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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	
Price Cap Performance Review for Local Exchange Carriers	CC Docket No. 94-1
Access Charge Reform	CC Docket No. 96-262
Further Notice of Proposed Rulemaking	

Statement of

LEE L. SELWYN

on behalf of the

Ad Hoc Telecommunications Users Committee

January 24, 2000

STATEMENT OF LEE L. SELWYN

Introduction

1. My name is Lee L. Selwyn; my business address is One Washington Mall, Boston, Massachusetts 02108. I am president of Economics and Technology, Inc. ("ETI"), a research and consulting firm specializing in telecommunications economics, regulation and public policy. Along with Patricia D. Kravtin of ETI, I participated in the preparation of the Initial Comments of the Ad Hoc Telecommunications Users Committee ("Ad Hoc" or "Committee") that were filed in this matter on January 7, 2000. A statement of my qualifications is annexed hereto as Attachment 1 and is made a part hereof.

2. I and my firm have participated in all of the FCC's price cap proceedings, beginning with the original CC Docket 87-313 AT&T and LEC NPRMs, in each of the price cap review proceedings and in the further notices of proposed rulemakings associated therewith. In addition, I and my firm have participated extensively in state price cap and other incentive regulation proceedings in more than 16 states.

3. Counsel for Ad Hoc has asked that I review the "Comments of William E. Taylor, Ph.D." that were filed as Attachment 1 to the Comments of the United States Telecom Association ("USTA") and that I respond to his various claims and contentions with respect to the Staff's "imputed X factor" methodology and the development of jurisdictional interstate-only measures of Total Factor Productivity ("TFP") for purposes of establishing the X-factor for use in the FCC's price cap index formula.

The Staff's imputed X-factor approach is a reasonable basis for assessing the performance of the present price cap regime and for making adjustments to its parameters and structure so as to better achieve a "competitive outcome" in the absence of actual, price-constraining competition in the core ILEC markets.

4. In its Comments, Ad Hoc had made certain corrections to the **DESCRIBE. While the Committee believes that the Staff's imputed X factor approach is both economically sound and legally supportable — particularly because of its specific focus upon jurisdictionally interstate revenues and costs — the Committee did not specifically recommend its adoption in lieu of an appropriately corrected TFP methodology coupled with retention of a Consumer Productivity Dividend ("CPD") to give effect to the elimination of sharing that the

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Commission ordered in its *Fourth Report and Order* in CC Docket 94-1.[1] The Committee noted that the Staff's imputed X factor study, which determined a value for X at 7.71%[2] — corroborated the TFP results, but the Committee did not specifically recommend its explicit use as *the* determinant of the X factor.

5. However, in his Comments, Dr. Taylor argues that *any* use of the imputed X factor methodology "amounts to retrospective regulation of the price cap plan" and somehow constitutes what he describes as "recontracting" of a "regulatory contract" that purported exists between the ILECs and the Commission. Taylor, paras. 6, 7. According to Taylor, the incentives that exist only under "pure price cap regulation" — under which there would be no linkage whatsoever between prices and regulatory costs — encourage ILECs "to seek out profitable opportunities" that are not present under rate of return regulation, and that periodically "recontracting" the terms of the price cap structure on the basis of realized earnings essentially amounts to rate of return regulation with regulatory lag. *Id.* Taylor argues that "the improvement in incentives [under price cap regulation] requires [the] firm to actually face the financial consequences of its actions *in the same way that firms in unregulated markets do*." *Id.*, emphasis supplied.

6. The factual premise underlying Taylor's position is that the existing price cap regime, if not tinkered with, accurately simulates all of the conditions that unregulated firms confront in competitive markets. *That factual premise is demonstrably false*, as I discuss below. Therefore, it is not necessary to respond to Taylor's *theoretical* arguments about "pure price caps" and "recontracting" because the present regulatory treatment applicable to ILECs does not come even remotely close to "requir[ing the ILEC] to actually face the financial consequences of its actions in the same way that firms in unregulated markets do." In fact, while the existing price cap regime does permit an ILEC to retain, at least for a time, excess profits attributable to its efforts to reduce costs and/or expand utilization of its assets, unlike "firms in unregulated markets" it enjoys close to total insulation against any *adverse* financial consequences of its business decisions and actions. Indeed, Dr. Taylor's suggestion (at para. 6) that a price cap-regulated firm "is required to live with whatever losses it incurs" is a feature that is distinctly absent from the existing FCC price cap regime.

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1. CC Docket No. 94-1, *In the Matter of Price Cap Performance Review for Local Exchange Carriers*, Fourth Report and Order, at paras. 148-149.

2. The imputed X factor study estimated an X-factor of 7.71% using data through 1998 and an X-factor of 7.10% using data through 1995. Further Notice, Appendix C, at 70.

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7. In fact, there are a number of critically important aspects of the existing price cap system that work to place LECs in a decidedly "heads I win, tails you lose" condition. Dr. Taylor affords limited recognition only to one of these - the "low end adjustment mechanism" under which a price cap LEC whose earnings fall below 100 basis points under the "authorized" 11.25% rate of return (i.e., below 10.25%) can petition the Commission for an upward adjustment in its price cap index (PCI) so as to bring its earnings back up to the 11.25% level. Taylor, at footnote 2. But the low-end adjustment is by no means the only "backstop" protecting the LEC against losses arising from its business decisions. In its *Report and Order* in CC Docket 98-137, the *1998 Review of Depreciation Requirements for Incumbent Local Exchange Carriers*, the Commission enumerated several other features of the existing price cap system that work to protect the ILEC against earnings erosion and which are not present in unregulated competitive markets:

- Exogenous cost adjustments to flow through certain specific cost increases.
- The right to file above-cap tariffs where specific cost support demonstrates that the price cap rate level would fall below cost.
- The right to draw more from, and/or contribute less to, the universal service high-cost fund based upon the relationship of a specific ILEC's costs to those of other ILECs.
- The constitutional right to seek Fifth Amendment protection against unlawful takings in the event of a severe drop in earnings or an inability on the part of the ILEC to recover its investment.

