STATE OF FLORIDA

BEFORE THE

PUBLIC SERVICE COMMISSION

Comprehensive Review of the Revenue Requirements and Rate Stabilization Plan of Southern Bell Telephone & Telegraph Company	))))	Docket No. 920260-TL

DIRECT TESTIMONY

OF

MARVIN H. KAHN

ACK
AFA 3
APP
CAF
CMU
CTR
EAG
LEG 1
LIN 6 Orig
OPC
RCH
SEC 1
WAS
OTH

ON BEHALF OF THE

OFFICE OF PUBLIC COUNSEL

AND FLORIDA CITIZENS

NOVEMBER 16, 1992

EXETER
Associates, Inc.

10801 Lockwood Drive
Suite 350
Silver Spring, MD 20901

STATE OF FLORIDA

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

COMPREHENSIVE REVIEW OF THE REVENUE REQUIREMENTS AND RATE STABILIZATION PLAN OF SOUTHERN BELL TELEPHONE & TELEGRAPH COMPANY	)))))	DOCKET NO. 920260-TL

DIRECT TESTIMONY OF

DR. MARVIN H. KAHN

Q. Please state your name, occupation and address.

A. My name is Marvin H. Kahn. I am a senior economist and founding principal of Exeter Associates, Inc. My office is at 10801 Lockwood Drive, Silver Spring, Maryland 20901. Exeter is a firm of consulting economists specializing in communications, energy, public utility, environmental and anti-trust economics.

Q. Please briefly describe your educational and professional background.

A. I hold a Ph.D. in Economics from Washington University in St. Louis Missouri, and have worked extensively as a consulting economist in the public utility, communications, energy and antitrust fields.

Prior to the formation of Exeter Associates, I was with the economic consulting firm of J.W. Wilson and Associates, Inc. My responsibilities there included the development of that firm's telecommunications consulting practice. Before that, I served as a senior research economist with the

MITRE Corporation, and before that, with the Institute for Defense Analysis, both of which are not for profit research organizations in the Washington, D.C. metropolitan area. At these institutions, I focused on the application of microeconomic principles to public policy issues related to energy and to national defense matters. Prior to that I served as a senior staff economist with an Ad Hoc Committee of the U.S. House Committee on Currency and Banking, where my responsibilities dealt primarily with national energy policy issues and regulated energy industries.

In addition, I taught economics or lectured at the University of Tennessee, the University of Missouri in St. Louis, Washington University in St. Louis, Merrimac College and the Johns Hopkins University. I have included my resume as an Appendix to this testimony.

Q. Have you testified before regulatory commissions on issues regarding the telecommunications industry?

A. Yes. I have testified before commissions in over 20 jurisdictions in this country and Canada. In addition, I have served or am now serving as a consultant on telecommunications ratemaking or telecommunications policy issues to ten state regulatory commissions. I have also undertaken research and prepared reports on telecommunications issues for the FCC, U.S. Postal Service, National Association of State Utility Consumer Advocates (NASUCA) and the National Regulatory Research Institute (NRRI).

I testified before this Commission, on behalf of the Office of Consumer Advocate, in Docket No. 860984-TP.

Q. What is the purpose of your testimony in this proceeding?

A. I have been retained by Public Counsel and asked to review the Southern Bell price cap proposal.

Q. Would you please summarize the issues you address in your testimony?

A. Yes. My testimony is in three sections. In the first, I address the potential gains to be expected from an incentive regulation or price cap plan. I demonstrate that it is questionable whether there will be any benefits and, if so, they are likely to be marginal. This means that the success of any plan may depend on the implementation details.

Next, I turn to the current 1988 incentive plan established by the Commission in Order No. 20162 and focus on its results. Southern Bell takes the position that the 1988 incentive plan is responsible for cost reductions and the introduction of new services and service arrangements. The Company, however, simply points to various changes and asserts that they are related to the plan, without as much as an attempt at establishing a causal link. It may be too early to fully assess the effects of the plan on Company operations, however, as I demonstrate, all available evidence fails to support the Company's assertions.

Last, I turn to the Company's proposals in this case and address both the long-term price cap and interim price cap/incentive regulation proposal. This proposal is based on the Company's claim that the benefits of incentive regulation have been demonstrated and that the price cap plan promises even greater benefits relative to rate of return regulation. I demonstrate that this plan may benefit the Company, but not the ratepayer. First, as noted above, there is little data available, but that which is suggests that the current incentive plan has had no effect on Company operations. Further, the price cap aspect of the plan may lead to higher rates than would result from rate of return regulation. Finally, the proposed plan calls for pricing flexibility of all Company services, with the freedom to raise prices by 5 to 20 percent depending on whether the service is "basic." Southern Bell's rates today are on average about 6 percent above the level experienced in 1976. However, under the SBT price cap proposal, rates for local exchange service could have doubled over this same period.

Q. Have you any recommendations regarding Southern Bell's price cap proposals?

A. Yes. The Company's price cap proposal should not be approved. If the Commission chooses to retain the existing incentive plan structure, it must recalibrate rates and sharing parameters to correspond to current capital costs.

Benefits from Incentive Regulation

Q. Please describe rate base, rate of return regulation.

A. Rate base, rate of return regulation (RB/ROR) is a common form of regulation. It is a form of economic regulation. RB/ROR operates by establishing a revenue requirement and a design of rates that allow the firm the opportunity to achieve revenues equal to the revenue requirement. This revenue requirement is set equal to the firm's operating expenses, plus a return (the allowed rate of return) which is a percentage of the gross investment less accumulated depreciation (rate base). This type of regulation focuses on operating characteristics (e.g., costs, revenues, profits, etc.) and is often referred to as cost of service or profit regulation.

Q. Why have commissions considered alternative forms of regulation?

A. The common thread running through considerations of alternative forms of regulation is the concern that rate base, rate or return regulation fails to provide the regulated entity with appropriate and sufficient incentives. That is, unlike an unregulated competitive firm, there is concern that a carrier whose rate of return is regulated will lack the incentives to perform consistent with the public interest. Specifically, the concern is that such a firm will lack the incentives to be innovative, maximize productivity or minimize cost.

Q. Please describe what is generally referred to as incentive regulation.

A. The term incentive regulation has been used to describe a wide variety of plans designed with the purpose of enhancing incentives for regulated firms to operate more efficiently. There have been a wide range of plans that fit the incentive regulation mold. In general, these plans call for a decoupling

of costs and revenues, allowing the firm's earnings to vary with and be more closely related to the firm's performance. The ability of the Company to share in earnings improvements is the incentive in incentive regulation.

Q. Will a move to incentive regulation necessarily increase the incentives for cost reduction, innovative activity and productivity improvement as claimed?

A. It is not at all clear that the incentives resulting from an incentive regulation or a price cap plan will necessarily be different from or greater than those already stemming from ROR/RB regulation.

First, recognize that ROR/RB regulation does provide incentives. Rates are set to assure, not guarantee, that a firm will achieve its allowed rate of return. This alone provides incentives to engage in cost cutting, technological improvement and demand enhancing activities to minimize the probability of underearning. Moreover, it must be recognized that uncertainties with regard to demand and cost considerations and regulatory lag are real world aspects of the regulatory process -- not imperfections as some have argued. With uncertainties, it is impossible to precisely tie rates to costs, or return to investment. With regulatory lag, the Company will continue to overearn until rates are reset. Similarly, if underearnings are experienced, these, too, will persist until corrected by Company initiative or by the Commission resetting rates.

Second, though the concept of incentive regulation has theoretical appeal, the effect it will have on Company incentives and operations is not necessarily obvious. It may not be correct to assume that the effect that an incentive structure will have on a competitive industry will be the same on an industry with natural monopoly characteristics. For instance, if pricing flexibility or any other aspect of an incentive or price cap plan acts to retard the entry of efficient firms, the result may be less cost cutting activity, not more.

Third, the claims regarding the impact of incentives on cost minimization and innovation must be carefully reviewed. Consider the experience with regard to AT&T's operations. Value Line reports that AT&T reduced its work force by about 70,000 employees between divestiture and 1990. Some may point to this as evidence of the potential effects of a change in regulatory structure on the operations of a regulated entity. The problem with this view is that AT&T remained subject to rate of return regulation until late 1989. What did change over that time was the extent of competition in the markets for equipment and long distance services. These cost cutting actions were more likely in response to competitive market pressures than to nominal changes in the AT&T regulatory structure.

A similar perspective is arrived at when examining Southern Bell's operations. Negative attrition or declining revenue requirements per access line

have typified the operations of virtually all BOCs over the last several years, including Southern Bell Florida. Lower cost of money, increased demand for existing services, development of new services, declining rate base, and technological change outpacing inflation, among other factors, have contributed. Mr. Reid reports that SBT's cost per access line fell from $522 in 1986 to $502 in 1991, before considering changes in the cost of money. Southern Bell argues that this change in costs is directly attributable to the incentive plan, in effect since 1989. However, as noted, this trend is occurring nation-wide, including states with no incentive plan. Hence, it is more likely that this trend is attributable to factors exogenous to the Company, not its regulatory structure.

Finally, a commission may wish to consider factors other than engineering efficiency in ascertaining the desirability of a particular regulatory structure. Telephone companies operate subject to universal service obligations, public utility obligations to serve, rate averaging requirements, and requirements to deploy facilities to meet social rather than economic objectives. The ability to accomplish any of these may be affected by the regulatory structure selected.

Evidence Regarding the Florida Plan

Q. What is the Commission's 1988 incentive regulation plan?

A. In Order No. 20162 in Docket No. 880069-TL, the Commission authorized an incentive regulation plan for Southern Bell. The general parameters of that plan include the following:

1. An authorized rate or return on equity of 11.5 percent to 16.0 percent.

2. A 250 basis point "dead-band" ranging from 11.5 percent to 14.0 percent. Southern Bell absorbs the impact of all earnings changes within this band.

3. All earnings over 14 percent are to be shared, with 60 percent going to ratepayers and 40 percent retained by the Company. All earnings over 16 percent, after sharing, are to be returned to ratepayers.

