist Thomas Hazlett which concluded that cellular duopolists do not set competitive prices. As explained by Dr. Hazlett, traditional economic theory underlying duopoly pricing holds that when only two firms compete, prices will fall somewhere between the extremes of monopoly rents on the high side and full competition on the low side. While duopolists could jointly maximize profits at a monopoly price level, each has an incentive to slightly undercut the other firm and to garner a larger market share. According to Dr. Hazlett, both firms iteratively react to each other's attempts to gain market share by reducing prices. Finally, in equilibrium, both firms set identical levels of prices with no tendency to change. With only two firms competing, this

equilibrium price is reached at a level in excess of the duopolists' marginal cost. This price point is known as a "Cournot equilibrium." Under these assumptions, as additional firms are allowed to enter the market, new competitive pressures will force prices downward until prices just cover marginal costs. Finally, competitive prices result in equilibrium.

In response to an ALJ ruling dated April 11, 1994, Nationwide supplemented its filing with an additional paper authored by John Haring and Charles Jackson (Haring and Jackson), which disputed the findings of Hazlett. In their critique of Hazlett, Haring and Jackson dismiss Hazlett's recitation of duopoly pricing theory as having no basis in fact. They cite a contrary academic opinion that there is no definitive pricing theory that can determine whether empirical pricing data reflects competitive conditions or not. They argue that the variant of the Cournot model put forward by Hazlett is generally held in low regard by economists because it is purely a mechanical construct and has no grounding in economic behavior by individual agents.

Others, such as GTE Mobilnet, argue that economic theory supports the conclusion that the cellular marketplace will be competitive even with only two participants. While earlier economic models assumed that duopolists would hold prices constant and control output to maximize profit, subsequent theory assumes that a cellular duopolist would adjust price rather than output to maximize profit, according to GTE. Moreover, GTE argues that cellular providers are motivated to maximize the amount of traffic on their systems in order to maximize revenue. The theory underlying later economic models holds that providers will eventually drop prices to marginal cost because demand for cellular is elastic at lower price levels. The cellular carrier thus presumably has an incentive to expand output (through cell-site sectoring, construction of additional cell sites, and digital conversion) in order to expand its revenue base.

Cellular carriers also argue it is a misconception that cellular prices have not fallen. While rates for traditional "standard" or "basic" service have not been reduced in some of the largest markets, the carriers contend that most subscribers now receive service under non-standard discounted rate plans. Cellular carriers assert these additional service plan options increase consumer choice and result from competition. Moreover, cellular carriers contend that they compete on the basis of service quality as well as price, and that customer satisfaction is an important measure of the success of competition.

Various cellular carriers presented price data in their filed comments intended to show that prices have declined in real terms over time. A consolidated study of cellular prices of various carriers was offered by CCAC. CCAC's study covered the years 1990-93 and segmented customer usage into three typical calling volume levels examined separately for large, medium and small markets in California. The study compares the average cost per minute of service over time based upon the lowest effective rate available at a given number of minutes of usage. CCAC claims rate decreases between 1990-93 as follows:

Market size	Rate Decrease
Large	18.5%-20.8%
Medium	24.3%-30.2%
Small	12.3%-17.2%

CCAC notes that over time a steadily increasing number of customers have continued to move to discounted rate plans from relatively higher basic service. CCAC attributes this downward trend to existing competition in the cellular industry and argues that strict rate regulation will not improve this trend. CCAC also provides a comparison of the rates charged by competing carriers in a number of major California markets (Table A-Reply Comments) to argue that competitors do not charge equivalent prices except in LA, and then only for basic service.

GTE likewise argues that focus on basic rate plan charges biases any assessment of price competition among cellular providers not only because of the proliferation of special discount plans, but because service quality improvements have been substantial.

LACTC presented price data showing reductions in retail prices as well in wholesale prices charged resellers. Bay Area Cellular Telephone Company (BACTC) states that average revenue per subscriber has declined 30% since 1990, with only a slight reduction in the price per minute of usage. Between 1990 and 1993, the number of alternative service plans offered by BACTC has increased from two to 15 while the percentage of customers under its Basic Plan has declined from 79% to 41%.

US West reports that since 1988, its average airtime rates for wholesale customers have declined 19.5% and for retail customers have declined 8.9%. Its average retail access charge has declined 0.8% since 1988 while its average wholesale access charge has declined 39%. Basic service charges have also declined since 1990 by 12% for retail and 8.23% for wholesale customers, typically. US West emphasizes that the greatest decreases have occurred on the wholesale side--the area about which the Commission has expressed the greatest concern.