8. While Taylor may seek to portray his notion of "pure price caps" as representing a total de-linking of prices and costs — and give little more than casual lip-service to the low-end adjustment as representing the only area in which "the FCC's price cap plan does not precisely reproduce the incentives of unregulated markets," the inescapable fact is that each and all of the protections identified above — as well as the low-end adjustment mechanism itself — are inextricably linked to the ILECs' *costs*, the very same costs that drive a rate of return regulation regime. Under "pure" rate of return regulation, a utility is protected against financial loss in that it is permitted to raise its prices when earnings fall below the authorized levels, but is also compelled to reduce prices when earnings exceed the authorized levels. Under the type of price cap regime in place both at the FCC and in many state jurisdictions, the ILEC retains the ability to initiate proceedings to increase its rates above the cap in the event of earnings erosion, but unlike RORR *the ILEC is permitted to retain excess earnings until the price cap plan itself is reexamined and possibly revised by the Commission based upon actual experience over an extended period of time*. In that important respect, ratepayers

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bear the risks of loss while shareholders enjoy the fruits of excess profits. In the world envisioned by Taylor, that condition should be permitted to persist indefinitely into the future, i.e., the price cap system itself should never be subject to review or revision based upon actual experience because to do so would somehow attenuate the efficiency incentives that the ILEC would otherwise confront. The fundamental — and fatal — flaw in Taylor's reasoning lies in the enormous gap between the set of incentives and risks confronting ILECs subject to FCC price cap regulation and the set of incentives and risks confronting unregulated firms in competitive markets — a gap whose very existence Taylor attempts to deny.

9. Taylor contends (at para. 24) that "[t]he very design of incentive regulation requires that the LECs not be required to forfeit the entirety of the gains from their own improved performance." In addition to not enjoying any "low end adjustments" or other backstops to protect them against adverse results of business decisions and actions, firms operating in unregulated competitive markets do not possess the ability to retain indefinitely the benefits of their performance. The ability of unregulated firms to retain efficiency gains or revenue enhancements over an extended period of time will necessarily be constrained by the actions of competitors in those markets. Innovative firms may enjoy exclusivity with respect to their profit-enhancing initiatives for a time, but eventually those same actions will be replicated — or perhaps even surpassed — by others. The only scenario under which an unregulated firm could retain excess profits over an extended period of time is one in which it enjoyed an absolute monopoly over its product market. The ILECs presently enjoy a near-monopoly over their core local exchange and access markets, and absent effective, price-constraining competition, there is no mechanism under the FCC price cap regime *other than periodic review and revision based upon actual experience* that would produce the required competitive outcome. Thus, whereas Taylor seeks to characterize the idea of revising the X factor or making other changes in the parameters of the price cap plan based upon actual performance as undermining the competitive outcome objective, *precisely the opposite is the case*: Periodic review and revision is essential in the absence of operative competitive market conditions so as to create some balance into what would otherwise be the entirely one-sided nature of the "pure price cap" scheme envisioned by Taylor.

10. The ILECs also continue to benefit from other residue of the prior rate of return regulation system and, in so doing, cannot even remotely be described as confronting the same types of incentives and risks that unregulated firms in competitive markets face. Perhaps the most specific area in which the ILECs enjoy an ongoing benefit of RORR lies in their ability to set rate levels based upon *embedded* costs rather than upon forward-looking costs. Since approximately 1994, most ILECs have maintained two separate and distinct sets of books, one based upon Generally Accepted Accounting Principles ("GAAP"), and the other based upon the FCC's Part 32 regulatory "Uniform System of Accounts" ("USOA") rules. At

the time that the ILECs adopted GAAP for financial reporting, they took large write-offs and write-downs in plant value (roughly $30-billion total) to reflect the fact that the *economic value* of these assets had fallen relative to the book value. *No such write-offs or write-downs were taken on the ILECs' regulatory books*. Because the initial or "going-in" rates under the FCC's price cap regime were based upon regulatory accounting costs, all subsequent price changes under price caps have been incremental to these original regulatory rate levels. When confronted with a large-scale erosion in the underlying economic value of their assets, firms operating in unregulated markets will routinely write down the inflated values, in specific recognition of the fact that, as an economic matter, they will have no chance of ever recovering that prior investment. Among other things, firms in unregulated markets are forced, by the economic discipline of competition itself, to reduce the prices of their products and services to reflect the post-write-off economic values of their assets, and to take the loss associated with the write-down as a charge against shareholder earnings.

11. ILECs do not confront such a requirement either as a legal or as an economic matter. They have been permitted, as a legal matter, to retain their unadjusted asset values for regulatory purposes, and to set rates designed to recover those inflated values. If a price cap ILEC were to invoke the low-end adjustment mechanism, the basis of its showing (that earnings had dropped below 10.25%) would be with respect to the unadjusted regulatory books, not to the considerably lower market value of the firm's assets. Because of the substantially lower asset values on the ILECs' financial books (which are comparable with those of unregulated firms), the effective rate of return will necessarily be substantially greater than on the same ILEC's regulatory books. Indeed, it would be entirely possible for an ILEC to invoke the "low-end protection" mechanism while its financial returns approached or exceeded 15%, 18% or even 20%.

12. Dr. Taylor contends (at para. 42) that "LEC [regulatory] accounting profits are overstated relative to economic profits." This contention may be easily tested, and when it is, Dr. Taylor's factual representation is shown to be meritless. Table 1 below compares ILEC earnings on both a financial (10-K) and a regulatory (Form M) basis since the BOCs' election of GAAP financial reporting through 1998. Precisely contrary to Taylor's contention, with the exception of Ameritech (where the two are relatively close), the BOCs' earnings reported on a financial basis have consistently exceeded their reported regulatory earnings. Were an imputed X-factor measured on the basis of the ILECs' financial books and "economic" performance results, it would undoubtedly be hundreds of basis points higher than under the regulatory accounting basis utilized by the Staff.

13. Taylor also contends (at para. 47) that "[t]he fact that [jurisdictionally interstate] Internet-bound traffic continues to be classified as local increases the level of measured

interstate accounting earnings; these calls carry costs along with them but essentially no revenue [fn. 37: [b]ecause ISPs compete with one another by providing seven-digit numbers by which customers can reach them without incurring toll or local per-minute charges], so assigning costs and revenues for Internet-bound traffic to the intrastate jurisdiction artificially inflates interstate earnings." He goes on to contend that the effect of this treatment is to overstate interstate earnings by $170-million while correspondingly understating intrastate earnings by a like amount. Presumably, this "overstatement" would work to distort (and overstate) the imputed X-factor result if performed on an interstate-only basis.

