that a mean of 2.6 percent is not "statistically different" from a mean of zero.[33] Bush and Uretsky thus concluded that their calculation of "the post-divestiture input price differential is not consistent with a long-run trend of zero percent."[34]

Although the position of USTA's consultants was thoroughly considered and properly rejected in the Bush-Uretsky analysis, the Responses of Christensen and NERA once more reiterate their past arguments that the trend of the input price differential cannot be "statistically distinguished" from zero. However, in the joint Reply Statement of Dr. John R. Norsworthy and Dr. Ernst R. Berndt, appended hereto,[35] they expose the fallacies in the Christensen and NERA statistical arguments.[36] As Norsworthy and Berndt point out, the USTA consultants have asked the wrong questions and thereby have created a bias in

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[33] Bush-Uretsky at 9223-25.

[34] Id. at 9225.

[35] See Appendix B to these Reply Comments, Reply Statement of Drs. Norsworthy and Berndt (hereinafter "Norsworthy-Berndt"). The background and qualifications of Dr. Norsworthy have been previously provided in the initial AT&T Comments, Appendix C. Dr. Berndt is Professor of Applied Economics at the Alfred P. Sloan School of Management, Massachusetts Institute of Technology, and has distinguished himself as a nationally recognized econometrician and authority on productivity measures.

[36] See Norsworthy-Berndt at 5, 11-19; see also AT&T Comments, App. A at 6-17 (Statement of Dr. Norsworthy).

favor of USTA's assumption that there should be no difference between the movements of the input prices for the LECs and those for the national economy.[37]

Instead, as Drs. Norsworthy and Berndt conclude, the input price differential between the LECs and the national economy can be determined by a direct, straightforward measurement, such as that performed by Bush and Uretsky.[38] The Bush-Uretsky analysis properly found that there are significant statistical differences between the movements of telephone input prices before and after divestiture; that only post-divestiture input prices should be used to measure the input price differential; and that on the basis of the data supplied by Christensen, the input price differential for the post-divestiture period should be at least 2.2 percent per year.[39]

It is highly ironic that Christensen and NERA would criticize the Bush-Uretsky analysis for allegedly misusing the input price data. As pointed out in the joint Reply Statement of Drs. Norsworthy and Berndt, the input price data for the national economy, developed by Christensen and used in the Christensen,

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[37] Id. at 8-9; App. B infra, at ____.

[38] Norsworthy-Berndt at ____.

[39] Bush-Uretsky at 9224-26.

NERA, and Fuss studies, are misleading, unreliable and irrelevant. In particular, Norsworthy and Berndt find, with respect to these studies by the LEC consultants, that (1) their input price data, allegedly representing the U.S. economy for the pre-1984 period, did not come from the official governmental source, the U.S. Bureau of Labor Statistics (BLS); and (2) both for the pre-1984 and post-1984 periods, their input price data, supposedly representing price movements for the U.S. economy, did not pertain to the nonfarm business sector of the U.S. economy, which, as the FCC specifies, is the relevant point of reference.[40] Accordingly, Norsworthy and Berndt conclude that "[f]rom the perspective of the Commission's objective to benchmark interstate access prices of the LECs to the private nonfarm sector of the U.S. economy, the Christensen input price series is thus irrelevant" and that "the analyses of the input price differential carried out by Christensen, NERA, and Fuss are irrelevant and unreliable."[41]

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[40] See Norsworthy-Berndt at 11-14. The GDP-PI, which is used by the Commission for the price cap equation, is determined on the basis of the nonfarm business sector.

[41] Norsworthy-Berndt at 13 (emphasis in original).