4. Rates were initially to set to achieve a 13.2 percent return on equity. In most plans, rates are initially established to earn a return equal to the midpoint of the dead-band, in this plan rates were initially set above the midpoint.

5. Earnings changes stemming from certain exogenous changes were excluded from sharing and instead passed through directly to ratepayers.

Q. Is there any evidence regarding the success or failure of this 1988 plan?

A. In my opinion, it is too early to fully assess the impact of this plan on Company operations. However, based on the information that is currently available, the incentive plan appears to have had no significant impact, positive or negative, on Company operations.

Q. Are you aware of Southern Bell's position that the 1988 plan has significantly affected its operations and operations results?

A. Yes, I am. This is the position taken by Messrs. Reid and Lombardo. However, neither witness provides any evidence supporting the position taken, that the 1988 plan had a positive impact on the Company's operating characteristics.

Q. Mr. Reid asserts that "ratepayers have benefited during the period of incentive regulation through the Company's declining level of cost of service per access line." Have you any comment on his calculations or conclusions?

A. Yes. I take no issue with Mr. Reid's calculations, but only the conclusions drawn from them.

Mr. Reid calculates the revenue requirements per access line for each of the years 1984 through 1991 under various assumptions. He shows that cost per access line in each of the years 1989, 1990 and 1991 is less than that experienced in earlier years. I take no issue with the trends depicted

as they are consistent with national trends and other factors external to Southern Bell Florida operations.

He argues that this trend in costs is directly attributable to the incentive regulation plan, yet he provides no link between it and the incentive plan. His conclusion is not supported by any data or analysis.

Q. Would you please briefly explain Mr. Reid's analysis.

A. Yes. Mr. Reid calculates the revenue requirement per access line for each of the years 1984 through 1991. His analysis is shown in his Exhibit Schedule Nos. 1-3. I have included a summary of Mr. Reid's calculation results as page 1 of my Exhibit___(MHK-1), for the Commission's convenience. As noted there, these calculations are based on three different sets of assumptions. Each is based on an assumed 15 percent return on equity. That is, each calculation shows revenue requirements, before considering changes in the cost of equity.

The result in the first column is "per books," including no Commission adjustments. The result in the second column is on a Commission basis. The result shown in the third column is also on a Commission basis, with the results adjusted to eliminate the effects of changes in depreciation rates. Specifically, a constant depreciation rate was assumed throughout the period. As all three sets of results indicate, revenue requirements per

access line in the 1989-1991 time period are below those in the 1984-1986 time period.

Q. On what basis does Mr. Reid conclude that this trend can somehow be attributed to Company actions linked to the incentive regulation plan?

A. The only basis provided by Mr. Reid in support of his view that the identified trend in costs is somehow linked to the incentive regulation plan, is found at page 11 of his testimony. Mr. Reid there cites Order 20162 where the Commission explained that it established the incentive plan because of its expectation that the plan will provide greater incentives and encourage efficiency in Company operations. This Commission expectation is the only basis provided by Mr. Reid in support of his view.

What Mr Reid fails to convey is that the trend in costs he identifies is typical of that experienced by BOCs nation-wide. In other words, the cost per access line in 1989, 1990 and 1991 would be expected to be below those in earlier years, even if there were no incentive regulation plan in place. In fact, as Mr. Reid recognizes, the trend in revenue requirements per access line has been driven largely by changes exogenous to Company operations.

Q. What are some of the changes that have affected this revenue requirement?

A. There are a number of factors that affected Company operations over the 1984-1991 time period. Among these were (1) the Tax Reform Act of

1986, (2) the adoption and implementation of Part 32 accounting procedures and (3) that technological change has outpaced inflation. These factors are industry-wide, not unique to Southern Bell Florida operations. Their effect on revenue requirements and trends is not at all related to whether there is an incentive regulation plan.

The Tax Reform Act of 1986 reduced the marginal corporate income tax rate from 46 percent to 34 percent. Mr. Reid acknowledges that this had a significant impact on the revenue requirements per access line. He estimates that impact at $98 million per year or $25 per access line (Reid, page 19).

The adoption of Part 32 accounting procedures resulted in the Company expensing a much larger portion of its annual expenditures and capitalizing a much smaller portion. Initially, this meant higher current expenditures with depreciation and amortization rates remaining fairly constant. Over time, the amounts capitalized will be reduced as will the annual depreciation and amortization accruals. Mr. Reid acknowledged that the increase shown for revenue requirements in 1988 resulted primarily from the initial impact of this change in accounting procedures (Reid, page 10). Unfortunately, he provides no estimate of its impact. The downward trend noted from 1988 through 1991 is based in part on the reversing of this Part 32 effect.

The view that the rate of technological change is outstripping the rate of inflation is presented in many BOC documents dealing with construction programs, depreciation analysis, and plant retirement analysis. For instance, the cost savings resulting from technological change outpacing inflation is the justification often provided for the widespread deployment of fiber optics in interoffice facilities and of digital switching replacing electromechanical and smaller electronic analog switching facilities.

Q. What has been the trend in revenue requirements nation-wide?

A. The FCC has been tracking and reporting the nationwide trend in rates and, by inference, revenue requirements for some time. These FCC data are summarized on page 2 of Exhibit___(MHK-1). Shown here is the aggregate dollar value of commission orders increasing and reducing rates for each of the last several years. That rates have been decreasing clearly denotes the trend in aggregate revenue requirements and in revenue requirements per access line. As noted here, on a nation-wide basis, the revenue requirement per access line in 1991 was about $25 less than in 1986.

Q. What conclusions do you draw from these data?

A. Mr. Reid has provided no credible support for his assertion that the 1988 incentive plan has had any effect on Company operations, including the observed trend in revenue requirements per access line. Many of the factors affecting this trend are industry-wide in nature, not Florida specific. They are exogenous to Company operations. Not surprisingly, the trend

observed in Florida is consistent with that observed nation-wide. What this means is that the Southern Bell Florida revenue requirement per access line in 1989-1991 would have been expected to be lower than that observed earlier, even absent an incentive regulation plan. From these data no influence of the incentive regulation plan can be detected.

Q. Beginning at page 18 of his testimony, Mr. Lombardo asserts that the 1988 plan assisted Southern Bell in adapting to what he describes as a competitive environment. Have you any comments?

A. Yes. Mr. Lombardo identifies a number of activities undertaken by Southern Bell since 1988 and seems to suggest that these activities are, in some manner, linked to the incentive plan. However, these activities are of the type that would be expected to occur during this time frame, even absent the implementation of this type of plan. Significantly, nowhere does Mr. Lombardo suggest that these activities would not be undertaken or would not be undertaken at this time if the incentive regulation plan were not in effect.

For instance, beginning at page 19, Mr. Lombardo identifies a number of activities undertaken that result in what he describes as "significant cost changes" (Lombardo, page 19). These include mechanizing the billing system, implementing an interactive repair ordering system, and various consolidation and regionalization activities. These are typical of activities

undertaken by operating companies around the country. Nowhere has Mr. Lombardo suggested that these activities are only undertaken by companies subject to incentive regulation or would have not been undertaken in Florida if it were not for the 1988 incentive plan.

He also notes there was a reduction in employees per access line. Interestingly, in Docket 880069-TL, Southern Bell pointed to reductions in employees per access line as a cost containment measure undertaken, independent of the regulatory environment (testimony of H.C. Henry, page 7). Further, the changes in management and craft employment noted here are again typical of the trends experienced by local exchange companies nationwide.

Q. Have you any other evidence regarding the impact of incentive regulation plans?

A. The Company claims that one of the benefits of an incentive regulation or price cap plan is that it will promote additional investment in the network and as a result, the more rapid deployment of new technology (Lombardo, page 29). This proposition, however, is simply not supported by quantitative evidence. The data included in Exhibits___(MHK-2) and (MHK-3) go to this matter. They call into question any assertion that incentive regulation or price cap plans have an effect on the pace or pattern of the diffusion of technology in the network.

Q. What is shown on Exhibit___(MHK-2)?

A. This exhibit provides a description of the technologies deployed in the network in 1990 by Southern Bell Florida, other Southern Bell states and Bell companies in other regions. Two characteristics regarding technology deployment emerge from a review of these data.

First, the extent to which telecommunication technologies have been deployed in Florida are in every instance on par with or ahead of that in most other regions. Diffusion of digital switching technology in Florida approximate the national average, while that of fiber, SS7 and ISDN capability exceeds the national average. Significantly, this rate of technology diffusion has occurred largely without the "benefit" of the incentive regulation program.

Second, the difference in rates of technology diffusion may be greater among regional holding companies than among states within a holding company. For instance, Southern Bell and South Central Bell were the first companies to be 100 percent equal access capable. This is likely to have been the result of a strategic corporate decision by BellSouth rather than independent decisions by each state in the BellSouth region. The same appears to be the case for deployment of SS7 capability. If strategic decisions regarding technology selection and diffusion are often made at the regional corporate level, state actions regarding incentive regulation,

price caps and the like can only have marginal effects on investment decisions.

Q. What is shown on Exhibit___(MHK-3)?

A. The data included in Exhibit___(MHK-2) indicates that differences in the rate of diffusion of various telephone technologies exist. Exhibit___(MHK-3) presents the results of an analysis examining the relationship between incentive regulation/price cap plans and the rate of diffusion of new technologies in the network. The analysis focuses on the rate of digital switching and SS7 capability deployment. The results of the analysis suggest that rates of deployment are generally unaffected by the regulatory structure, including incentive regulation and price cap plans.

Q. Please explain your analysis.

A. The analysis focused on the deployment of digital switching and SS7 technology in the Bell operating company networks in 1990. Technology deployment was modeled as a function of the demand for system services and regulatory structure. Demand for services was measured by the growth in access lines over the 1985-1989 time frame. Regulatory structure was measured by rate of return, depreciation rates and by a qualitative or dummy variable indicating whether an incentive regulation/price cap plan was in place by 1989. The question posed is does allowing a higher rate of return, higher depreciation rates or implementing an incentive plan stimulate technology deployment? Linear regression techniques were used. The results show that regulatory variables including the presence of an incentive

regulation plan had no impact on the pace at which either of these technologies were deployed.