14. Of course, one of the premises of Taylor's argument is demonstrably false. As noted in the previous paragraph, he contends that ILECs receive "essentially no revenue" from Internet-bound usage because a substantial portion of that usage is provided on a flat-rate basis. What Taylor conveniently ignores is the fact that Internet usage has stimulated enormous demand for additional residential access lines which provide both dial tone (loop) and usage revenue, whether usage *per se* is charged on a per-minute or a per-month basis. Indeed, provision of additional residential access lines is highly profitable to the ILECs. Former Bell Atlantic CEO Raymond F. Smith, speaking to a group of securities analysts at a Merrill Lynch Telecommunications CEO Conference, noted that the rate of additional line growth in his territory is increasing, and that additional lines produce significant incremental revenue:

> In 1995, sales of secondary lines at Bell Atlantic increased more than 50 percent, fueled by surging demand for Internet and telecommuting applications.
>
> Unlike traditional horizontal line growth, which would have significantly added to our capital expenditures, the vertical growth we experienced in '95 brought most of the revenues down to the bottom line. *That's because we were able to provision new lines and services from idle capacity in an existing plant.*[3]

15. While Taylor persists in characterizing the use of an imputed X factor result as somehow constituting "recontracting" of the price cap plan, in fact there never was any such "contract" to begin with. In adopting price caps for Tier 1 LECs, the Commission *never* committed to retain the plan unchanged for some indefinite and protracted length of time, and no such commitment was even conveyed in any subsequent price cap review order. In fact, the price cap ILECs have been on notice from the very outset of price cap regulation that the

3. Raymond F. Smith, speech delivered at Merrill Lynch Telecommunications CEO Conference, March 19, 1996, emphasis supplied.

parameters of the plan were subject to periodic review. For example, in the *LEC Price Cap Order*, the Commission observed that "[t]he checks and balances built into the system ensure that, *with periodic review and adjustment*, price cap regulation can serve as a long term mode of regulation for the LECs subject to it."[4] The Commission went on to conclude:

> Furthermore, we find that periodic reviews of our regulatory system are essential to keep it on track. We therefore adopt, *as part of the price cap package,* the proposal to *undertake a comprehensive performance review of the system after the end of the third year*. The review, to be completed during the fourth year of the plan, will evaluate all aspects of LEC performance, and make any adjustments to the plan that are warranted.[5]

In early 1996, USTA itself proposed an ongoing mechanism for annually adjusting the X-factor based upon a five-year moving average.[6] Without debating the merits of that *specific* proposal, its existence serves to demonstrate that, contrary to Taylor's contention, the ILECs themselves have never operated under any illusion or expectation that the X factor was somehow inviolate and would remain unchanged for all time to come. And the Commission reiterated its commitment to periodic reexamination of the X-factor and other aspects of the price cap plan as part of its May 7, 1997 "trilogy" rulings:

> Because it is difficult to predict with certainty how competition will develop under the 1996 Act, or whether our price cap plan will remain reasonable, it is unclear whether any moving average formula would continue to produce reasonable X-Factors as competition grows. Thus, although we are certain that we have based our X-Factor prescription on a reliable estimate of LEC productivity growth, and that our X-Factor captures a reasonable portion of underlying productivity gains, *we are not confident that there is any predetermined X-Factor calculation that will always*

^N 4. FCC CC Docket No. 87-313, *In the Matter of Policy and Rules Concerning Rates for Dominant Carriers*, Second Report and Order, September 19, 1990, at para. 3, emphasis supplied.

5. *Id.*, at para. 20, emphasis supplied.

6. CC Docket No. 94-1, *In the Matter of the Price Cap Performance Review for Local Exchange Carriers*, Comments of the United State Telephone Association on Fourth Further Notice of Proposed Rulemaking, January 16, 1996, at 3.

> *produce reliable productivity growth estimates without further analysis, or that should be deemed presumptively correct indefinitely*.[7]

In that same ruling, the Commission also addressed *and rejected* the contention being advanced here by Taylor — that periodic reviews of the ILECs' performance under price caps would adversely affect their incentives to operate efficiently:

> Bell Atlantic opposes performance reviews, arguing that as long as earnings are used to check the performance of price caps from time to time, the perverse incentives of rate-of-return regulation will not be eliminated completely. Bell Atlantic argues that this blunts efficiency incentives, and tends to shift the risk of investment from shareholders to ratepayers. We share Bell Atlantic's concern about eliminating the perverse incentives of rate-of-return regulation, *but do not agree that holding a performance review will significantly affect the beneficial incentives that should flow from the pure price cap regime we are here adopting*. We have eliminated sharing requirements based on LEC earnings, and we have declined, in the Access Reform First Report and Order, many parties' suggestions that we reinitialize access rates based on LECs' *individual* rates of return. In addition, we plan to focus in our next performance review on ensuring, to the extent possible, that we do not substantially undermine each price cap incumbent LEC's incentives to improve its efficiency. For instance, *we would plan to make adjustments based on demonstrated industry-wide performance or other generic factors*, rather than adjustments that are tied to a particular price cap incumbent LEC's interstate earnings.[8]

16. While one of the effects of price cap regulation is that it permits ILECs to retain increases in earnings that result from their own actions, firms in unregulated markets have no expectation of being able to retain similar gains indefinitely into the future. In fact, firms in competitive markets can, by definition of "competition" itself, copy, adapt and adopt efficiency initiatives taken by rivals thereby truncating the innovators' advantages to a relatively short span of time. Thus, while shareholders of unregulated firms will get to enjoy the benefits of the firm's initiatives for a period of time, eventually these gains will necessarily have to be shared with the economy as a whole. LECs do not confront sufficient competition in their primary markets but do confront highly price-inelastic demand for their

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7. CC Docket No. 94-1, *In the Matter of Price Cap Performance Review for Local Carriers,* Fourth Report and Order, May 7, 1997, at para. 165, emphasis supplied.

8. *Id.*, para. 167, emphasis supplied, footnotes omitted.

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core monopoly services, and so would be able, as an economic matter, to retain their efficiency improvements indefinitely unless constrained in some other manner, such as a periodic review and adjustment of the price cap mechanism.

17. Curiously, Taylor seems to accept the idea that the Commission has the right to periodically review the price cap plan, but at the same time appears to reject the idea that the Commission can then apply the results of such a review to revise the plan itself:

> While the actual performance (including the change in productivity) of the LECs during the price cap period may be germane to a review of the program, the results must be interpreted in the context of the Commission's intent in establishing the plan, a part of which was to emulate competitive markets *by subjecting the regulated firm to the same transitory pattern of profits and losses that competitive firms experience when they are successful or unsuccessful*. In order to ensure long-term stability and to avoid a return to traditional cost-plus regulation, it is essential that the productivity gains realized under price caps not be used to recalculate a firm's productivity target.

Para. 26, emphasis supplied. In point of fact, the *only way* that the Commission can "subject[] the regulated firm to the same transitory pattern of profits and losses that competitive firms experience" is by doing precisely what Dr. Taylor claims should not be done, i.e., use "the productivity gains realized under price caps [] recalculate a firm's productivity target."