2. The Fuss analysis fails to demonstrate that the input price differential is zero.

Bell Atlantic also argues in favor of Christensen's omission of the input price differential.[42] In its Comments, Bell Atlantic appends the Declaration of Dr. Melvyn A. Fuss, who takes exception to the Bush-Uretsky conclusions that the input price differential should be measured on the basis of post-divestiture data and must be included in the calculation of the LECs' X-Factor. According to Dr. Fuss, the data considered by Bush-Uretsky show that the post-divestiture input price differential "was a temporary phenomenon that ended in 1990," and that the long-term trend is a zero differential.[43]

In their joint Reply Statement (Appendix B), Dr. Norsworthy and Dr. Berndt examine in detail the models Dr. Fuss used to support his hypothesis that the movement of the input price differential during the 1984-1990 period was a "temporary" departure from a long-term trend of zero. Norsworthy and Berndt find that Fuss based his conclusions on statistical analyses "plagued by various time-series problems." They state that their test of Fuss' "statistical argument leads us to conclude that the Fuss results are not reliable." Further, as they point out, "the equations that Fuss estimates are, by standard statistical

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[42] Bell Atlantic Comments at 11-13.

[43] See Fuss Declaration at 3.

criteria, inappropriate for their intended use," namely, drawing an "inference about the shift in the input price differential." Consequently, Norsworthy and Berndt conclude that Fuss' "contention that the input price differential observed in the post-divestiture period is an aberration is not supported by his statistical analysis."[44]

B. The Christensen Model's Failure To Measure The LECs' Productivity Growth On The Basis Of Separately Determined Interstate Data Creates A Severe Downward Bias In Its Calculated X-Factor.

Another fundamental error in the Simplified Christensen Model, carried forward from the original USTA model, involves its use of "total company" data in measuring the TFP and X-Factor for the LECs' interstate access services. Most of the commenting LECs, including USTA, vigorously advocate the model's reliance on total company data rather than on data separately measuring interstate productivity gains.[45] Their motivation is abundantly

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[44] Norsworthy-Berndt at 25.

[45] See, e.g., USTA Comments at 27-31; BellSouth Comments at 18; SWB Comments at 12-14; US West Comments at 17; GTE Comments at 21-22. However, two RBOCs implicitly recognize that reliance on total company (rather than interstate) data understates the LECs' X-Factor, and thus they support an adjustment to reflect the LECs' higher interstate output growth. See NYNEX Comments at 20-21 (Commission may need to make adjustment to account for greater interstate output growth); Ameritech Comments at 7 (supporting consideration of adjustment for interstate output growth).

clear. The benefit of the total company approach to the price cap LECs is substantial -- it understates the LECs' X-Factor by at least 1.9 percentage points, according to the Performance-Based Model, and by 2.8 percentage points, according to the study by Economics and Technology, Inc. (ETI) for Ad Hoc.[46]

In order to support their position contending for reliance on total company data, the LECs must establish that productivity growth on a total company basis (which is heavily weighted with local and intrastate services) constitutes the equivalent of productivity growth determined on an interstate only basis. The LECs have utterly failed to demonstrate that critical premise.

Indeed, the Commission itself has found precisely to the contrary. That is, the Commission previously recognized that interstate productivity growth exceeds productivity growth for local and intrastate services. This question arose at the time the Commission initially formulated the LEC price cap plan. Thus,

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[46] See Attachment to Ad Hoc Comments, Economics and Technology, Inc., "Establishing the X-Factor for the FCC Long-Term LEC Price Cap Plan," pp. 55-56 ("ETI Report"). As ETI observes, the use of total company TFP to establish the LECs' interstate X-Factor creates a "systematic bias" in favor of higher LEC interstate rate levels and thus produces "windfall" earnings to the LECs. Id. at 48.

in the LEC Price Cap Order,[47] the Commission found that its initial study of LEC productivity had to be revised because that study erroneously applied to all the LECs' telephone services, not just to their interstate services subject to price caps.[48] Thereupon, the study was revised to examine separately interstate and intrastate use patterns, and consequently the Commission concluded that "the more rapid growth in interstate usage results in higher apparent interstate productivity growth."[49] The study upon which the Commission's conclusion was based, conducted by Commission economist Thomas C. Spavins, repeatedly emphasized the greater rate of demand growth for the LECs' interstate services, compared to that for their intrastate services, and concluded that this contributed to higher productivity growth in the LECs' interstate services vis-a-vis their intrastate services.[50]

As Dr. Norsworthy showed, the output growth rate for the LECs' interstate access service substantially exceeds that for the LECs' local and intrastate regulated services. On the basis of the Bell operating company (BOC) data reported to the

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47 Policy and Rules Concerning Rates for Dominant Carriers, 5 FCC Rcd. 6786 (1990) (LEC Price Cap Order), recon., 6 FCC Rcd. 263 (1991), aff'd sub nom., National Rural Telephone Ass'n v. FCC, 988 F.2d 174 (D.C. Cir. 1993).