Other parties such as DRA and CRA challenge the significance of such alleged savings. Even if the calculations are valid, DRA/CRA point out that not all retail customers receive service under the most optimal billing plan. The study fails to address the comparison of rates under undiscounted basic service plans. Moreover, the CCAC study focuses solely on retail prices while ignoring wholesale price comparisons. According to CRA, wholesale prices have not been reduced, thus indicating an absence of wholesale competition.

Parties expressed divergent views on the question of whether rate regulation has been part of the problem or part of the solution when it comes to high cellular rates. To the extent cellular prices have not dropped as rapidly as they would in a

fully competitive market, the cellular carriers argue that it is regulation--not an uncompetitive marketplace--that has been to blame.

The comments of GTE are typical of the carriers' view that our existing regulatory structure does little or nothing to promote competition. GTE believes the only way that rate regulation can promote competition is by restraining a firm with market power from driving its competitors out of business by artificially depressing its prices. Yet, the existing regulatory structure was not designed to protect against artificially low prices in GTE's view. GTE complains that current regulatory constraints on what a carrier can offer its customers has served to chill competition. In GTE's view, to the extent the Commission maintains tariff rules requiring advance notice of new service offerings and promotions, disincentives to innovation and competition result.

GTE also contends that the need for regulatory oversight in California is no different than in other states. In other states, GTE notes that the trend has been to reduce regulatory oversight, not increase it. Only 11 states require that retail and wholesale tariffs be on file at the regulatory agency.

McCaw previously compared representative rates of California cellular carriers with those of carriers in other states which are not regulated in testimony at a State Senate Committee hearing on cellular rates. McCaw reported that cellular bills of subscribers in unregulated states were 10%-50% lower than cellular bills in the Los Angeles/San Francisco areas.

Regarding the McCaw study comparing rates of cellular carriers in unregulated states with those in California, DRA did its own separate analysis and offered contrary findings to the State Senate Committee. DRA concluded there was no clear link between a state's rates and its level of regulation. DRA found that although the Sacramento market was subject to the same regulation as that of Los Angeles/San Francisco, its rates were considerably lower than other unregulated markets.

A separate 1992 GAO study surveyed cellular retail price data from 1985-1991 in the 30 largest U.S. retail markets. The GAO study found that, on average, cellular prices in the four largest California cellular markets were about 31% above those of other U.S. markets. Moreover, the average price difference varied by no more than about 3% between the two carriers in these markets.

LACTC reviews its own history of advice letter filings for rate reductions as a case in point of its sensitivity to regulatory restraints. During the initial period of cellular rate regulation prior to D.90-06-025, LA Cellular filed an average of about four rate reductions or promotions per year. Between D.90-06-025 and D.93-04-058, LA Cellular filed about 20 such advice letters per year. Once D.93-04-058 introduced Rateband Guidelines allowing rate reductions to become effective immediately, LA Cellular has filed the equivalent of 41 advice letters on an annualized basis. LA Cellular infers that cellular rates should fall even more if the remaining procedural barriers to rate reductions are removed.

b. **Discussion**

While we agree that observation of prices in isolation does not prove conclusively whether or not a firm or industry is competitive, such price data is a relevant criterion of market power when viewed in conjuction with other indicators. Based upon our review of cellular price patterns as compiled in connection with this OII, we conclude that cellular prices still remain higher than would be expected in a fully competitive market, notwithstanding cellular carriers' claims to the contrary. Our conclusion is consistent with the 1992 study of the cellular industry conducted by the US General Accounting Office which found that: "A market with only two producers--a duopoly market--is unlikely to have a competitively set price that is at or near the cost of producing the good." The GAO observed that many economists believe anticompetitive behavior is more likely to occur in industries with barriers to entry, such as cellular.

In interpreting price comparisons, we recognize that a variety of factors contribute to the comparatively higher rates, particularly in major metropolitan California cellular markets. As noted by DRA, those factors include high demand for cellular services, greater disposable income in the areas with the highest rates, greater population density, and a highly mobile population.[7] We agree with DRA that in addition to these factors, the lack of competition is a significant factor in explaining the high rates. In addition, most duopolists' prices for their basic service are very close to each other if not identical. The similar price levels of duopoly carriers for basic service raise questions as to price competitiveness. The tendency of duopolists to price their services equal or close to each other is corroborated by the 1992 GAO study of cellular prices. The study analyzed prices from 1985 to 1991 in the top 30 US cellular markets, based upon the best available price for 150 minutes of usage. The study found that duopolists set their best prices within 10% of each other in two-thirds of the markets.