18. The FCC has already rejected various efforts by ILECs to eliminate certain regulatory constraints precisely because the ILECs continue to benefit from regulatory protections against financial losses. For example, in addressing ILEC efforts to obtain flexibility in setting their own depreciation rates, the Commission determined that this could be permitted only if the ILEC agreed to take a below-the-line (i.e., nonrecoverable) write-down of the difference between the regulatory book value of its assets and their economic value as reflected on the ILEC's financial books.[9] In authorizing pricing flexibility for ILEC

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9. CC Docket 98-137; ASD 98-91, *1998 Biennial Regulatory Review -- Review of Depreciation Requirements for Incumbent Local Exchange Carriers*; *United State Telephone Association's Petition for Forebearance from Depreciation Regulation of Price Cap Local Exchange Carriers*, Report and Order in CC Docket 98-137 and Memorandum Opinion and Order in ASD 98-91, December 17, 1999, at para. 25. The Commission concluded that:

(continued...)

services that satisfy certain competitive market conditions, the FCC specifically conditioned the de-tariffing of such services on the ILEC's willingness to forego entirely the low-end adjustment protection otherwise available under price caps.[10] These rulings demonstrate the Commission's clear understanding that ILECs do not, under the existing price cap regime, come even close to confronting "the financial consequences of [their] actions in the same way that firms in unregulated markets do."

19. While prices and costs are (at least in the short-run) de-linked under price cap regulation, the overarching goal remains to achieve a "competitive outcome" while hopefully encouraging, to the maximum possible extent, efficient behavior on the part of the regulated firm. The X factor is intended to promote both of these objectives. Dr. Taylor states (at para. 13) that "[i]n practice, prices do not equal costs at every instant in time in well-functioning competitive markets." True enough, but prices will come to equal costs over time, and will do so more rapidly the more competitive the market. Use of an X-factor that does not change from one year to the next permits the regulated firm to *temporarily* benefit

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9. (...continued)

> ... we believe that it would be appropriate to grant a waiver of our depreciation prescription process for certain price cap incumbent LECs in certain instances. Specifically, we find that such a waiver may be approved when an incumbent LEC, voluntarily, in conjunction with its request for waiver: (1) adjusts the net book costs on its regulatory books to the level currently reflected in its financial books by a below-the-line write-off; (2) uses the same depreciation factors and rates for both regulatory and financial accounting purposes; (3) foregoes the opportunity to seek recovery of the write-off through a low-end adjustment, an exogenous adjustment, or an above-cap filing; and (4) agrees to submit information concerning its depreciation accounts, including forecast additions and retirements for major network accounts and replacement plans for digital central offices. ...

Footnotes omitted.

10. CC Docket No. 96-262; CC Docket No. 94-1; CCB/CPB File No. 98-63; CC Docket No. 98-157, *In the Matter of Price Cap Performance Review for Local Exchange Carriers; Access Charge Reform; Interexchange Carrier Purchases of Switched Access Services Offered by Competitive Local Exchange Carriers; Petition of US West Communications, Inc., for Forbearance from Regulation as a Dominant Carrier in Phoenix, Arizona MSA.* Fifth Report and Order and Further Notice of Proposed Rulemaking, August 5, 1999, at para. 162.

from its efficiency gains, just as a firm operating in a competitive — but not perfectly competitive — market would retain the fruits of its innovations and efficiencies at least for a time, until these are replicated by its rivals in the market. Periodic adjustment of the X-factor, in the manner proposed by the Staff's imputed X-factor methodology, far more closely approximates the real world operation of "well-functioning competitive markets" than does the alternative that is supported by Taylor under which the X-factor, once adopted, is cast in stone for all eternity. In expressly contemplating periodic adjustments to the X-factor and other price cap parameters, and in expressly *not* committing to any permanent and unreviewable X-factor value, the Commission clearly understood that this type of periodic regulatory intervention will continue to be required until such time as the competitive market is capable of accomplishing the same result.

20. The Commission has also determined, affirmatively, that at the present time the level of competition in the local exchange market is not sufficient to eliminate any long-term imbalance between prices and costs. The Commission, in fact, *defined* what it considers to be "sufficient" competition in its August 27, 1999 *Pricing Flexibility Order*[11] wherein it established specific criteria for determining when and under what circumstances an ILEC would be permitted to de-tariff specific services and remove them from price cap regulation. In its November 22, 1999 *Memorandum Opinion and Order* at CC Docket 98-157 *et al* in which it denied the petitions of US West and several other ILECs for "Forbearance from Regulation as a Dominant Carrier" in certain specified MSAs, the Commission found that "the evidence proffered by the BOC petitioners ... is not sufficient to support a conclusion that they are no longer dominant in the provision of special access and high capacity dedicated transport services or that sufficient competition exists to preclude anti-competitive conduct in those markets.[12] The Commission also noted that the petitioning BOCs could accomplish much of what they were seeking in terms of pricing flexibility merely by satisfying the specific requirements set forth in the *Pricing Flexibility Order*, but that none had done so as of that time. The Commission has also rejected a succession of Section 271 petitions [13] and has imposed extensive compliance obligations on both SBC and Bell Atlantic in

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11. *Id.*

12. *Id.*, para. 33.

13. *See* CC Docket No. 98-121, *In the Matter of BellSouth Corporation, BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc., for Provision of In-Region, InterLATA Services in Louisiana*, Memorandum Opinion and Order, October 13, 1998; CC (continued...)

connection with their respective recent merger activities. Whatever merit Taylor's "pure price caps" theory may have, it would be operative only under conditions of actual and effective, price-constraining competition, conditions that are simply not present at this time.

21. In their various petitions for regulatory relief or modification filed with the Commission since the onset of price caps and, more recently, since adoption of the current price cap regime in 1997, Dr. Taylor's own clients have frequently ignored his contention that "pure price caps" requires that the "rules of the game" remain constant. ILECs subject to price caps have asked the Commission to permit them to de-tariff services in selected markets,[14] to allow them to set their own depreciation rates,[15] and to escape obligations to make reciprocal compensation payments to connecting carriers for completion of

13. (...continued)
Docket No. 97-137, *In the Matter of Application of Ameritech Michigan Pursuant to Section 271 of the Communications Act of 1934, as amended, to Provide In-Region, InterLATA Services in Michigan*, Memorandum Opinion and Order, August 19, 1997; CC Docket No. 97-208, *In the Matter of Application of BellSouth Corporation, et al. Pursuant to Section 271 of the Communications Act of 1934, as amended, To Provide In-Region, InterLATA Services In South Carolina*, Memorandum Opinion and Order, December 24, 1997; CC Docket No. 97-121, *In the Matter of Application by SBC Communications Inc., Pursuant to Section 271 of the Communications Act of 1934, as amended, To Provide In-Region, InterLATA Services In Oklahoma*, Memorandum Opinion and Order, June 25, 1997.

14. CC Docket No. 96-262; CC Docket No. 94-1; CCB/CPB File No. 98-63; CC Docket No. 98-157, *In the Matter of Price Cap Performance Review for Local Exchange Carriers; Access Charge Reform; Interexchange Carrier Purchases of Switched Access Services Offered by Competitive Local Exchange Carriers; Petition of US West Communications, Inc., for Forbearance from Regulation as a Dominant Carrier in Phoenix, Arizona MSA.* Fifth Report and Order and Further Notice of Proposed Rulemaking, August 5, 1999.