48 Id., 5 FCC Rcd. at 6798 (¶ 92).

49 Id. (emphasis supplied).

50 Id., App. D, 5 FCC Rcd. at 6935-36.

FCC, Dr. Norsworthy determined that, during the post-divestiture period (1985-94), demand for interstate access services has grown at an annual rate of 6.83 percent, while the combined annual growth rate in demand for the LECs' local and intrastate services has been only 4.22 percent.[51] Similarly, Ad Hoc's consultant (ETI) emphasized the distinct difference between the rates of demand growth applicable to the LECs' interstate and their intrastate services, pointing out that total company dial equipment minutes have been growing by only 3.7 percent annually, whereas interstate switched access minutes have been experiencing growth rates of about 10 percent annually.[52]

The evidence is overwhelming, therefore, that the demand (output) growth rate for the LECs' interstate services far exceeds that for their local/intrastate services. It is equally clear that greater demand growth results in greater productivity growth.[53] Accordingly, it is firmly established that the rate of

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[51] AT&T Comments, App. A at 24-26, and Att. B at 21-22.

[52] ETI Report at 46.

[53] See, e.g., LEC Price Cap Order, 5 FCC Rcd. at 6798, 6935-36. Indeed, USTA has observed: "increased [demand] growth generates productivity gains. Thus, as more units of demand are carried on a LEC's network, an increase in productivity will be realized for all services. . . ." USTA Comments at 45. Moreover, the consultant to the LECs, Dr. Christensen, has recognized the direct relationship between the LECs' output growth and their TFP growth, i.e., a change in the demand (output) growth rate for a LEC leads to a

(continued...)

productivity growth for the LECs' interstate services is much higher than the rate of productivity growth for the totality of the LECs' regulated services (including their local and intrastate services).

Besides this marked difference between the interstate and intrastate growth rates for the LECs' outputs, there is a significant distinction in the cost characteristics of their respective inputs. Dr. Norsworthy pointed out that interstate access services rely more on fixed inputs (e.g., switching and transmission equipment) and less on labor and materials inputs than do local services. Consequently, there are greater economies of scale, as well as technological advances, associated with the LECs' provision of interstate access than with their other services.[54] These substantial differences in input characteristics between the LECs' interstate services and their local/intrastate services further support the fact that the productivity growth for the LECs' interstate access services is much greater than the growth for their other regulated services.

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[53] (...continued)
proportional change in the LEC's TFP growth rate. See Prepared Testimony of Dr. Laurits R. Christensen on behalf of Pacific Bell, No. 95-05-047, Calif. Public Utilities Comm'n (September 8, 1995), App. 2 at 7-8, 10, 12, 14-16.

[54] AT&T Comments, App. B at 22. See also ETI Report at 46-47.

Therefore, the essential predicate of the LECs' advocacy of using "total company" data to represent interstate TFP performance -- that the productivity growth rates in the interstate and intrastate sectors are exactly the same -- does not withstand analysis.[55] Instead of supporting their premise, however, the LECs resort to making generalized arguments about the alleged difficulty of measuring interstate and intrastate inputs separately and about the "arbitrary" nature of the Commission's jurisdictional separations process.

The presumed difficulty of measuring interstate and intrastate separately does not justify reliance on an incorrect procedure that is bound to give the wrong answer. Contrary to the LECs' argument, separate calculations can reasonably be made to determine interstate, as distinguished from local/intrastate, productivity growth. As Dr. Norsworthy explained, it is entirely feasible to measure separately TFP and the X-Factor for the LECs'

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[55] See Statement of Dr. M. Ishaq Nadiri, attached as Appendix C hereto. Dr. Nadiri, who is Jay Gould Professor of Economics at New York University, is a widely recognized authority, researcher, and writer on productivity measurement and the telecommunications industry. Dr. Nadiri's statement examines in detail various issues concerning the use of total company data to measure productivity for the LECs' interstate services. He finds that there is considerable evidence that LEC interstate productivity growth exceeds local and intrastate productivity growth, that reliance on total company data misestimates and understates interstate TFP, and that the procedure followed in the Performance-Based Review Model is a "reasonable approach" to derive a separate measure of the LECs' interstate TFP growth.