Q. Would you please summarize the conclusions from your analysis as discussed in this section of your testimony?

A. Yes. Contrary to Bell's assertions, there is no credible evidence suggesting that incentive regulation has had a significant impact on the cost or efficiency of providing telephone service or the pace at which new technology is deployed in the network. To be sure, many of the incentive plans, like that in Florida, have not been in place long enough for all impacts to be detected and all data to be collected. The data available at this point do not support the claim that any positive effects have resulted.

Southern Bell's Price Cap Plan

Q. What is Southern Bell's proposed plan in this proceeding?

A. Southern Bell is proposing a form of incentive regulation referred to as a price cap. The plan calls for no earnings regulation and no earnings constraints. There appears to be a total decoupling of the overall rate level and Company earnings. Further, the Company's proposal calls for wide pricing flexibility. With this, all matters regarding rate structure, that is, rates for individual services and rate relationships for groups of services will be determined largely by the Company at its discretion.

In this proceeding, Southern Bell is not proposing that the Commission totally eliminate earnings control and move immediately to a pure price cap

plan. Instead, the Company is proposing an interim plan, one that overlays price regulation with an earnings sharing plan (Lombardo, pages 28 and 29). The specifics of this interim plan, as described by Mr. Lombardo, include the following major characteristics:

- The plan is based on current rates. There is to be no recalibration to reflect reductions in the cost of money.

- There is to be a cap on the extent to which the overall level of prices can increase. The cap is determined by an inflation factor and a productivity factor. Certain exogenous changes are not subject to the cap.

- The proposal affords the Company pricing flexibility for all services. The extent of pricing flexibility allowed to individual services will depend on whether service is classified as "basic" or "non-basic," not whether they service is provided in monopoly or competitive markets. Price increases can take effect with as little as 30 days' notice, price decreases with as little as 15 days notice.

- Price increases to basic services can be up to 5 percent annually, independent of the change in underlying costs. Basic services include

residential and business local exchange, service connection activities and switched access to interexchange carriers.

- Price increases to non-basic services can be up to 20 percent annually. If the service is currently subject to flexible pricing, then these flexible pricing rules will continue to apply rather than the 20 percent limitation. Non-basic services include all services not included in the basic service category.

- The concept of the sharing mechanism is retained. The sharing formula is proposed to be altered from the existing 60:40 to 50:50.

Q. Based on your review of this plan, have you any observations?

A. Yes. I recommend that this plan not be adopted by the Commission. The Company's proposal calls for flexible pricing of monopoly as well as competitive services. This is especially troubling when the vast majority of services offered are in markets that are characterized by natural monopoly or in which the Company otherwise retains a dominant position. The plan does not provide the promised incentives to improve performance, but instead provides the Company the opportunity to earn higher returns and to gain windfalls. While it provides few net advantages to ratepayers, it denies them the potential of lower rates that would result from the efficient and timely operation of traditional rate base rate of return regulation. Finally, the plan does not promote a competitive outcome in the market, as

claimed, but instead permits the Company the freedom to exercise monopoly power. For these and other reasons, I recommend that the plan not be accepted.

Q. Should the existence of market competition be recognized in developing a regulatory structure?

A. Yes. One of the major roles of the Commission is to act as a ratepayer's agent in the event that the market is incapable of doing so. These are situations typically described as market failure. On the other hand, if competition is sufficient such that the market is able to control a producer's actions, regulation is unnecessary. It is appropriate for a regulatory structure to recognize the extent to which market competition exists. In that regard, the current regulatory structure in Florida does reflect the existence of competition. For instance, as acknowledged by Mr. Lombardo, the Commission established the current incentive regulation plan as a method to assist Southern Bell "to transition itself" to changes in the markets served. In addition, the Commission has permitted the flexible pricing of various Company services. Upon the Company's motion and a showing of public interest, flexible pricing authority for a competitive and possibly even non-competitive service can be authorized.

Q. How prevalent is competition in the markets served by Southern Bell?

A. While competition does exist in some of the markets served, this remains the exception rather than the rule. Southern Bell retains a monopoly or at least a dominant position in most markets served.

Southern Bell's tariff is about the same size as the telephone directory of a major city. This is an indication of the number of services that the Company offers. To be sure, many of these are offered in markets where there are alternative service suppliers. Despite this, the vast majority of Company operations, whether measured by revenues or costs, are in three specific service classifications: local exchange, intraLATA toll and carrier access. None of these services can be classified as competitive, by any reasonable criteria. Alternatives may exist, in particular niches or to certain customers under specific circumstances. However, market-constraining characteristics of competition are not readily present in any of these markets.

Q. Mr. Lombardo notes that the Commission has recently opened the entire LATA to facilities based toll competition. Won't this result in that market soon becoming highly competitive?

A. No, it will not. Mr. Lombardo's description of potential competition in the toll market typifies the Company's overstatement of the extent of competition in many of the markets served. Mr. Lombardo's argument is conceptually flawed and ignores the available empirical evidence.

Q. What are the conceptual problems with the arguments presented by Mr. Lombardo with regard to competition for intraLATA toll services?

A. Mr. Lombardo opines that the geographic restriction placed on Southern Bell with regard to the provision of long distance services will jeopardize its position as the dominant intraLATA toll carrier. He notes, correctly, that Southern Bell is restricted to the provision of intraLATA toll services,

whereas other long-distance carriers can also provide intrastate interLATA, interstate and international services. When assessing Bell's market presence, it must be recognized that there is another, offsetting institutional factor in this market. This is the fact that Southern Bell retains all 1^+ intraLATA toll calls. If a customer wishes to have an intraLATA call carried by anyone other than Southern Bell, the customer is required to dial additional digits. Customers view the number of digits dialed as an important component of quality of service. This will offset, to a large degree, any potential disadvantage that results from geographic restrictions.

Mr. Lombardo also argues that Southern Bell is required to impute access charges into its intraLATA toll rates which will provide it with a market disadvantage. The disadvantage, according to Mr. Lombardo is that Bell must set price above these access charges, but the other long distance carriers need not. Access charges, of course, reflect an opportunity cost to Southern Bell and an incremental cost to the other long distance carriers. Apparently, it is the Company's position that it would not price any of its services below cost, but that other long distance carriers might.

Southern Bell's claim that it suffers a significant disadvantage in the intraLATA toll market must be seriously questioned. In fact, this claim is inconsistent with all available empirical data.

Q. What is that empirical evidence?

A. Facilities based entry into the market for intraLATA toll services on a 10XXX or access code basis, where the LECs retain 1+ traffic, has been authorized in a number of states. I have had the opportunity to review data on toll traffic in a number of such states. According to these data, the LECs have in every instance retained a dominant market share.

Quite frequently, these data are considered proprietary, but in a few instances, they are not. The Washington Utilities and Transportation Commission issued a report that included data on trends in market shares in the interLATA toll and intraLATA toll markets in that state. Intra-LATA toll competition has never been barred in the state of Washington and has existed since divestiture. According to this report, the LEC share of intraLATA traffic remained largely unchanged between 1986 and 1988, hovering between 93 and 94 percent. Significantly, over the same time period, the dominant IXC lost share in both the interLATA and intra-LATA markets.[1]

Data on market shares are also provided in an Examiner's Report in Docket 7790 before the Texas Public Utilities Commission.[2] According to

---

[1] Status of the Washington Telecommunications Industry, Volume 1, January 1989, page 85.

[2] Petition of the General Counsel for an Evidentiary Proceeding to Determine Market Dominance among Interexchange Telecommunications Carriers, Docket No. 7790, Report issued November 1988.

that report, the subject addressed in this proceeding was to determine whether "any interexchange carrier (IXC) serving Texas is dominant as to any service market determined by the Commission" (Examiner's Report at page 1). Intrastate toll competition in Texas predates divestiture and intraLATA competition has never been banned in that state. Despite this history, the report notes that the IXC's share of the intraLATA market is minimal (Examiner's Report at page 13).

Q. Mr. Lombardo suggests that the Company's largest customers are able to circumvent the 1+ restriction through the use of PBX software or auto-dialers. Have you any response?

A. Yes. As Mr. Lombardo suggests, these mechanisms have been available for some time. What the empirical evidence suggests is that they have had insignificant impact on the market share retained by the LEC in the event of facilities based entry into the market for intraLATA toll services.

Q. What conclusions do you draw from this?

A. While Southern Bell undoubtedly offers services in markets that can be best characterized as competitive, the vast majority of the Company's operations are in markets that cannot be so characterized. In those markets where the Company remains the dominant service provider and retains market power, pricing flexibility of the type proposed should not be allowed. The Commission's Order in Docket No. 871254-TL permits flexible pricing in those instances where it can be demonstrated to be in the public interest. There is no basis for the universal flexible pricing authority

included in the Company's price cap proposal. The proposal should be denied.

Q. Please explain your concern that the Southern Bell price regulation proposal does not provide the promised incentives.

A. The claimed purpose of an alternative regulatory plan is to permit the Company to earn in excess of the market determined cost or capital only when it experiences additional efficiencies. To ensure that outcome, rates established at the outset must not guarantee excessive earnings.

This will necessarily be the case if rates are initially set too high, as they will be with Southern Bell's proposal in this proceeding. As demonstrated by Mr. Rothschild, the cost of equity today is 220 basis points below that which existed in 1988. Recognizing this and other changes to Southern Bell's operations, Mr. Allen has demonstrated that at current rates, Southern Bell will realize $232.7 million in revenues in excess of that necessary to provide a return equal to a market based cost of capital. Nevertheless, Southern Bell is proposing that the price cap plan be based on current rates (Lombardo, page 29). The effect of the Company's proposal is to permit it to continue to experience earnings in excess of its cost of capital, independent of whether it experiences any additional efficiencies.

In theory, with a properly structured price cap formula, the Company will be able to earn more than its cost of capital only if its achieved productivity

is greater than the offset in the price cap formula. With the Southern Bell proposal, even if the Company is not successful in improving its rate of productivity advance, it will continue to earn at its current level which is in excess of its cost of capital. This guarantee for higher earnings has no built in incentive effects.