15. CC Docket 98-137; ASD 98-91, *1998 Biennial Regulatory Review -- Review of Depreciation Requirements for Incumbent Local Exchange Carriers*; *United State Telephone Association's Petition for Forebearance from Depreciation Regulation of Price Cap Local Exchange Carriers*, Report and Order in CC Docket 98-137 and Memorandum Opinion and Order in ASD 98-91, December 17, 1999.

jurisdictionally interstate traffic.[16] They have supported legislation that would have eliminated regulatory accounting in its entirety,[17] potentially paving the way for them to argue for a $30-billion "exogenous cost adjustment" to flow-through the "cost" of what would have been (had it passed) a Congressionally-mandated write-down. Without debating the merits or lack thereof of any of these items individually, it is to say the least outrageous for Taylor to argue against any modifications to the price cap regime when his clients routinely seek changes that work to their own financial benefit.

22. Finally, it should be recognized that Taylor's focus upon "efficiency incentives" is misplaced and serves only to misdirect the Commission from the more fundamental goal of crafting a regulatory paradigm that best emulates the operation and economic benefits of a competitive market *in those circumstances where the level of actual competition in the subject market is not sufficient to bring about this outcome on its own*. Competition provides the most effective incentive for efficiency. More importantly, when markets are effectively competitive, efficiencies achieved by individual firms ultimately flow to consumers in the form of lower prices, increased choices, and higher overall quality. When a market is not competitive — as is the case with most core ILEC services — there can be no assurance that even if the ILEC is incented to and succeeds in achieving significant efficiency gains any will be flowed through to consumers absent affirmative regulatory prescription. *Indeed, the X-factor is the device for assuring that at least some of the efficiency and productivity gains achieved by ILECs under price cap regulation are flowed through to consumers.* Taylor may object to linking the X-factor to realized ILEC earnings, but the *basis* for his objection is relevant *only where actual, price-constraining competition is present*:

> ... measurement of levels or growth rates of interstate accounting earnings cannot be used to signal whether the plan is working. Earnings are the wrong subject to measure because management decisions play a role in the high or low earnings that firms achieve, and high or low earnings are the reward and punishment for success or failure in the market.

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16. CC Docket No. 96-98; CC Docket No. 99-68, *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996; Inter-Carrier Compensation for ISP-Bound Traffic*, Declaratory Ruling in CC Docket No. 96-98 and Notice of Proposed Rulemaking in CC Docket No. 99-68, February 25, 1999.

17. *See*, for example, *Telecommunications Reports,* "USTA Defends GAAP Bill in Letter to Sen. Stevens," September, 20, 1999.

Taylor, at para. 33. This statement is true, of course, only where the "market" is competitive and where the firm does not possess substantial market power. In the absence of those conditions, high earnings are the reward for effectively using the firm's market power to set prices at supracompetitive levels, and teach nothing about "success or failure" under competitive conditions in a competitive market, because one does not exist.

23. Taylor's exclusive focus upon "efficiency incentives" to the virtual exclusive of all else ignores the fact that absent effective competition the ILECs will confront no market pressure to flow through any of their efficiency gains to consumers. Bell Atlantic, for example, having achieved price cap regulation with X-factors well below that adopted by the FCC in a number of its state jurisdictions, embarked upon a program of *disinvestment* in several of its price cap jurisdictions (in that in the years immediately following adoption of price caps the Company paid out more in dividends to the parent company than it had earned and spent less on new plant than it had taken as depreciation accruals), flowing the excess profits generated under price caps out of those states and, it would seem, out of the country to fund various foreign investment initiatives.[18]

24. As the Commission has recognized in the *Fourth Report and Order*, revision of the X-factor and reinitialization of rate levels based upon realized earnings would constitute a form of rate of return regulation *only if this were done for each ILEC individually,* based upon its own prior performance under the price cap regime. The Staff's imputed X-factor approach does not propose anything of this sort. Rather, it looks to overall industry performance as a means for evaluating the efficacy of the overall price cap formula, and proposes to adjust that formula so as to bring it in line with the level of earnings that would constitute a competitive outcome. Prospective adjustment of the X-factor based upon industry experience will not materially alter the incentives confronting *individual* firms, but will come a good deal closer to simulating the overall operation of competitive markets where competition is not itself present than under the "never look back" model being touted by Taylor.

18. *See* Economics and Technology, Inc., *Broken Promises: A Review of Bell Atlantic-Pennsylvania's Performance Under Chapter 30*, June 1998; *A New Opportunity: Cost-Based Pricing of Bell Atlanti-New Jersey Access Services,* March 1999; *Bringing Local Telephone Competition to Massachusetts*, January 2000.

An X factor based upon interstate-only TFP is both conceptually valid and fully capable of being calculated.

25. In addition to his complaints regarding "recontracting," Taylor also opposes the use of the Staff's imputed X factor study because it is based upon *interstate-only* performance results. Taylor claims that "[p]roductivity growth must be calculated on a total company basis principally because there is no economically meaningful way to assign portions of common facilities to individual services." Para. 34. The very same Dr. William E. Taylor, testifying for BellSouth in a 1996 North Carolina price cap proceeding, there advised the *state* regulators that:

> It is reasonable to expect that productivity growth experienced historically in this market [for interstate access services] would be substantially greater than the overall rate of productivity growth experienced by local exchange companies in supplying all services.[19]

Taylor further emphasized that:

> ... even if the productivity differential is 5.3 percent per year for interstate access services, this would not imply that a similar productivity differential was appropriate for other components of telephone service. To the contrary, the *productivity differential for services in the state jurisdiction must necessarily be less than 5.3 percent per year*.[20]

Taylor's economic theory *du jour* is obviously crafted in a manner that produces the maximum financial benefit for his client at the time. Adoption of a total company TFP-based X-factor in a *state* price cap plan would produce a higher value for X, and hence lower rates overall, than an *intrastate-only* TFP, as Taylor here readily admits. But if "the productivity differential for services in the state jurisdiction must necessarily be less than [the] 5.3 percent per year [then in effect for the interstate jurisdiction]," it follows that the productivity differential for services in the *inter*state jurisdiction must necessarily be *greater* than that determined on a total company basis. One can only wonder how it is that "[a]n interstate-

19. Amended Direct and Rebuttal Testimony of Dr. William E. Taylor (Carolina Telephone and Telegraph Co. and Central Telephone Co.), North Carolina Utilities Commission, Docket No. P-7, sub. 825, P-10, sub. 479, February 9, 1996, at 36.

20. *Id.*, at 38-39, emphasis supplied.

onlyu X-factor is conceptually incorrect" as Taylor contends in his Comment here, while a state-specific X-factor for North Carolina is not only conceptually valid, but that "productivity growth experienced historically in this market [for interstate access services] would be substantially greater than the overall rate of productivity growth experienced by local exchange companies in supplying all services."