interstate access services, as distinct from their other regulated telephone services. This can be done, and was done, through direct measurements of the outputs in these respective sectors and through the use of conservative assumptions about the trend of costs.[56] Dr. Norsworthy demonstrated that the outputs can be measured directly for each component of the LECs' services -- interstate, on one hand, and local/intrastate, on the other. As to inputs, a conservative assumption can be made that inputs grow at the same rates for the LECs' interstate access as they do for their other regulated (local and intrastate) services. Thus, no specific allocation of costs is required by the assumption that inputs (capital, labor and materials) grow at the same rates for all classes of LEC services.

In fact, this approach produces a conservative result, from the standpoint of the LECs, because of the relatively greater economies of scale and other efficiencies in providing interstate access services. Making this conservative assumption permits the computation of TFP separately for interstate access and for the LECs' other services in a way that combines to the total company TFP results measured directly.[57] In this manner, the Performance-Based Model produces separate TFP measures for

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[56] AT&T Comments, App. B at 23.

[57] AT&T Comments, App. A at 27.

the LECs' interstate access services and for their "total company" regulated services.[58]

As noted before, the Performance-Based Model results show that the TFP for the LECs interstate services exceeds the TFP computed on a total company basis by 1.93 percentage points.[59] Reference to recent jurisdictional separations data confirms the conservative basis of the approach followed in the Performance-Based Model. Examination of the jurisdictional separations data during the LEC price cap period (1991-1994) shows that the LECs' interstate growth in revenues per dollar of input expense exceeded the LECs' interstate growth in expenses by 1.29 percent per year. If adjustments are made to the results of the Performance-Based Model to reflect the fact that the LECs' interstate expenses grew more slowly than their interstate revenues during the 1991-1994 period (as indicated by the jurisdictional separations data), the LECs' interstate TFP and X-Factor would be still higher. The X-Factor for the LECs' interstate access services would increase from 7.35 percent to 8.25 percent, and thus the TFP and the X-Factor calculated on an

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[58] See Norsworthy-Berndt at 51 (Table 8).

[59] Id.

interstate basis would be 2.83 percentage points higher than the TFP and X-Factor on a total company basis.[60]

Accordingly, there is no substance at all to the LECs' position that the TFP and X-Factor for their interstate access services can only be determined on a total company basis. In essence, their position is that because there is no "perfect" method to measure the LECs' interstate productivity separately, a "total company" approach is the only method that can be used to determine interstate productivity growth (even if it gives the wrong answer). As the courts have emphasized, however, the pursuit of perfection may become "the enemy of the good" and thus be detrimental to the public interest.[61] The approach described by Dr. Norsworthy and applied in the Performance-Based Model represents a reasonable method for determining interstate productivity and provides far more reliable results than does the total company approach advocated by USTA and the RBOCs. All that the courts require is that any separate calculation to

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60 See Norsworthy-Berndt at 52; see also AT&T Comments, App. A at 29-30. This differential of 2.8 percent between the interstate-only X-Factor and the total company X-Factor is also consistent with the 2.8 percent differential between interstate and total company results, as computed by ETI, consultant to Ad Hoc. See ETI Report at 55-56.

61 See, e.g., MCI Telecommunications Corp. v. FCC, 627 F.2d 322, 341-42 (D.C. Cir. 1980) (the "best must not become the enemy of the good," as it does when the FCC seeks to pursue the "perfect" solution).

distinguish a carrier's interstate operations from its intrastate operations need only be done by applying "reasonable measures." Smith v. Illinois Bell Tel. Co., 289 U.S. 133, 150 (1930).[62] The Performance-Based Model constitutes such a reasonable approach for identifying the TFP and X-Factor applicable to the LECs interstate access services and is far more conceptually sound than the Christensen Model, which is destined to understate interstate productivity growth and thus permits the LECs to realize excessive interstate earnings.