Granted, we observed in D.90-06-025 that: "[i]n a fully competitive market, the prices of individual firms track closely and may even be identical." (P. 49.) Yet, while similar prices may be observed in competitive markets, we cannot assume that similar prices always indicate a competitive market. Particularly, in an industry with restricted entry, high demand, and declining equipment costs such as cellular, similarity of prices between two duopolists raise questions. For example, why haven't rates been bid down if, in fact, costs have dropped and competition exists? In California, the original rates -- largely basic rates for most carriers -- were set on what the market could bear at the time; that essentially meant rates were based on carriers' own projections. Rate of return and the actual cost of

7 See DRA letter to Senator Hershel Rosenthal as included in Attachment C of DRA Opening Comments.

providing cellular service were not seriously considered. The basic rates have been largely untouched since then. In the interests of maximizing profits, carriers had the incentive to set high initial basic prices. Because the cellular market was relatively new at the time we adopted a hands-off approach to regulating their rates, hoping the rates would come down in due time as economies of scale occurred and the cost of doing business declined (due to declining equipment prices and so on). In fact, as noted in the comments of CSI, while basic service charges have remained basically flat, the average cost of a cellular telephone has dropped from about $2,400 in 1983 to about $200 today, which equates to a monthly cellular cost drop from $79 to $7.[8] In terms of the total capital investment per cellular subscriber, the average industry cost of $1,816 in June 1988 dropped to only $978 by June 1993.[9] We find the disparity between declining costs versus flat prices for basic cellular service to be further evidence of an uncompetitive market.

Prior to this current investigation, we recognized that cellular rates within California were too high. In our investigation of the cellular industry in I.88-11-040, we intended to adopt measures as prescribed in D.92-10-026 in response to concerns over excessive rates (although we subsequently stayed those measures pending the outcome of this proceeding). Concern over high, uncompetitive cellular rates led the California Senate Committee on Energy and Public Utilities to hold a legislative hearing on January 12, 1993 on how the cellular industry should be regulated. On March 25, 1993, President Fessler stated in an Assigned Commissioner Ruling: "Cellular subscribers in California

8 The Cellular Service Industry: Performance and Competition, Charles River Associations, January 1993, as cited in Opening Comments of Cellular Service, Inc.

9 CTIA Mid-Year Data Survey, October 12, 1993 as cited in Attachment 3 footnote 4 of the CSI Opening Comments.

suffer the dubious distinction of paying among the highest rates in the nation. This situation is intolerable and must be changed." The price comparison studies of NCRA and DRA show that the high rates still have not come down for basic service in at least the Los Angeles and San Francisco markets (see Appendices 1 and 2).

Both proponents and opponents of regulation agree that cellular rates in major California markets have been higher than rates in major markets in other states. The dispute lies over the cause of the higher rates. Cellular carriers blame California regulation for the high rates while consumer groups and resellers view the high rates as evidence of market power and lack of competition among cellular carriers. Moreover, while cellular carriers blame regulation in defense of allegations that rates are too high, they take credit for any reduced rates achieved through various discount rate plans as evidence that competition is working. We reject carriers' claim that regulation--rather than duopoly market power--is to blame for cellular rates being higher in the largest California MSAs compared with other states. Carriers fail to explain why certain other MSAs and RSAs subject to the same regulation in California also exhibit lower rates than other markets outside of California. We previously addressed this claim in D.93-04-058 in reviewing cellular carriers' lack of willingness to reduce prices since the issuance of D.90-06-025, stating:

> "Three years later virtually none of the Commission's expectations [of reducing cellular prices] have been met by industry performance. While many urge that the fatal flaw is the expectation that duopolists will engage in meaningful competition, the industry has a different explanation as to why basic cellular rates in all segments of the California market have remained at their historic high levels. It is all the Commission's fault!...Because of a fear that once a price was lowered, the Commission would obstruct a movement back to the old level." (P. 4.)

Accordingly, we put this claim to the test by adopting rate band price guidelines in D.93-04-058 which gave carriers that lower their prices the flexibility to raise rates to previous levels on one day's notice without any required showing. Existing rate levels were to serve as a cap absent a justification for increases. With this added rate flexibility in place, we observed that it would quickly be known whether cellular duopolists would, in fact, lower their rates. Our review in this Investigation fails to show that carriers have in fact significantly lowered rates for customers as a whole in response to the Rate Band Guidelines.

In April 1994, we issued D.94-04-043 which further relaxed and simplified the rate regulatory requirements for cellular carriers. That decision removed the 10% maximum reduction for temporary tariffs so the rates could be dropped to any level on one day's notice. The decision also allowed the utilities to provide provisional tariffs (new service plans with termination dates) and to withdraw optional plans without CPUC approval, assuming proper customer notice requirements are met. The decision also allowed automatically renewable contract services which had violated CPUC rules and policies to remain, providing certain changes were made in the tariffs. These changes included proration of termination penalties over the life of the first-year contract, elimination of the termination penalty after one year, maximum three-year contracts, customer signatures on contracts with penalties, and customer notice prior to contract renewal.