26. Dr. Taylor is not the only ILEC witness to support the use of an *intra*state-only productivity measure in state price cap proceedings. For example, in a District of Columbia PSC price cap case, a Bell Atlantic witness argued *against* the PSC Staff's recommendation that the X-factor be based upon total company productivity:

> The Staff recommendation for a total company productivity study (including FCC regulated interstate operations) would be contrary to the use of intrastate productivity studies starting with Formal Case No. 798 (Order No. 7866, dated October 3, 1983). The Staff has not raised any arguments to reverse the history of intrastate only productivity studies being germane to intrastate ratemaking, and their proposal would add considerable record keeping to track non-intrastate price increases.[21]

27. In its Comments, AT&T has demonstrated that the calculation of an interstate-only TFP is both conceptually valid and computationally feasible, and has provided a specific computational procedure for developing an interstate-only TFP. AT&T's analysis was not available to the Commission when it last examined the interstate-only X-factor issue in CC Docket 94-1. Accordingly, concerns previously expressed by the Commission as to its inability to compute an interstate-only X-factor can now be eliminated.

28. While states have adopted a variety of analyses and other methods for establishing the X-factor or other price adjustment (or price-freeze) aspect of their incentive regulation systems, to the best of my knowledge *no state has adopted an X-factor that was based upon total company productivity*. Some jurisdictions are more explicit than others in rejecting the use of total company results. For example, the Maine PUC adopted a 4.5% X-factor instead of the (then) 5.3% FCC value, explaining that:

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21. Rebuttal Testimony of Richard G. Petzold (Bell Atlantic-DC), District of Columbia Public Service Commission, Formal Case No. 814, Phase IV, September 15, 1995, at 18.

> We will not go as far as the FCC because ... the price cap in Maine applies to different services than the interstate price cap, and interstate output quantities may be higher than those for intrastate.[22]

Table 2 below summarizes the X-factors (or their equivalents) as adopted by state commissions in price cap or other incentive regulation proceedings. While most were probably not as explicit as the Maine PUC in rejecting the use of a total company productivity measure, it is apparent that each and all of the states have adopted price adjustment factors well below the FCC's. Indeed, *only one state commission has adopted an X-factor that nominally exceeds the 4.86% that USTA contends is supported by the 1991-1995 data set*, and in that state (Connecticut), the 5% X-factor is applied to only a very limited number of services, with the remainder being either frozen (creating an effective X-factor equal to the GDP-PI) or not capped at all. Thus, while Dr. Taylor, USTA and the ILECs persist in admonishing this Commission that it *must* adopt a total company productivity measure because an interstate-only approach is not conceptually valid, these very same entities are consistently telling — and selling — precisely the opposite story to the states.

29. Taylor states, at para. 36:

> This inability to define interstate TFP growth is not just a theoretical economic quibble; the fact that productivity growth inures to the entire firm (except under conditions of separability of the production function) is reflected in the <u>prices</u> that emerge from market forces. Prices in competitive markets characterized by common costs are not determined randomly. Rather, as output levels of individual services change, unit costs for the individual services change, and prices will move in predictable ways following costs. *One reasonable standard to use in setting a productivity offset is to emulate this movement of prices under competitive conditions.*

Underlined emphasis in original, italicized emphasis supplied. Under the "standard" proposed by Taylor, then, one would expect that all prices of services produced using common plant would move in tandem, reflecting in each case the overall productivity growth rate for the firm. On this basis, if the ILEC produces both competitive and monopoly services using the same common plant resources (and hence having substantial common costs), one would expect that prices for competitive services would change, over time, at roughly the same rate as prices for monopoly services. Indeed, under Taylor's "standard," if the price of an ILEC's

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22. Re: New England Telephone and Telegraph Company d/b/a NYNEX, Maine PUC Docket No. 94-123 (rel. May 15, 1995), 162 PUR 4th 38, at 73 (1995).

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competitive services decreased more than, or increased less than, it prices for monopoly services, then the price movement characteristic of the competitive service should be used as a surrogate for any other direct productivity measure in setting the X-factor applicable to monopoly services. I have myself suggested such an approach in several state price cap proceedings, which I described as the "Competitive Services Price Index" ("CSPI").[23] If monopoly service prices are permitted to increase by more than, or decrease by less than, the prices of competitive services, then costs are being shifted away from the latter and onto the former, and the firm-wide productivity gains are being spread disproportionately to benefit the competitive services. Dr. Taylor, incidentally, has opposed the CSPI.[24]

30. Taylor provides several examples in an attempt to demonstrate his "total firm productivity growth" theory. Para. 37:

> ... suppose the regulated firm supplied only two identical services (interstate and intrastate usage) initially at equal volumes and equal prices, using identical facilities which could have both fixed and variable cost components. Suppose that over time, demand for interstate usage doubled while demand for intrastate usage remained constant so that the aggregate quantity of output increased by 50 percent. If aggregate input quantities were assumed to grow at 40 percent, the resulting growth in TFP for the firm would be about 10 percent. Assuming input prices were unchanged, unit costs would fall by about 10 percent.

23. Before the Public Service Commission of the State of Delaware, PSC Regulation Docket No. 33, *In the Matter of the Rulemaking on Motion of the Commission to Establish Regulations for the More Efficient Supervision of Intrastate Telecommunications Service Provided for Public Use, and for the Protection of the Public Interest*, Direct Testimony of Lee L. Selwyn on Behalf of the Commission Staff, May 17, 1993, at 84; Before the Commonwealth of Massachusetts Department of Public Utilities, D.P.U. 94-50, *New England Telephone and Telegraph Compnay, d/b/a NYNEX Petition for Alternative Regulation Plan*, Direct Testimony of Lee L. Selwyn, September 14, 1994, at 118-119; Before the Maine Public Utilities Commission, Docket No. 94-123, *Investigation into Regulatory Alternatives for the New England Telephone Company*, Direct Testimony of Lee L. Selwyn on behalf of the Public Advocate, December 13, 1994, at 72.

24. Maine Public Utilities Commission, Docket No. 94-123, *Investigation into Regulatory Alternatives for the New England Telephone Company*, Rebuttal Testimony of William E. Taylor, January 13, 1995, at 36-38.