Q. The Southern Bell proposal also includes a sharing provision. Will this not provide the additional incentives?

A. No. Recognize that the 1988 incentive plan established an allowed return range based on the cost of capital that existed at that time. The point where sharing of earnings was to commence was also based on equity costs existing at that time. With the cost of equity today being lower than that in 1988, the return on equity range and the point of sharing should also be modified downward.

Note that Southern Bell will be called upon, according to its proposal, to only share any earnings that might exceed the upper bound of this now out-of-date range. What this means is that any distortions put in place by allowing rates to remain at current levels will only be magnified over time if, especially if the Company's earnings continue to benefit from negative attrition. In short, this guarantee of excessive earnings provides no incentives for efficient operations.

Q. What factors should be considered in setting the productivity offset factor in the price cap equation?

A. That follows from the purpose of the price cap formula. The theoretical basis for the price cap is that it can provide the proper incentives for a regulated company to increase efficiency and productivity by allowing any realized improvements to be reflected in improved profitability. A productivity target is established. To increase profits from regulated services, the Company must increase its productivity at a rate greater than the target.

This is the essence of the price cap formula. According to the general formula, the average price level of regulated services will change based on the difference between input price inflation and a predetermined productivity target, net of exogenous changes which, for simplicity, we assume to be zero. Price changes will be independent of the productivity gain actually realized.

If there is no inflation and the actual productivity gain equals the target level, then the Company's prices and costs will fall by the same amounts. Markup and profit per unit output will be unaffected and, except for demand stimulation effects, earnings will be unaffected. Alternatively, if the actual productivity gain exceeds the target level, then costs will fall by more than price, providing an opportunity for greater earnings. Similarly, if the actual productivity gain is below the target level, costs will fall by less than prices, reducing earnings. The critical importance of a properly set productivity target is obvious.

Q. How should the productivity target be set?

A. Traditional rate of return regulation provides some incentives for efficiency and productivity improvements. The goal of a price cap arrangement is to provide incentives for additional efficiencies and greater gains in productivity. The productivity target should be set so that the opportunity to improve earnings is tied to the extent to which additional efficiencies and greater productivity gains are realized.

If productivity gains are no greater than that expected, the price cap formula should provide no opportunity for increased profits. These opportunities should be linked to circumstances where productivity gains are greater than what would otherwise be expected. The productivity target should then be no less than the average productivity gain experienced by the Company over a recent time period. In fact, there may be reason to set the target somewhat above this historic average to provide further incentives through what can be termed a productivity driver.

Q. You suggested that even if the productivity gain actually achieved equaled the target, the Company would likely benefit. Please explain why.

A. If the actual and target productivity gains are identical, price and cost move together. Markup or unit operating margins remain unaffected. However, any price reduction will stimulate quantities demanded. The larger volume of output will result in greater total earnings. In fact, because of demand stimulation, actual productivity gains can fall short of the target, and

earnings remain largely unaffected. This provides further justification for a productivity driver.

Q. What is the basis of Southern Bell's proposing the 4 percent productivity offset?

A. Apparently, Southern Bell bases its recommendation of a 4 percent productivity factor offset on the fact that this is numerically similar to the factor used by the FCC (Reid testimony, page 24). According to Mr. Reid, the FCC has permitted the RBOCs to select a productivity offset of 3.3 percent or 4.3 percent, depending upon the earning sharing mechanism selected. No productivity study of Florida operations was undertaken or relied upon by the Company in selecting this productivity offset.

Q. In your opinion, is this sufficient justification for selecting a productivity offset factor?

A. No it is not. The factor selected by the FCC is based on its analysis of nationwide productivity trends, not those inherent in this Company's operations in its service territory. Using the factor selected by the FCC provides no assurance that a price cap formula for Southern Bell Florida will achieve its intended goals. In fact, the Company's proposed 4 percent productivity factor is incredibly modest, necessarily resulting in excessive prices to consumers and overearnings to the Company.

Q. On what basis do you conclude that the Southern Bell proposed four percent productivity factor is insufficient?

A. As noted, Southern Bell has not undertaken any analysis focusing on total factor productivity growth experience by its Florida operations over the last several years. Consequently, there are no data available to identify precisely what an appropriate productivity offset would be.

Nevertheless, based on studies included in the Company's testimony and information discovered, it appears that an appropriate productivity offset would be about 6.0 percent, or possibly even greater. Approving a price cap plan with a 4 percent productivity offset is clearly not in the public interest, it will result in higher Company earnings but with insufficient incentives to improve productivity.

Q. To what study are you referring?

A. I am referring to the study prepared by Mr. McClellan focussing on the negative attrition or accretion experienced by Southern Bell. Specifically, Mr. McClellan examined Company operating characteristics in the 1989-1991 time frame in an attempt to identify the extent to which negative attrition or accretion will be experienced through 1993. Assuming that the same rate of negative attrition continues beyond that date, and does not accelerate as is likely, a productivity offset of no less than 5.6 percent, plus a productivity driver is suggested. The development of this estimate is shown in my Exhibit___(MHK-4).

In his analysis, Mr. McClellan gathered information on Company rate base, expenses and revenues for the 1989-1991 period and trended these through 1992 and 1993. Based on this trend analysis, he estimated the expected negative attrition. Specifically, he estimated that the revenue requirement per access line in 1993 would be $13.59 below the 1991 level. Revenues per access line in 1991 were estimated at $468.22. In other words, if revenues per access line in 1993 were reduced by $13.59, or 2.8 percent below those in 1991, there would be no change in Company earnings, assuming no demand stimulation. This change, which covers a two-year period, corresponds to a 1.4 percent annual change in overall price level.

As noted, this analysis suggests a minimum productivity offset of 5.6 percent. Mr. McClellan based his calculations on an assumed 4.2 percent annual rate of inflation. According to the price cap formula, a 1.4 percent reduction in the price cap with a 4.2 percent rate of inflation requires a productivity offset of at least 5.6 percent. A lower productivity offset will necessarily result in improved earnings, rather than constant earnings as assumed by Mr. McClellan. In fact, the assumption of constant earnings requires that there is no demand stimulation. An offset or target above 5.6 percent would be appropriate.

Q. The productivity offset derived from Mr. McClellan's analysis is based on the Company's operations while the incentive plan was in place. Is it

appropriate to use a productivity offset factor derived in this manner rather than one that excludes any effects of incentive regulation?

A. There are theoretical and practical considerations here. From a theoretical perspective, the productivity offset should reflect recent Company experience, including that during the time an incentive plan was in place. If a price cap plan is approved, the productivity offset should be reviewed and updated with some regularity to ensure that it remains representative of the Company's actual operating experience.

From a practical perspective, it does not matter in this instance. There is no credible evidence that the incentive plan has had any effect on Company operations, at least to this point. Calculations of productivity advance based on experience during the 1989-1991 time period are not at all affected by the presence of the incentive plan.

Q. Have you been able to test how the Company's proposed 4 percent productivity factor might have changed rates in the past?

A. Yes, I have. Based on data provided by Southern Bell, I prepared a simulation of the effect of using a 4 percent productivity factor in a price cap formula over the last several years, in place of rate of return regulation. The results indicate that consumers fared much better with the timely application of rate of return regulation than they would have with the proposed price cap formula. I conducted the simulation over a shorter

term and a longer term time horizon. This conclusion is unchanged by the time horizon selected. My analysis is included as my Exhibit___(MHK-5).

Q. Please explain your analysis.

A. My analysis compares the trend in actual intrastate revenues and rate changes with those which would have resulted from the application of a pure price cap plan. A pure price cap plan appears to be the Company's preferred approach. The time periods selected for study were the seven-year period since divestiture and a 15-year period spanning from 1976. The results are shown on pages 1 and 2, respectively, of my exhibit.

Page 1 of this exhibit provides the assessment for the period since divesti-ture. The first two columns include data on intrastate revenues and rate changes ordered. The data on revenues are from Reid Exhibit Schedule 2, those on rate changes are from the Company's response to Citizen's 14th POD, Item 212. The annual percentage change and cumulative change in rates is shown in columns c and d. For simplicity, all rate changes are assumed to have taken place at mid-year. The annual percentage change is calculated based on actual revenues less one-half the ordered change. As depicted in the cumulative change column, rates at the end of 1990 were about 86.85 percent of their level at the end of 1984. Stated differently, by the end of 1990 rates had fallen by 13.15 percent from their 1984 levels.

The price cap plan modeled includes a 4 percent productivity offset, as proposed by Southern Bell in this proceeding. Column e shows the GNP price index (GNP PI), per Reid Exhibit Schedule 4. The difference between the GNP PI and the productivity offset applicable to each year's rates is shown in column f, and the cumulative change in price is shown in column g. As indicated there, with a pure price cap plan using a 4 percent productivity offset, prices at the end of 1990 would be about 4.14 percent below their level at the end of 1984.

It should be noted that the rate changes shown in column b are inclusive of exogenous changes, whereas those in columns g and h are not. The price cap calculation will overstate or understate the resulting level of prices, depending on the net effect of exogenous changes.

The calculations on page 2 are similar. The major difference is the source of intrastate revenues in column a. Mr. Reid's data only covered the post divestiture period. Table 2 provides a longer time series, going back 15 years to 1976. The revenue data used are from Citizen's 14th POD, Item 212. These data differ somewhat from those provided by Mr. Reid, and these differences will affect the analytic results to some extent. As noted here, rates at the end of 1990 were 7.6 percent above their levels at the end of 1976. With a pure price cap and a 4 percent productivity offset,

rates at the end of 1990 would have been almost 24 percent above 1976 levels.

Q. What conclusions do you draw from your analysis on this matter?

A. There are two general conclusions to be drawn from this analysis. First, it appears that ratepayers would be better served with traditional rate base rate of return regulation than with a price cap plan built on the 4 percent productivity offset proposed by Southern Bell. Company provided data demonstrate that if this price cap plan had been in effect since divestiture or even dating back to the mid 1970s, rates could be as much as 15 or 20 percent higher than they currently are. A price cap plan with a 4 percent productivity offset would have resulted in a redistribution of income away from ratepayers and toward the Company.