Therefore, as a matter of law, it is incumbent on this Commission to calculate the X-Factor for the LECs' interstate services on an interstate basis, and this may be done by the use of "reasonable measures." Smith v. Illinois Bell Tel. Co., supra.[63] As the record plainly demonstrates, "a LEC's productivity for interstate services differs significantly from its productivity for intrastate services," and under those circumstances, as the Commission has recognized, it is "necessary

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[62] See also, e.g., Rural Tel. Coalition v. FCC, 838 F.2d 1307, 1314-15 (D.C. Cir. 1988). The absence of absolute precision to measure interstate separately from intrastate is no deterrent to using "reasonable" means, for this separate measurement "is not a matter for the slide-rule" but only requires the exercise of informed judgment. See Smith v. Illinois Bell, supra; MCI Telecommunications Corp. v. FCC, 750 F.2d 135, 141 (D.C. Cir. 1984).

[63] See AT&T Comments at 15-17 (including cases cited therein); see also Ad Hoc Comments at 6-7.

to rely on separated costs to ensure that interstate rates remain just and reasonable."[64]

C. The Additional Infirmities In The Simplified Christensen Model Further Compound Its Invalidity As A Measure Of The LECs' X-Factor.

Although the Christensen Model was presumably revised to be based on publicly-available data and to employ more "simplified" computations, that model continued use of the basic methodologies followed in the original USTA model submitted earlier in this proceeding. Thus, the Simplified Christensen Model carries forward the major defects previously noted concerning the original USTA model.[65] Besides the significant errors in the Simplified Christensen Model discussed above, with respect to its omission of the input price differential and its failure to measure interstate productivity separately, there are a number of other defects in the procedures followed in that model. Because these deficiencies already have been discussed in AT&T's Comments, they will be reviewed briefly in this Reply.

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[64] Fourth Further Notice, ¶ 63.

[65] See AT&T Comments at 8-26, and App. A at 1-66.

1. The Christensen Model mismeasures capital inputs.

The Simplified Christensen Model has failed to cure the serious measurement errors as to capital inputs. Although the revised model abandons its formerly erroneous use of the Moody's Public Utility Bond Index to compute the cost of both debt and equity capital, it does not correct its overriding error of assuming a hypothetical cost of capital for the LECs. This hypothetical cost of capital is based on adjusting the LECs' capital input to a cost-minimizing level in each period and thus ignoring the LECs' actual capital inputs and their actually realized rates of return on capital. Because the conditions necessary to validate the Christensen Model's optimal (cost-minimizing) capital use assumption do not exist, the model does not take into account all the LECs' costs levied on ratepayers, and it makes no allowance for excessive or deficient returns on capital input.[66]

2. The Christensen Model, as revised, continues to misestimate depreciation.

As AT&T pointed out in its initial Comments, the original USTA model based its depreciation rates on an outdated study by Hulten and Wykoff (1972) that did not even apply to telecommunications plant and equipment, and thus did not reflect

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[66] See AT&T Comments at 18-22, and App. A at 31-45.

significant technological advances and other changes (e.g., divestiture) occurring during recent years that affect the lives of telephone assets.[67]

The Simplified Christensen Model continues its erroneous reliance on these outdated and inapplicable depreciation rates.[68] Christensen acknowledges that its "simplified" model uses depreciation rates from the Hulten-Wykoff study and tacitly concedes that these rates do not even apply specifically to telecommunications plant and equipment.[69] All that Christensen claims is that the lifetimes for the depreciable assets in its model are consistent with the lifetimes of assets used for the national economy as a whole, based on data published by the U.S. Bureau of Economic Analysis and U.S. Bureau of Labor Statistics.[70] But Christensen makes no claim that the estimated lifetimes used in its model are applicable as such to telecommunications assets. Unlike the depreciation rates prescribed by this Commission, which by their very terms apply to specific categories of telephone plant and equipment, the depreciation rates utilized in the Simplified Christensen Model

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[67] See AT&T Comments at 22, App. A at 47-49, and App. B at 9-12.

[68] See USTA Comments, Att. A at 12-14.

[69] Id.