Taylor contends (at para. 38) that on the basis of the assumptions in this example "the change in variable cost is the same for interstate and intrastate usage; an additional minute of each service would increase total costs by exactly the same amount both before and after the change in output" and that "[e]ven though interstate demand growth is assumed to be responsible in this example for the reduction in unit costs, that reduction applies equally to interstate and intrastate services." There are, of course, several factual problems with Taylor's "assumptions." First, current prices for interstate and intrastate usage are decidedly *not* the same, and the greater demand growth in the interstate usage market is a direct consequence of the FCC's affirmative policy of de-loading NTS costs from switched access and in so doing bringing switched access prices close to their direct variable costs. Second, the nature of services subject to interstate and intrastate regulation is also not the same, such that even if Taylor were correct insofar as "interstate and intrastate usage" are concerned, that would still allow for differences in productivity growth due to the substantial differences in the *mix* of ILEC services that are subject to interstate vs. intrastate jurisdiction. In the interstate jurisdiction, ILEC services are largely confined to switched and special access and transport services; in the state jurisdictions, ILEC service include, in addition to these, things like basic local dial tone line service, local and intraLATA toll calling, Centrex, vertical features (e.g., call waiting, call return, caller ID), ISDN, white pages directories, coin telephones, among other things. Hence, the relevance of Taylor's examples to the present discussion is severely limited, if in fact they are relevant at all.

31. However, Taylor's paragraph 37 example is useful for purposes of demonstrating the fallacy in his firmwide productivity growth theory even as between two hypothetical identical services. This can be illustrated by fleshing out Taylor's hypothetical case with some quantitative values. Suppose that the firm initially produces exactly 1,000 units of each of the two services, at a unit cost of $1 per unit, as summarized in the following table:

	Intrastate usage	Interstate usage	Total usage
Units	1,000	1,000	2,000
Total Cost	$1,000	$1,000	$2,000
Unit Cost	$1.00	$1.00	$1.00

Now, per the example, interstate usage is assumed to double, and total costs are assumed to grow by 40%. For purposes of this discussion, let us temporarily not allocate the joint costs between the two services:

	Intrastate usage	Pct change	Interstate usage	Pct change	Total usage	Pct change
Units	1,000	0%	2,000	+100%	3,000	+ 50%
Total Cost					$2,800	+ 40%
Unit Cost					$0.933	–6.67%

Taylor, arguing that the productivity gain inures to both interstate and intrastate services, would allocate the new total cost ($2,800) directly in proportion with the relative quantities of each of the two services:

	Intrastate usage	Pct change	Interstate usage	Pct change	Total usage	Pct change
Units	1,000	0%	2,000	+100%	3,000	+ 50%
Total Cost	$ 933	–6.7%	$1,867	–6.7%	$2,800	–6.7%
Unit Cost	$0.933	–6.7%	$0.933	–6.7%	$0.933	–6.7%

"Total firm" Method

Here, the costs of the 1,000 intrastate units, whose quantity remained constant, nevertheless decreased by 6.7% as a consequence of the growth in interstate demand and the consequent growth in productivity. But if the growth in interstate usage was the *driver* for the productivity gain, an alternate and entirely reasonable approach would be to attribute all of the productivity gain to the interstate service:

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	Intrastate usage	Pct change	Interstate usage	Pct change	Total usage	Pct change
Units	1,000	0%	2,000	+100%	3,000	+ 50%
Total Cost	$1,000	0%	$1,800	+80%	$2,800	+ 40%
Unit Cost	$1.00	0%	$0.90	–10%	$0.933	–6.7%

Attribution Method

Under this alternate "attribution" method, the entirety of the productivity gain is attributed to and is used to benefit the interstate usage service because, but for the growth in that service, there would not have been any productivity gain at all. But perhaps a more compelling demonstration of the economic validity of applying differential productivity growth rates and unit costs to the two services given the facts and assumptions underlying Taylor's example can be seen if we substitute the words "monopoly service" for "interstate" and "competitive service" for "intrastate" in the example:

> ... suppose the regulated firm supplied only two identical services ("monopoly" and "competitive") initially at equal volumes and equal prices, using identical facilities which could have both fixed and variable cost components. Suppose that over time, demand for "monopoly service" doubled while demand for "competitive service" remained constant so that the aggregate quantity of output increased by 50 percent. If aggregate input quantities were assumed to grow at 40 percent, the resulting growth in TFP for the firm would be about 10 percent. Assuming input prices were unchanged, unit costs would fall by about 10 percent.

Now compare the effects of the "total firm" vs. the "attribution" method of assigning the productivity gain:

	Competiti ve service	Pct change	Monopoly service	Pct change	Total output	Pct change
Units	1,000	0%	2,000	+100%	3,000	+ 50%
"Total firm" method						
Total Cost	$ 933	–6.7%	$1,867	–6.7%	$2,800	–6.7%
Unit Cost	$0.933	–6.7%	$0.933	–6.7%	$0.933	–6.7%
"Attribution" method						
Total Cost	$1,000	0%	$1,800	+80%	$2,800	+ 40%
Unit Cost	$1.00	0%	$0.90	–10%	$0.933	–6.7%

Under Dr. Taylor's "total firm" approach, a portion of the productivity gain realized as a result of increased demand for the monopoly service would be shifted to the competitive service, thereby reducing its cost (to the integrated ILEC). This cost decrease for the competitive service would distinctly *not* be the result of any increased efficiency in the production of the competitive service; rather, it would be solely and entirely attributable to the economy of scope *uniquely available to the integrated ILEC* arising from its market power and dominance in the monopoly service market. The ILEC would thus gain an unfair advantage over its non-integrated rivals in the competitive service market, and would in effect be cross-subsidizing the competitive service by transferring to it efficiencies achieved in the production of the monopoly service.

32. Although the matter of differential productivity growth under examination here relates to *jurisdictional* rather than market distinctions, the fundamental economic issues are essentially the same. Moreover, and contrary to the overly simplistic assumption of uniformity of prices at the outset in Taylor's example, the prices for interstate and intrastate access and other services were not and are not equal as of the outset of price caps or at any other time. In fact, the FCC has been far more aggressive than the states in pushing rates to cost, and has achieved access rate levels in the interstate jurisdiction that are substantially lower than those in most states. Consequently, the resulting differential in demand growth as between the federal and the state jurisdictions must be at least partially attributed to the lower prices applicable to interstate services. If the FCC's policies stimulate demand that in turn enables the ILECs to reduce their costs of furnishing these services, there is no basis for shifting those interstate-driven productivity gains over to the state jurisdiction any more than

there would be to permit an integrated ILEC to shift productivity gains achieved in its monopoly services over to its competitive service so as to gain an unchallengeable advantage over its non-integrated rivals.

Conclusion

33. Reliance upon past ILEC performance and recent data is an appropriate basis for reviewing and adjusting the X-factor and its various components. Unregulated firms operating in effectively competitive markets have no expectation of being able to retain indefinitely the fruits of their efficiency gains or productivity improvements, yet this does not blunt their incentives to make improvements in these areas or take other measures aimed at increasing their profits overall, even if such gains are less than permanent. Periodic adjustments to the price cap plan, including periodic reinitialization of rates on a prospective basis, will confront incumbent LECs who do not face effective competition in their core local service markets with conditions that far more closely approximate those faced by unregulated firms than under a permanent, unchangeable X-factor regime as advocated by Taylor and USTA. As I have discussed and emphasized herein, the real goal is to achieve a competitive outcome where market conditions will not permit this to occur on its own, because this is the only way to assure than whatever efficiencies are achieved by the ILECs will be flowed through to consumers. Absent such measures, there can be no assurance than any of the efficiency and productivity gains achieved under price caps will ultimately be realized by consumers, and it is that fact, and not the stimulation of efficiencies *per se*, that must form the basis of the Commission's actions.