While our rateband price guidelines have led to some lower prices, the carriers' statistics exaggerated the extent to which prices have been lowered. As noted in the reply comments of CSI, for example, while Airtouch claims that prices were cut by a variety of carriers in 15 separate advice letters under the Rate Band Guidelines, only two remained in effect at the time of the OII

comments, and one was due to expire March 24, 1994. Of the 31 tariff filings cited by LACTC in its comments, only five actually reduced rates. Of 21 LACTC advice letters filed under temporary tariff authority, only five involved rate reductions and only of a temporary nature. US West's example of the Wholesale two-year contract involves a cash-back program which is the subject of a Utility Consumers Action Network complaint of unfair business practices now pending before the Commission. All of the plans require long-term commitments enforced by high termination penalties for changing service.

Moreover, even though the cellular rates of major California carriers remain among the most expensive in the nation, as indicated by the NCRA study, at least they have not significantly increased their rates. By comparison, the NCRA study shows a 32% average increase in cellular rates among the 30 largest carriers between 1988-94. We believe that the presence of regulation in California served as a restraint on carriers' tendency to raise rates when compared with carriers in other states which do not regulate carriers.

Moreover, even if it were assumed that discount rate plans may have lowered certain targeted customers' cellular phone bills, such purported savings do not, in themselves, signify competition. A price discount plan may simply be a response to a perceived change in consumer demand patterns, technological changes, or reduced marginal costs, having little or nothing to do with responses to competitors. In fact, growing use of discounted rate plans is coinciding with declining per-customer demand among new cellular customers. Thus, cellular carriers rates appear to be bumping up against cellular customers who will only use the service more if rates are lowered. During the earlier years prior to such widespread use of the discounted rates plans when the cellular market attracted business customers with relatively inelastic

demand and high usage, high cellular rates were more readily tolerated by subscribers.

Moreover, it is questionable as to how much discount plans really lower overall costs of service in any event. For example, if competition was really driving rates downward, why haven't basic service rates dropped appreciably? It is wrong simply to treat the price difference between the discount plans and basic service rates as "savings." It is an apples/oranges comparison which ignores differences in the terms and restrictions among the different billing plans relative to basic service. The proper comparison of cellular rates is between the total package of terms and conditions applicable to each payment plan under which the customer receives service. The purported savings in usage rates must be offset against the opportunity costs related to caller restrictions imposed under the plans. We must also consider the rate impacts on users who do not select a discount plan, or who select a plan which does not yield an optimal bill given their calling pattern. Even based upon the figures used in the CCAC study, a significant number of customers still receive service under Basic Service plans. Among small cellular markets in CCAC's study, over 80% of subscribers were on Basic Service in 1993.

As another approach to testing whether current levels of cellular prices are high due to market entry restrictions, we can consider studies which simulate how prices would change in the event that additional entrants were allowed in the market. Such a study was done by Kwerel and Williams (K&W) in November 1992 for the FCC.[10] K&W concluded that based on a simple theoretical model

10 See the study of Evan Kwerl and John Williams, "Changing Channels: Voluntary Reallocation of UHF Television Spectrum" (FCC: OPP Working Paper 27; November 1992.) This study was referenced in the comments filed by Nationwide Cellular Service, Inc. in this proceeding.

of oligopoly pricing and empirical evidence from other industries, cellular prices could be expected to fall 25% as a result of introducing a third cellular carrier. Likewise, a study by Morgan Stanley, a Wall Street investment analyst, simulated different assumptions as to the degree of competitiveness in the cellular industry. This study concluded that cellular prices would decline as a result of market entry of more competitors.

In addition to the cellular pricing data submitted by parties as part of their filed comments, the ALJ directed various carriers to submit supplemental data regarding prices charged under both their basic service and discount rate plans for periods back to 1989. In response to the ALJ ruling, parties provided the data on a confidential basis under Public Utilities (PU) Code § 583. We have analyzed the pricing data provided in response to the ALJ ruling, and conclude that it further corroborates our conclusion that cellular carriers' prices remain uncompetitive.

As stated in the OII, our focus is on price competition at the wholesale level. While the cellular resale market contains an ample number of firms, resellers are captive to the facilities-based carriers for purchase of wholesale blocks of service. Accordingly, resellers' ability to compete at the retail level is significantly constrained by the wholesale prices paid to facilities-based carriers.

4. Do Cellular Carrier Profits Indicate the Failure of Competition?

Another measure of a dominant firm's market power is the comparison of its costs of service relative to prices it extracts in the marketplace. To the extent a cellular carrier can keep its prices high relative to costs, it can command a more lucrative profit on invested capital. If a cellular firm earns returns