Second, this analysis provides further evidence that the appropriate productivity offset is substantially greater than the 4 percent proposed by Southern Bell in this proceeding. One test of the reasonableness of a productivity offset factor is whether it leaves ratepayers no worse off than they would be under rate of return regulation. Based on data covering the last 7-15 years, a 4 percent productivity offset will not accomplish this. A higher, and possibly substantially higher, figure is necessary.

Q. What are your concerns with regard to the categorization of services?

A. Southern Bell has proposed that all services be placed into one of two categories, basic or non-basic. It is proposing pricing flexibility for all services, with greater pricing flexibility for non-basic than for basic services. While the overall level of prices is subject to the cap, prices for individual basic services can be increased by as much as 5 percent per year, and prices for non-basic services by as much as 20 percent per year. Basic services include business and residential local exchange, service initiation activities and carrier access charges. These services are offered in non-competitive markets. All other services are classified as non-basic. The non-basic category includes both competitive and non-competitive services.

I agree with the Company that there is a distinction between basic and non-basic services for purposes of rate design. However, consideration must also be given to whether the service is offered in a competitive or a non-competitive market. Where there is sufficient market competition, the Commission need not be concerned with price ceilings or even the relationship among prices for competitive services. On the other hand, where market competition is absent or insufficient, concerns over price levels, price ceilings and price structures among related products exist. Any service categorization that fails to distinguish between services offered in competitive and non-competitive markets must be rejected.

Q. What is your concern with the system of price caps as it is proposed to apply to individual services or categories of services?

A. There are several concerns with the Company's proposal in this regard. The first and overriding concern is that the Company is presenting a plan that includes both a price cap arrangement and widespread pricing flexibility, when there is nothing that requires these to be included as a single proposal. In fact, these are totally separable and should be separated, with each being judged on its own merits.

The price cap arrangement focuses on Company operations in the aggregate. The productivity factor, for instance, is based on the past performance of the Company when viewed as a single operating unit. Exogenous changes apply to the Company as a single unit, rather than two individual services. The price cap formula does not address matters regarding the pricing of individual services or the structure of prices among groups of related services. The merits of greater pricing flexibility are an issue separate and apart from that of price caps, per se.

In that regard, it should be recognized that in Docket No. 871254-TL, the Commission provided pricing flexibility authority where it was shown to be in the public interest. With the appropriate showing, that authority can be extended to additional services, without the need to establish a price cap mechanism.

An alternative to the Company's approach to dealing with changes in the cap, and one that appears to be far more reasonable, is to have the price cap apply only to the level of rates, and not to the structure of rates. Matters regarding rate structure and rate design should be addressed as needed in a separate, non-price cap related proceeding. In addition, these matters should be addressed on a revenue neutral basis.

Q. Southern Bell has proposed that there be a cap on the extent to which it can raise the price of basic and non-basic services. Does this not provide additional protections to the subscribing population?

A. No. Southern Bell's proposal would permit it to increase rates for basic services by as much as 5 percent per year and for non-basic services by as much as 20 percent per year. With this plan, the Company is free to raise the price of non-competitive services, be they basic or otherwise, simply because it experiences general cost changes, even though the cost of these services remain unchanged or may have even declined. Monopoly rate-payers are not provided adequate protection under circumstances such as this.

Q. What is your concern with regard to monopoly leveraging?

A. The pricing flexibility proposed includes no protections against the possibility of monopoly leveraging. By monopoly leveraging, I mean extending market power in one market into a second related market that would otherwise be competitive.

Consider the following cases in point. The Commission currently requires that Southern Bell impute access charges as a cost in determining the price floor for its toll rates. It is not clear from the Company's filing whether imputation remains a requirement. If not, the opportunity to engage in price discrimination and price squeeze in the market for intraLATA services can result.

Similarly, Southern Bell provides a number of services used in conjunction with its ESSX offerings and others in conjunction with competitors' key systems and PBXs. The Company proposes to classify these offerings as non-basic services. With this, the price of any of these can be raised by as much as 20 percent in any year. The Company, however, has no responsibility to increase the price of all these services by the same amounts, even though they do compete with each other. If the Company is able to increase the price of services taken in conjunction with the key system or PBX systems, it can increase the attractiveness of its own ESSX offering. In fact, according to the Company's proposal, this change in relative prices can be undertaken absent any supporting change in costs. Without protections against this type of monopoly leveraging, the Company's proposal should be rejected.

Q. Does this complete your testimony?

A. Yes.

APPENDIX

MARVIN H. KAHN

Dr. Kahn is a principal in Exeter Associates, Inc. He is an economist specializing in public utility regulation, antitrust and energy analysis.

Dr. Kahn has extensive experience in cost, rate and regulatory matters pertaining to postal service, broadcast, energy utilities and telephone companies. He has been retained by private and public clients in various jurisdictions in the U.S. and Canada. The clients served include private intervenors, state and city attorneys, consumer counsels, state utility commissions, the FCC and the NRRI. He has prepared studies and reports on competition in the regulated sector; state and national regulatory policy; energy supply, demand and conservation; alternative electric generation technologies; and labor market analysis. He has given expert testimony on telephone utility, energy utility and postal matters in 21 regulatory jurisdictions in this country and Canada, and before committees of federal and state legislatures.

Education:

B.A. Business Administration, 1965
Ohio Northern University

Ph.D. Economics, 1974
Washington University

Previous Employment:

1977-1980 - Senior Economist, J.W. Wilson & Associates, Inc., Washington, D.C.

1975-1977 - Economist, MITRE Corporation, McLean, Virginia, Department of Energy Planning and Analysis.

1975 - Economist, Institute for Defense Analysis, Arlington, Virginia, Program Analysis and Evaluation, Cost Analysis Group.

1974 - Staff Economist, Ad Hoc Committee on the Domestic and International Monetary Effect of Energy and Natural Resource Pricing, U.S. House of Representatives, Committee on Banking and Currency, Washington, DC.

1969-1974 - Assistant Professor, Economics, University of Tennessee, Knoxville, Tennessee.

Professional Work:

At J.W. Wilson & Associates, Inc., Dr. Kahn had the principal responsibility of developing and managing the firm's work dealing with analysis of the telecommunications industry. His efforts included basic and applied economic research into the cost of providing telecommunications services and market demand characteristics. He had lead responsibility in the firm's work involving cost of service, rate design, competition and regulatory policy in telephony.

At the MITRE Corporation, Dr. Kahn directed much of the economic analysis into energy related issues. He was engaged in energy supply and demand analysis examining economic, life style and growth implications of energy policies and issues; energy facilities siting issues; cost benefit analysis; and utility pricing policies. Particular efforts included econometric investigations of electricity demand, examinations of foreign peak load pricing experience, assessing the economic potential and effect of federal regulations on coal, nuclear and advanced electricity generation technologies, and examining the impact of energy conservation on electric utility growth, load factors and finances.

While at the Institute for Defense Analysis, Dr. Kahn was engaged in economic and cost analysis for the Office of Program Analysis and Evaluation, Office of Assistant Secretary of Defense. He developed an econometric model of manpower supply to naval and private shipyards.

At the Ad Hoc Committee, Dr. Kahn directed and assisted in preparation of committee studies on domestic and international effects of higher energy prices and analysis of energy legislation and policies. He served as the principal investigator in the study of energy price effects on domestic employment, production and price levels.

While serving on the faculty of the University of Tennessee, Dr. Kahn taught a variety of courses in economics including microeconomic, macroeconomic and labor market theory.

Other Professional Activities:

Chairman	-	Workshop on Long Run Energy Demands, sponsored by National Science Foundation, 1976.
Consultant	-	National Republican Senatorial Committee
	-	OAO Corporation
	-	ABT Associates

Selected Publications and Reports:

The Pennsylvania Telecommunications Infrastructure, Exeter Associates, Inc., March 24, 1992, (Co-author).

Report on the Status of Intrastate Incentive Regulation in the United States, Exeter Associates, Inc., March 1992, (Co-author).

Market and Regulatory Effects of the Elimination of the Manufacturing Restriction on the Bell Operating Companies, Exeter Associates, Inc., November 1989, (Co-author).

Assessment of Issues Related to the MFJ Information Services Restrictions, Exeter Associates, Inc., November 1989, (Co-author).

An Analysis of the Open Network Architecture (ONA) Costing and Tariff Plans Filed by the Regional Bell Holding Companies, National Regulatory Research Institute, October 1988, (Co-author).

A Review and Evaluation of the Load Forecasts of Houston Light & Power Company and Central Power & Light Company: Past and Present, Exeter Associates, Inc., 1985, (Co-author).

Study of the Pricing Precedents in Public Utility Industries, Exeter Associates, Inc., November 1983, (Co-author).

Competition, Contribution and Cross Subsidy: An Examination of AT&T Costing and Pricing Procedures, Exeter Associates, Inc., August 1981.

Product and Market Diversification of Regulated Utilities: An Assessment of Competitive, Market and Regulatory Implications, Exeter Associates, Inc., May 1981.

A Study of Jurisdictional Separations to Compare AT&T's Interstate Settlements Information Systems with the Separations Manual and Division of Revenues Process, J.W. Wilson & Associates, Inc., September 1980, (Co-author).

Competition and Growth: An Economic Analysis of the Domestic Market for Private Branch Exchanges, J.W. Wilson & Associates, Inc., September 1978, (Co-author).

"Separations Analysis of New Jersey Bell Telephone Company, " J.W. Wilson & Associates, Inc., July 1978.

"Conservation and Utility Pricing Policies," paper presented at Engineering Foundation Conference on Economic Impacts of Energy Conservation, sponsored by Committee on Science and Technology, U.S. House of Representatives, July 1978.

"An Economic Assessment of Market Potential for Advanced Intermediate and Peaking Electric Generating Technologies," MITRE Corporation, 1978, (Co-author).

Public Policy and Power Plant Siting, MITRE Corporation, March 1977.

Commercialization Case Study: The Light Water Reactor, MITRE Corporation, December 1976.

Fuel Choice vs. Fuel Use: An Economic Analysis of Residential Electricity Demand, MITRE Technical Report, 1976. Paper presented at NSF Workshop on Long Run Energy Demands, June 1976.