[70] Id. at 13.

are those derived for the economy in general, and admittedly do not apply to plant in this industry. There is no substance to Christensen's assertion that these rates are preferable to FCC-prescribed depreciation rates because the former supposedly come closer to "economic" depreciation.[71] Christensen's use of outdated and inapplicable depreciation rates, rather than the relevant rates adopted by this Commission for application to telecommunications assets, introduces another error in its estimate of the X-Factor.

3. The Christensen Model employs other erroneous procedures.

A number of other procedural infirmities in the Simplified Christensen Model, all of which were carried forward from the original USTA model, have been discussed previously in the AT&T Comments and the appended Statements of Dr. Norsworthy. These deficiencies in the earlier and revised Christensen models include their failure to make adjustments reflecting quality improvements in LEC plant over recent years;[72] their improper aggregation of outputs arising from exclusive use of revenue weights;[73] and their failure to make allowance for changes in the

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[71] See id. at 14.

[72] AT&T Comments, App. A at 49-58. See also ETI Report at 26-27, 57-58.

[73] AT&T Comments, App. A at 59-62.

quality of service provided by the LECs.[74] Many of these deficiencies in the original USTA (Christensen) model were also pointed out by ETI in its Report.

II. THE PERFORMANCE-BASED MODEL PRODUCES THE MOST RELIABLE MEASURES OF THE PRODUCTIVITY GROWTH AND X-FACTOR FOR THE LECs' INTERSTATE SERVICES.

The main features of the Performance-Based Model, developed by AT&T and Dr. John R. Norsworthy, were thoroughly described in Dr. Norsworthy's previously submitted statements.[75] In all respects, the model's procedures are far more methodologically sound than those of the Simplified Christensen Model and its predecessor, and the results of the Performance-Based Model represent more accurate and valid measures of the TFP growth and the X-Factor for the LECs' interstate access services.

Unlike the Christensen models sponsored by USTA, the Performance-Based Model (1) properly includes the input price differential between the LECs and the national economy, (2) determines the TFP growth rates for the LECs' interstate services on the basis of the applicable interstate data, and (3) appropriately attributes capital input costs on the basis of the actual performance of the LECs, instead of assuming a

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[74] Id. at 63-66.

[75] See AT&T Comments, Apps. A and B.

hypothetical (cost-minimizing) level of capital input. The following table summarizes many of the major differences between the Performance-Based Model and the Simplified Christensen Model.[76]

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[76] See Norsworthy-Berndt at 44-45; AT&T Comments at 11-24, 27-29, and App. A at 1-83.

Differences Between The Performance-Based Model and Simplified Christensen Model

PERFORMANCE-BASED MODEL	SIMPLIFIED CHRISTENSEN MODEL
• Directly measures the total US - LEC input price differential	• Excludes US-LEC input price differential on assumption it is zero
• Calculates separate X-Factor for LECs' interstate access services	• Only "total company" X-Factor is computed
• Measures the LECs' actual utilization of capital. Allows for excess or deficient returns to capital input	• Assumes optimal (cost-minimizing) utilization of capital at all times. Makes no allowance for excess or deficient returns to capital input
• Computes cost of capital and rate of return on basis of actual performance of the LECs	• Assumes a user cost of capital that differs from actual capital costs assessed on ratepayers
• All input costs are accounted for in calculations	• Some costs levied on customers (excess return on capital) are omitted
• Measures actual performance of the LECs	• Assumes that all inputs, including capital, are at cost-minimizing levels for all LECs in all years
• Depreciation for TFP input cost calculation based on Commission -- prescribed rates	• Employs depreciation rates that are outdated and not specifically applicable to telecommunications plant and equipment
• Uses actual material price index	• Uses national output prices (GDP-PI) as proxy
• Same historical period used for all elements	• Different data periods used for different elements

A. The Updated Results of the Performance-Based Model Support X-Factor Options of 7.8 Percent and 8.8 Percent for the LECs Interstate Services.