Boston, Massachusetts, January 24, 2000 ______________________________

Lee L. Selwyn

Table 1

Comparison of BOC Financial and Regulatory Earnings Since the Election of GAAP Reporting

	Ameritech		**Bell Atlantic** (Including NYNEX)		**US West**		**Bell South**		**Southwestern Bell** (Including PacBell, SNET)	
	10K Rpt. Net Income	Form M Net Income	10K Rpt. Net Income	Form M Net Income	10K Rpt. Net Income	Form M Net Income	10K Rpt. Net Income	Form M Net Income	10K Rpt. Net Income	Form M Net Income
1993					435,300	199,539				
1994	1,001,800	783,668	2,297,375	2,159,896	1,175,000	911,616				
1995	1,856,900	1,857,003	2,626,251	2,195,869	1,219,000	985,400	1,417,000	1,219,255	2,303,300	2,055,404
1996	1,872,000	1,871,929	3,101,627	2,686,479	1,233,000	1,010,570	2,005,000	1,915,523	2,832,900	2,467,936
1997	1,942,700	2,047,931	2,655,386	1,956,619	1,252,000	941,536	2,314,000	1,959,054	1,728,700	1,103,168
1998	2,059,500	2,262,296	2,759,367	1,889,779	1,335,000	1,061,724	2,588,000	2,364,241	2,654,822	1,871,028
TOTALS	8,732,900	8,822,827	13,440,006	10,888,642	6,649,300	5,110,385	8,324,000	7,458,073	9,519,722	7,497,536

Sources: Ameritech: Form M and 10K Annual Reports of Illinois, Indiana, Michigan, Ohio and Wisconsin Bells;
Bell Atlantic: Annual Reports Form M and 10K of Bell Atlantic Delaware, Bell Atlantic Washington D.C. (C&P of D.C.), Bell Atlantic Maryland (C&P of MD), Bell Atlantic New Jersey (New Jersey Telephone), Bell Atlantic Pennsylvania (Bell of Pennsylvania), Bell Atlantic Virginia (C&P of VA), Bell Atlantic West Virginia (C&P of WV), New England Telephone, and New York Telephone.
US West: Annual Reports Form M and 10K of BOCs.Notes: 1993 Net Income Numbers do not include the Cummulative Effect of Discontinuance of FAS 71.
Bell South: Form M and 10K Annual Reports of BellSouth Telecommunications, Inc.
Southwestern Bell: Form M and 10K Annual Reports of Southwestern Bell Telephone Company, Pacific Bell, Nevada Bell, and SNET.
Notes: 1997 Values reflect SBC-PacBell merger. 1998 Values reflect SBC-SNET merger.

Table 2
State PUC Price Cap Regulation Plans
X-Factors Currently in Effect

State	X-Factor	Notes	State	X-Factor	Notes
Alabama (1995)	3.0%	Basic exchange and access rates capped at 9/95 levels until 2000.	Massachusetts (1995)	4.1%	Basic residential rates frozen until 2001. All other service under price caps indexed to GDP-PI - 4.1%.
Arkansas (1997)	1/4 of GDP-PI		Michigan (1995)	2.0%	Noncompetitive services under price caps indexed to Detroit-area CPI minus 2%.
California (1990)	GDP-PI	Rates frozen since 9/95, until 1999.	Missouri (1997)		Basic services frozen through December 1999, then go under indexed caps. Indexing formula to be determined in 1999.
Connecticut (1996)	5.0%	Only applies to certain services.	New Jersey (1993)	2.0%	Residential rates frozen through 1999. Other services under caps indexed to GNP-PI - 2%.
Delaware (1994)	3.0%		New York (1995)	4.0%	Basic service rates frozen for the duration. Nonbasic services under caps indexed to GDP-PI - 4%.
District of Columbia (1996)	3.0%	Basic exchange and access rates frozen until 2000. Other basic services under caps indexed to GDP-PI - 3 %	North Carolina (1996)	2.0%	Basic residential and business basic rates under caps indexed to GDP-PI - 2%. Most other services under cap indexed to GDP-PI -3%.
Florida (1995)	1.0%	Basic rates frozen through 2001.	North Dakota (1994)	0.0%	Basic exchange and switched access under caps indexed to GDP-PI with no offsets.

State	X-Factor	Notes	State	X-Factor	Notes
Georgia (1995)	3.0%	Basic rates frozen until 2000.	Ohio (1996)	3.0%	Basic service rates frozen until 2000. Other services under caps indexed to GDP-PI - 3%.
Illinois (1994)	4.3%	Residential rates frozen for duration. Other non-competitive services under caps indexed to GDP-PI - 4.3%	Pennsylvania (1994)	2.9%	Basic exchange rates frozen through 1999. Other services under caps indexed to GDP-PI - 2.93%.
Iowa (1995)	2.6%		Rhode Island (1996)		Basic services under caps indexed to lesser of CPI or 6%. Other noncompetitive services under caps indexed to lesser of 5% or twice CPI.
Kansas (1997)	2.3%	Residential and 1-line business rates frozen until 2000.	Tennessee (1996)	2.0%	Basic rates frozen through 1999, then come under price caps indexed to lesser of one-half GDP-PI or GDP-PI - 2%.
Kentucky (1995)	4.0%	Residential rates frozen until completion of universal service reform. Other non-competitive services under caps indexed to GDP-PI - 4%.	Texas (1995)		Basic rates frozen until 1999, then come under caps indexed to CPI - PUC-set productivity factor.
Maine (1995)	4.5%		Virginia (1995)	1/2 OF GDP-PI	Basic rates frozen through 2001.
Maryland (1996)	3-yr. Avg. of CPI	Basic exchange rates frozen until 2000. Other non-competitive services under caps indexed to GDP-PI - 3-year average of CPI.	Wisconsin (1994)	3.0%	

Sources: State Telephone Regulation Report, "Regulation of Major Incumbent Telcos in Eastern U.S.," Vol. 17, No. 17, August 20, 1999; State Telephone Regulation Report, "Regulation of Major Telcos in Western U.S. ," Vol. 16, No. 8, April 17, 1998;State Alternative Regulation Orders, op. cit. Note: For states that deviate from the standard X-factor index mechanism (Arkansas, Maryland, and Virginia), the "X-Factor" represents the effective offset to GDP-PI under the terms of the plan.