Long Run Energy Demands, MITRE Technical Report, 1976.

Electric Utility Financial Problems and Potential Solutions, MITRE Technical Report, April 1976.

Implications of Ownership Patterns on Financing and Development of Western Coal Resources, MITRE Technical Report, May 1976.

"Some Short Run Dynamics of Residential Electricity Consumption," presented at the NSF Workshop on Electric Utility Financial Problems and Potential Solutions, August 1975.

Energy Security and the Domestic Economy: Impact on Prices, Employment and Consumption, Ad Hoc Committee on the Domestic and International Monetary Effect of Energy and Natural Resource Pricing, 93rd Congress, 2nd Session, 1974.

"Layoff Behavior in Manufacturing Industries," (unpublished dissertation), Washington University, St. Louis, Missouri, 1974.

"The Homestead Provision: Its Costs and Those of Some Alternatives," *un*published working paper, Haney for Governor Committee, 1974.

"Extending the Tennessee Sales Tax: Estimates of its Revenue Potential, Distributional Effects, and Cyclical Sensitivity," unpublished working paper, Haney for Governor Committee, 1974.

Expert Testimony

Presented by Marvin H. Kahn

Before State Commissions

Alabama Public Service Commission, Docket 17743; testified on separations and affiliated relations.

Alaska Public Utility Commission, Docket U-78-65; testified on cost of service and rate design of competitive service.

Arizona Corporation Commission, Docket No. E101-91-004; testified on telephone rate design.

Arkansas Public Utility Commission, Docket 83-045-U; testified on access charges, impact of divestiture on revenue requirements and revenue sources, and rate design.

California Public Utilities Commission, Case No. 10001; testified on cost of service and rate design for Centrex service.

Colorado Public Utilities Commission, I&S Docket No. 1720; testified on utility rate design.

Delaware Public Service Commission, Docket No. 89-24T; testified on customer specific pricing of communication services.

Delaware Public Service Commission, Docket No. 91-35T; testified on pricing of Centrex services.

Public Service Commission of the District of Columbia, Formal Case No. 777; testified on telephone utility costs of service and rate design.

Public Service Commission of the District of Columbia, Formal Case No. 827; testified on rate design.

Public Service Commission of the District of Columbia, Formal Case No. 828; testified on regulatory principles and structure regarding competitive services.

Public Service Commission of the District of Columbia, Formal Case No. 828-II; testified on regulatory principles and structure regarding competitive services.

Florida Public Service Commission, Docket No. 860984-TP; testified on market for interexchange services, pricing of access services and cost methodologies.

Florida Public Service Commission, Docket No. 880069-TL; testified on regulatory policy and depreciation practices.

Georgia Public Service Commission, Docket 3765-U; testified on Centrex Costs and Pricing Policies.

Georgia Public Service Commission, Docket No. 3882-U; testified on Alternative Regulatory Structures.

Georgia Public Service Commission, Docket No. 3893-U; testified on Depreciation Policy.

Georgia Public Service Commission, Docket No. 3905-U; Testified on incentive regulation.

Georgia Public Service Commission, Docket No. 3914-U; testified on EAS.

Indiana Public Service Commission, Cause No. 35181; testified on telephone utility rate structures, unbundling of services and implications of FCC Registration Program.

Indiana Public Service Commission, Cause No, 36732; testified on telecommunication cost of services and rate design.

Kentucky Public Service Commission, Case No. 285; testified on LMS policy.

Kentucky Public Service Commission, Case No. 90-256; testified on telephone rate design.

Kentucky Public Service Commission, Case No. 10109; testified on Regulatory Policy.

Kentucky Public Service Commission, Administrative Case No. 323; testified on intraLATA toll competition.

Louisiana Public Service Commission Docket No. U-17949-(A); testified on negative attrition and alternative regulatory structures.

Louisiana Public Service Commission, Docket No. U-17949-B; testified on toll competition issues.

Maryland Public Service Commission, Case No. 7467; testified on jurisdictional separations.

Maryland Public Service Commission, Case No. 7435; testified on affiliated relations and utility rate design.

Maryland Public Service Commission, Case No. 7788; testified on the regulatory principles and structure regarding interexchange communications carriers.

Maryland Public Service Commission, Case No. 7851; testified on telephone utility rate design.

Maryland Public Service Commission, Case No. 7902; testified on category cost of service study methodologies.

Massachusetts Department of Public Utilities, DPU No. 19843; testified on affiliated relations, Western Electric pricing.

Michigan Public Service Commission, Case No. U-5197, et al.; testified on Western Electric costs and pricing.

Michigan Public Service Commission, Case No. U-6002; testified on separations.

New York Public Service Commission, Case No. 27710/27995; testified on costs and rates of local coin service.

New York Public Service Commission, Case No. 27995; testified on category costs of service utility rate design and deregulation.

New York Public Service Commission, Case No. 28264; testified on category costs of service, costs of local service, and design and structure of local exchange rates.

New York Public Service Commission, Case No. 29469; testified on competition and regulation of cellular services.

Ohio Public Utilities Commission, Case No. 79-1184-TP-AIR; testified on rate design and rate structure.

Ohio Public Utilities Commission, Case No. 83-300-TP-AIR; testified on rate design and rate structure.

Ohio Public Utilities Commission, Case No. 83-464-TP-COI; testified on regulatory structure and access charges.

Ohio Public Utilities Commission, Case No. 84-435-TP-AIR; prepared analysis of rate design.

Pennsylvania Public Utility Commission, R.I.D. No. 289, et al,: testified on utility cost of service methodologies and rate design for competitive telecommunications service offerings.

Pennsylvania Public Utility Commission, Docket R-811512; provided telephone utility cost of service study, testified on rate design.

Pennsylvania Public Utility Commission, Docket R-811819; testified on telephone utility cost of service and rate structure.

Pennsylvania Public Utility Commission, Docket R-832316; testified on access charges, impact of divestiture on revenue requirements and revenue sources, and rate design.

Pennsylvania Public Utility Commission, Docket No. P-830452; testified on the impacts of divestiture on operating company operations and carrier access charges.

Pennsylvania Public Utility Commission, Docket No. R-842779; testified on telephone rate design and stand alone costing procedures.

Pennsylvania Public Utility Commission, Docket No. R-850044; testified on telephone rate design.

Pennsylvania Public Utility Commission, Docket No. R-850170; testified on policy issues regarding public, semipublic and privately owned coin stations and services.

Pennsylvania Public Utility Commission, Docket No. R-850229; testified on rate design.

Pennsylvania Public Utility Commission, Docket No. 860923; rate design and depreciation practices.

Rhode Island Public Utilities Commission, Docket No. 1475; testified on rate design and rate structure.

Rhode Island Public Utilities Commission, Docket 1631 (Phase I); testified on revenue requirements and merits of company cost of service studies.

Rhode Island Public Utilities Commission, Docket 1631 (Phase II); provided telephone utility cost of service study.

Rhode Island Utilities Commission, Dockets 1560R, 1631, and 1654; testified on utility cost of service and rate design.

Rhode Island Public Utilities Commission, Docket 1687; testified on rate design and structure of local and toll rates.

Rhode Island Public Utilities Commission, Docket 1698; testified on rate design.

Rhode Island Public Utilities Commission, Docket 1878; testified on rate design.

South Carolina Public Service Commission, Docket 79-305-C; testified on cost of service, rate design, separations and affiliated relationships.

South Carolina Public Service Commission, Docket 82-291-C; testified on telephone utility cost of service methodologies and rate structure.

Texas Public Utility Commission, Docket No. 8585; testified on cost study methodology and the pricing of competitive services.

Washington Utilities and Transportation Commission, Case No. U-75-54; testified on cost of service methodologies for competitive telecommunications service offerings.

Washington Utilities and Transportation Commission, Cause Nos. U-86-34, et al.; testified on the establishment of rules and procedures regarding the detariffing of utility products and services.

West Virginia Public Service Commission, Case No. 84-747-T-42T; testified on rate design, access charge structures and affiliated relationships.

West Virginia Public Service Commission, Case No. 85-282-T-GI; testified on the policy of interexchangeable competition.

West Virginia Public Service Commission, Case Nos. 85-490-T-P, et al.; testified on access charge structures.

West Virginia Public Service Commission, Case Nos. 86-038-T-C, et al. testified in complaint case regarding independent telephone company earnings.

West Virginia Public Service Commission, Case No. 86-364-T-GI; testified on access charge structures.

West Virginia Public Service Commission; Case No. 89-206-T-42T; Telephone Rate Design and Local Calling Plans.

West Virginia Public Service Commission; Case No. 90-522-T-42T; Telephone Rate Design and Local Calling Plans.

Wisconsin Public Service Commission, Docket No. 6720-TI-103; testified on cost standards for competitive services and compensatory pricing of Centrex service.

Wisconsin Public Service Commission, Docket No. 6720-TI-102; testified on productivity and rate implications of rate moratorium.

Wisconsin Public Service Commission, Docket No. 6720-TR-104; testified on incentive regulation proposals.

Before the Federal Energy Regulatory Commission (FERC)

Natural Gas Pipeline Company of America, Docket No. 87-141; filed testimony on the GIC.

Tennessee Gas Pipeline Company, Docket No. RP-88-228-000 et. al.; filed testimony on comparable service.

Before Canadian Commissions

Prince Edward Island Public Utilities Commission, complaint case; testified on cost of service and rate design for PBX equipment, and the economic implications of interconnection.

Before U.S. Postal Commission

Docket MC79-3; testified on cost of service and rate design for second-class mail.

Before Legislatures

Committee on Commerce, U.S. Senate, Subcommittee on Communications; expert witness testifying for Subcommittee Staff on U.S. Department of Transportation Study on Impacts of Daylight Savings Time Act.

Committee on Banking and Currency, U.S. House of Representatives, Ad Hoc Committee on the Domestic and International Monetary Effect of Energy and Natural Resource Pricing; appeared as Staff witness on inflationary and unemployment effects of the oil embargo, and on utility pricing policy proposals.

Committee on Consumer Affairs, Pennsylvania House of Representatives, appeared on behalf of the Office of Consumer Advocate, testified on regulatory policy regarding telecommunications.

Other

District Court of Lancaster County, Nebraska, in Re: Norstan Communications vs. State of Nebraska, Docket No. 355; testified on the market for telecommunications services and the effect of emerging competition.

U.S. District Court for the District of Columbia, in RE: US. vs. AT&T et. al., C.A. No. 74-1698; testified on Western Electric PBX Pricing.

U.S. District Court for the Southern District of Florida, in Re: Eugene Steele d/b/a Yacht Buyers Group vs. Morgan Yacht, et al., Case No. 82-2757-CIV-JE; testified on economic estimate of damages.

U.S. District Court for the District of Maryland, in Re: Fred Menke's Car Store, Inc. and Fred R. Menke, Sr. vs. Volvo North America Corporation, C.A. No. H86-1150; testified on economic estimate of damages.

U.S. District Court for the Eastern District of Pennsylvania, in Re: Design Sales Associates, Inc. vs. Pittcon Industries, Inc., C.A. No. 87-0805; testified on economic estimate of damages.

STATE OF FLORIDA

BEFORE THE

PUBLIC SERVICE COMMISSION

Comprehensive Review of the Revenue Requirements and Rate Stabilization Plan of Southern Bell Telephone & Telegraph Company	))))	Docket No. 920260-TL

EXHIBITS ACCOMPANYING THE DIRECT TESTIMONY OF MARVIN H. KAHN

ON BEHALF OF THE

OFFICE OF PUBLIC COUNSEL

AND FLORIDA CITIZENS

NOVEMBER 16, 1992

EXETER
Associates, Inc.

10801 Lockwood Drive
Suite 350
Silver Spring, MD 20901

Revenue Requirements per Access line
per Reid Exhibit Schedules 1-3[1]

	Per Books	Commission Basis	Commission Basis Adjusted for Constant Depreciation
1984	$511.83	$570.98	$535.81
1985	522.40	521.20	542.70
1986	527.83	522.86	530.88
1987	502.94	502.59	499.71
1988	523.99	520.10	504.39
1989	495.88	499.03	492.80
1990	493.12	496.56	491.08
1991	499.88	502.43	490.03

[1]All calculations are based on an assumed 15.0 percent ROE.

Rate Change per Access Line
All State Jurisdictions
(millions)

	Revenue Changes Ordered	Access Lines	Revenue Change per Access Line
1984	$3,875.5	112.6	$34.43
1985	1,154.9	116.0	9.95
1986	290.0	118.3	2.45
1987	(519.0)	123.6	-4.20
1988	(1,366.4)	128.2	-10.66
1989	(838.5)	131.5	-6.38
1990	(451.1)	136.0	-3.32
1991	(86.6)	140.4[1]	-0.62

Source: FCC Interindustry Division, Trends in Telephone Service, September 1992, Tables 9, 13.

Notes: [1]Exeter estimate derived from trending 1987-1990 access line growth rates.

Exhibit___(MHK-2)

Telecommunications Network Infrastructure: Regional Bell Operating Companies and Southern Bell States
1990

National	(1) % Equal Access Switches	(2) % Digital Switches	(3) % Digital Access Lines	(4) % Fiber Sheath[1]	(5) % SS7 Switches	(6) % ISDN Switches
Ameritech	91.23	63.65	40.42	3.27	27.72	6.08
Bell Atlantic	96.78	73.46	48.25	3.94	75.15	17.69
Mountain States	56.89	41.14	32.85	2.40	10.08	3.71
Northwestern Bell	42.01	34.53	42.29	4.06	9.50	2.73
NYNEX	79.51	58.13	55.21	3.37	12.62	2.30
Pacific Northwest	90.79	76.32	42.83	2.72	12.83	5.92
Pacific Telesis	85.22	60.40	35.49	1.96	14.89	4.61
South Central Bell	100.00	79.74	50.82	2.27	11.81	2.04
Southern Bell	100.00	76.93	51.23	5.16	86.82	8.45
Southwestern Bell	59.07	35.11	25.98	2.37	1.31	3.93
Average	80.44	58.93	43.02	3.19	26.77	6.07
Southern Bell States						
Florida	100.00	65.45	42.40	4.80	92.27	16.36
Georgia	100.00	70.59	40.85	6.64	75.98	5.39
N. Carolina	100.00	90.07	73.82	3.93	94.04	3.31
S. Carolina	100.00	91.87	79.33	4.25	86.18	5.69

[1]Data are for 1989.
Source: ARMIS 43-07 Reports, 1989 and 1990.

Regression Results
Dependent Variable: Digital Access Lines

	Digital Access Lines		SS7 Access Lines	
AxGro	0.2476 (1.1002)	0.0143 (0.0450)	0.0866 0.1539	1.0805 (1.2757)
Return	0.0611 (0.0376)		0.9379 (-0.2062)	
Depreciation		-3.8027 (-0.9282)		14.9834 (1.4546)
IncentReg	-1.8654 (-0.7168)	-1.4333 (-0.6005)	-2.7615 (-0.4214)	-5.5347 (-0.9199)
EM	0.8690 (9.0748)	0.8992 (9.4723)		
Ameritech	17.4789 (1.3884)	47.1663 (1.4879)	46.1086 (1.3004)	-79.7185 (-0.9741)
Bell Atlantic	25.0000 (2.6523)	55.2274 (1.6964)	87.6071 (3.3580)	-39.0931 (-0.4642)
Mt Bell	2.9114 (0.2964)	32.4328 (1.0139)	36.5448 (1.3747)	-88.4275 (-1.0613)
NW Bell	6.9552 (0.6167)	40.9753 (1.1104)	34.2821 (1.1327)	-109.9758 (-1.1425)
Nynex	12.2071 (1.2477)	44.8055 (1.2678)	13.9235 (0.5467)	-124.2209 (-1.3457)
Pacific NW Bell	16.6119 (1.2994)	46.5607 (1.4380)	39..2959 (1.1040)	-88.5528 (-1.0512)
Pacific Telesis	6.1346 (0.4808)	40.4263 (1.0893)	40.4458 (1.1526)	-105.2295 (-1.0892)
SC Bell	16.6560 (1.3455)	48.6886 (1.4094)	35.1357 (1.0254)	-101.1568 (-1.1257)
Southern Bell	25.2080 (2.1259)	61.4690 (1.5626)	105.3263 (3.2434)	-47.1780 (-0.4619)
SW Bell	-1.5931 (-0.1530)	29.1592 (0.8791)	8.4114 (0.2928)	-121.3096 (-1.4096)
R-Squared	0.9648	0.9686	0.9541	0.9635
Adjusted R-Squared	0.8993	0.9103	0.8852	0.9087
F-Statistic	14.7405	16.6174	13.8519	17.5946
Degrees of Freedom	7	7	8	8

NOTES: t-statistics are in parentheses.
$t_{.025}$ = 2.365 (7 d.f.)
$t_{.025}$ = 2.306 (8 d.f.)

ECONOMETRIC ASSESSMENT
DEPLOYMENT OF ADVANCED NETWORK TECHNOLOGIES

It is often claimed that the adoption of an alternative regulatory structure (Incentive regulation or price caps) will result in the expedited deployment of modern network technologies. Contained herein is an empirical investigation of the relationship between the existence of an incentive regulation plan and the pace and pattern of such technology deployment.

As shown in Exhibit___(MHK-2), the presence of advanced network technologies in Southern Bell in Florida are at levels equal to and, in most instances, far above the national average and those that exist in many other operating companies and jurisdictions. For instance, the presence of ISDN and SS7 switching capability is two and three times the national average. It is not likely that the implementation of an incentive regulation or a price cap plan in Florida will significantly affect the deployment of these resources in the state. On the other hand, the percentage of access lines terminating in digital switching systems in Florida is approximately the national average. It is possible, then, that some change in regulatory policy can impact the deployment of digital switches. Our examination focused on the penetration of that technology. Specifically, we inquired into whether the deployment of digital switches, as measured by the percentage of access lines terminating in digital switching systems is at all related to the presence of an incentive regulation or price cap plan.

The Model

To determine whether regulatory structures have any impact on the deployment of advanced network technologies, a model of telephone company investment decision making is needed. The deployment of modern technology is the result of the construction program process. If regulatory structures impact on this, positively or negatively, then the level of investment should be related to the regulatory structure, after controlling for other "normal" construction program drivers or triggers.

It follows from economic theory that the demand for any input into a production process, including capital equipment, is related to the level of output and the price of factors of production. Higher levels of output, all else constant, require greater volumes of all inputs. The relative price of the various inputs determines the cost effective mix of inputs. If digital technology is costly relative to analog technology, slower digital deployment would be expected.

To estimate the effect of regulatory structures on the deployment of modern technology, we undertake a cross section analysis and relate the deployment of the technology to economic and regulatory variables. For digital access line (% DAXL) the relationship is as follows:

$$\% \text{ DAXL} = a_0 + a_1 \text{ AXGRO} + a_2 \text{ RETURN}$$
$$+ a_3 \text{ DEP} + a_4 \text{ INCENTREG} + a_5 \text{ EM}$$

Change in output is measured by access line growth (AXGRO) over the 1985-1990 period. It is assumed that all telephone operating companies purchase inputs in the same markets, meaning that relative prices can be eliminated from the analysis. Regulatory variables include RETURN, DEP and INCENTREG. RETURN is intended to measure a commission's disposition with regard to this variable. If higher returns are allowed, does this effect the pace of deployment. Due to time and resource constraints, actual return earned in the 1987-1989 period was used. DEP measures a commission's disposition toward depreciation accruals. The variable is measured as the average depreciation rates (depreciation expense divided by gross plant) over the 1987-1989 period. INCENTREG is a dummy variable which has a value equal to one if an incentive regulation plan was in place in 1989 and zero otherwise. EM is designed to provide a technological description of the network in 1985. This variable measures the percentage of central office switches in 1985 that were electromechanical. With normal replacement requirements and with equal access requirements, the larger this variable, the greater the number of central office replacements that would be required and, holding all else constant, the higher the penetration of digital switching technology. In addition, a set of indicator variables for the individual RBOCs are included. This is intended to determine whether there is any impact, in addition to that captured by the other variables, that differs across RBOCs. The same basic structure is used to assess the relationship with regard to SS7 deployment. The exception is that the EM variable is not included.

Data

Cross section data on 21 former Bell operating companies were gathered and used in the analysis. Data on digital switching SS7 deployment are from the FCC ARMIS 43-07 report for 1990. Data on depreciation rates and rate of return are from the FCC ARMIS 43-03 reports. Information on AXGRO and EM are from BOC Form M reports. Information on the presence of an incentive regulation plan is from an Exeter study.

Regression Results

The results of the estimation are shown on page 1 of this exhibit. According to these results, technology deployment characteristics vary substantially and systematically across operating companies, but not due to differences in regulatory variables. In fact, these results forcefully reject the hypothesis that differences in technology deployment are in any way related to differences in regulatory characteristics. Neither the percent of digital access lines or offices equipped with SS7 are affected by commission policy with regard to rate of return, depreciation accrual rates or alternative regulatory structures. Nor were growth rates of service demands sufficiently different across companies to effect deployment rates. The coefficients for these variables were, in every instance, not statistically significant. On the other hand, the coefficient of EM in the digital access line equations is positive, as expected, and significant at the 95 percent confidence level. The

presence of digital switching in any jurisdiction has been driven primarily by the extent to which the company had electromechanical facilities in place in 1985. This replacement could be due to economic obsolescence or to equal access requirements. In any event, the diffusion of digital technology is not related to other regulatory characteristics such as incentive regulation or price cap plans.

Conclusions

The analysis suggests that the presence of an incentive regulation or price cap plan has no impact on the pace or pattern of deploying digital switching or SS7 signaling in Bell Company service territories. From this, it would appear that the incentive regulation plan currently in place in Florida has not and a price cap plan will not have any impact on future deployment of modern network technologies in Florida.

Operating Companies Included in Analysis

Ameritech
- Illinois Bell
- Indiana Bell
- Michigan Bell
- Ohio Bell
- Wisconsin Bell

Bell Atlantic
- Bell of Pennsylvania
- C&P Maryland
- C&P Virginia
- C&P District of Columbia
- C&P West Virginia
- Diamond State Telephone
- New Jersey Bell

BellSouth
- South Central Bell
- Southern Bell

Nynex
- New England Telephone
- New York Telephone

Pacific Telesis[1]

Southwestern Bell

US West
- Mountain States Telephone and Telegraph
- Northwestern Bell
- Pacific Northwest Bell

---

[1]Includes California and Nevada.

Exhibit___(MHK-4)

SOUTHERN BELL TELEPHONE

Productivity Offset
Per McClellan Attrition Analysis

1.	1991 Revenue Base	$2,267,652,000	Exhibit Schedule 2, page 4
2.	1991 Access Lines	4,663,857	Exhibit Schedule 2 page 1
3.	1991 Revenue per access line	468.22	L1/L2
4.	Attrition Estimate per access line	(13.59)	McClellan, page 5
5.	Rate of Attrition	2.80%	L4/L3
6.	Annual Rate of Attrition	1.40%	L5/2
7.	Annual Rate of Inflation	4.20%	Reid, Schedule 5
8.	Minimum Productivity Offset	5.60%	L6 + L7
9.	Productivity Offset with 0.5 percent Productivity Driver	6.10%	L7 + 0.50

Southern Bell Florida
Price Cap Simulation Backcast
1984-1990

Productivity Offset = 4%

	Intrastate Revenues (a)	$ Rate Change (b)	% Rate Change (c)	ROR Price Index (d)	GNP PI (e)	% Rate Change (f)	Price Cap Index (g)
1984	1,649,564		0.00%	1.0000	3.62%		1.0000
1985	1,745,768	21,370	1.23%	1.0123	2.93%	-0.38%	0.9962
1986	1,856,705		0.00%	1.0123	2.63%	-1.07%	0.9855
1987	1,935,421	(31,000)	-1.59%	0.9962	3.20%	-1.37%	0.9720
1988	2,064,115	(240,800)	-11.02%	0.8864	3.31%	-0.80%	0.9643
1989	2,077,064		0.00%	0.8864	4.10%	-0.69%	0.9576
1990	2,170,238	(44,220)	-2.02%	0.8685	4.13%	0.10%	0.9586

Southern Bell Florida
Price Cap Simulation Backcast
1977-1990

Productivity Offset = 4%

	Intrastate Revenues (a)	$ Rate Change (b)	% Rate Change (c)	ROR Price Index (d)	GNP PI (e)	% Rate Change (f)	Price Cap Index (g)
1976	984,610			1.0000	6.34%		1.0000
1977	1,126,024	108,675	10.14%	1.1014	6.73%	2.34%	1.0234
1978	1,264,594		0.00%	1.1014	7.21%	2.73%	1.0513
1979	1,437,638		0.00%	1.1014	8.91%	3.21%	1.0851
1980	1,684,223	(36,503)	-2.14%	1.0778	9.10%	4.91%	1.1384
1981	1,919,113	139,799	7.56%	1.1593	9.62%	5.10%	1.1964
1982	2,187,005		0.00%	1.1593	6.32%	5.62%	1.2637
1983	2,479,270	92,870	3.82%	1.2035	4.00%	2.32%	1.2930
1984	2,608,844	6,923	0.27%	1.2067	3.62%	0.00%	1.2930
1985	2,185,077	21,370	0.98%	1.2186	2.93%	-0.38%	1.2881
1986			0.00%	1.2186	2.63%	-1.07%	1.2743
1987	2,350,306	(31,000)	-1.31%	1.2026	3.20%	-1.37%	1.2568
1988	2,562,705	(240,800)	-8.97%	1.0947	3.31%	-0.80%	1.2468
1989			0.00%	1.0947	4.10%	-0.69%	1.2382
1990	2,622,135	(44,220)	-1.67%	1.0764	4.13%	0.10%	1.2394

CERTIFICATE OF SERVICE
DOCKET NO. 920260-TL

I HEREBY CERTIFY that a copy of the foregoing has been furnished by U.S. Mail or hand-delivery to the following parties on this 18th day of December, 1992.

Marshall Criser, III
BellSouth Telecommunications, Inc. (Southern Bell Telephone & Telegraph Company)
150 S. Monroe St., Suite 400
Tallahassee, FL 32301

Harris B. Anthony
BellSouth Telecommunications, Inc. (Southern Bell Telephone & Telegraph Company)
150 W. Flagler St., Suite 1910
Miami, FL 33130

Robin Norton
Division of Communications
Fla. Public Service Commission
101 East Gaines Street
Tallahassee, FL 32301

Doug Lackey
BellSouth Telecommunications, Inc. (Southern Bell Telephone & Telegraph Company)
4300 Southern Bell Center
Atlanta, GA 30375

Mike Twomey
Department of Legal Affairs
Attorney General
The Capitol Bldg., 16th Floor
Tallahassee, FL 32399-1050

Laura L. Wilson
Messer, Vickers, Caparello, Madsen & Lewis, P.A.
P.O. Box 1876
Tallahassee, FL 32302-1876

Angela Green
Division of Legal Services
Fla. Public Service Commission
101 East Gaines Street
Tallahassee, FL 32301

Edward Paschall
Florida AARP Capital City Task Force
1923 Atapha Nene
Tallahassee, FL 32301

The American Association of Retired Persons
c/o Bill L. Bryant, Jr.
Foley & Lardner
215 S. Monroe St., Suite 450
P.O. Box 508
Tallahassee, FL 32302-0508

Richard D. Melson
Hopping, Boyd, Green & Sams
23 South Calhoun Street
P.O. Box 6526
Tallahassee, FL 32314

Michael J. Henry
MCI Telecommunications Corp.
MCI Center
Three Ravinia Drive
Atlanta, GA 30346

Lance C. Norris, President
Florida Pay Telephone Assn., Inc.
8130 Baymeadows Circle, West
Suite 202
Jacksonville, FL 32256

Joseph A. McGolthlin
Vicki Gordon Kaufman
McWhirter, Grandoff & Reeves
522 E. Park Ave., Suite 200
Tallahassee, FL 32301

Rick Wright
AFAD
Fla. Public Service Commission
101 East Gaines Street
Tallahassee, FL 32301

Peter M. Dunbar
Haben, Culpepper, Dunbar
& French, P.A.
306 N. Monroe St.
P.O. Box 10095
Tallahassee, FL 32301

Patrick K. Wiggins
Wiggins & Villacorta, P.A.
P.O. Drawer 1657
Tallahassee, FL 32302

Dan B. Hendrickson
P.O. Box 1201
Tallahassee, FL 32302

Monte Belote
Florida Consumer Action Network
4100 W. Kennedy Blvd., #128
Tampa, FL 33609

Cecil O. Simpson, Jr.
Peter Q. Nyce, Jr.
Regulatory Law Office
Office of the Judge Advocate
General
Department of the Army
901 North Stuart St.
Arlington, VA 22203-1837

Joseph P. Gillan
J. P. Gillan and Associates
P.O. Box 541038
Orlando, FL 32854-1038

C. Everett Boyd, Jr.
Ervin, Varn, Jacobs, Odom & Ervin
305 S. Gadsden Street
P.O. Drawer 1170
Tallahassee, FL 32302

Chanthina R. Bryant
Sprint
3065 Cumberland Circle
Atlanta, GA 30339

Michael W. Tye
AT&T Communications of the
Southern States, Inc.
106 East College Avenue
Suite 1410
Tallahassee, FL 32301

Florida Hotel and Motel Assn.
c/o Thomas F. Woods
Gatlin, Woods, Carlson
& Cowdery
1709-D Mahan Drive
Tallahassee, FL 32308

Douglas S. Metcalf
Communications Consultants, Inc.
1600 E. Amelia St.
Orlando, FL 32803-5505

Benjamin H. Dickens, Jr.
Blooston, Mordkofsky, Jackson
& Dickens
2120 L Street., N.W.
Washington, DC 20037

Charles J. Beck
Deputy Public Counsel