For purposes of AT&T's Reply Comments in this proceeding, the results of the Performance-Based Model have been updated to reflect recently available data, just released by the Bureau of Labor Statistics (BLS), regarding the 1994 input price index and 1994 TFP growth rate for the U.S. economy (nonfarm business sector).[77] Also, the model has been updated in its capital input measurement (through using the perpetual inventory method). These updates have a very minimal effect on the previously submitted results of the Performance-Based Model -- they increase the resulting X-Factor for the LECs' interstate services by 0.02 percentage point (i.e., from 7.33 percent to 7.35 percent). With this updated measurement, the Performance-Based Model's productivity results for the LECs' interstate access services during the period 1985-1994 are as follows:[78]

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[77] In the previously submitted results of the Performance-Based Model, the applicable 1994 data for the U.S. economy were developed by extrapolating data from the 1985-93 period. See, e.g., AT&T Comments, App. A at 22 (Table 5). Release of these new BLS data for 1994 now makes this extrapolation unnecessary. In addition, the recently released BLS data also revise slightly the U.S. economic data for a few past years in the 1985-93 period, and these minor revisions have also been reflected in the updated results for the Performance-Based Model.

[78] See App. B, infra, at 51 (Table 8). The updated LEC total company results are an X-Factor of 5.42 percent -- for a difference of 1.93 percent between the LECs' X-Factor measured on an interstate basis and that measured on a total (continued...)

Updated Results of Performance-Based Model

TFP Growth -- LECs	**4.70%**
Less: TFP Growth -- Non-Farm Business Sector	**0.14%**
TFP Growth Differential	**4.56%**
Input Price Differential	**2.79%**
X-Factor for LECs' Interstate Access Services	**7.35%**

On the basis of these updated results for the Performance-Based Model, the correct X-Factor for the LECs' interstate services to be included in their price cap formula is 7.3 percent (rounded).

AT&T recommends, therefore, the use of two X-Factor options. First, the minimum X-Factor option for the LECs should be set at 7.8 percent (including the Consumer Productivity Dividend of 0.5 percent, as discussed infra). Each LEC choosing this minimum X-Factor would be subject to a requirement of 50-50 sharing when that LEC's realized rate of return is in the range of 12.25 to 13.25 percent, and subject to 100 percent sharing for rates of return exceeding 13.25 percent.[79] Second, the higher X-

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[78] (...continued)
company basis. Id.

[79] This assumes continuation of the currently prescribed 11.25 percent rate of return.

Factor option should be set at 8.8 percent, one percentage point higher. AT&T proposes that those LECs selecting this higher X-Factor option (8.8 percent) would not be subject to any sharing obligation.[80]

B. The Consumer Productivity Dividend Should Be Included In Measuring The X-Factor.

AT&T's proposal for setting the X-Factor reflects the inclusion of a Consumer Productivity Dividend (CPD) of 0.5

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[80] AT&T recommends the choice of two X-Factor options, rather than three as was provided in the First Report and Order, 10 FCC Rcd. at 9057-58 (¶¶ 220-22). See AT&T Comments at 30-32. Experience has shown that the third alternative is unnecessary; none of the LECs chose the intermediate X-Factor (4.7 percent) for 1995-96. Fourth Further Notice, ¶ 8. Moreover, as ETI demonstrates in its Report (at 65), only two X-Factor choices are economically feasible for each LEC to choose between, and there is no practical need for a third choice.

Several LECs have advocated that each LEC should be allowed to change its X-Factor election every year. This would open the door to abuse and manipulation by the LECs, through shifting productivity gains or cost recognition from one year to another. Thus, AT&T has recommended that X-Factor elections be put on a triennial basis. See AT&T Comments at 32-33.

Further, several LECs, as well as AT&T, have opposed adoption of a proposed Commission practice that would assign various individually tailored or LEC-specific X-Factors to the price cap LECs. See, e.g., USTA Comments at 41-42; BellSouth Comments at 34-35, BellSouth Att. 1 (Gallop Statement). Such a practice would be administratively burdensome, complex and contentious, and would in fact lead to disincentives for LEC productivity gains. Id. See also AT&T Comments at 32.

percent, as provided in the Commission's previous LEC price cap orders. Most of the LECs and USTA argue, however, that the Commission should discontinue this CPD adjustment because it is no longer necessary. The LECs muster three basic arguments for this proposition, but as AT&T previously demonstrated, none has merit. The Commission should therefore retain the CPD at its current level of 0.5 percent.

The LECs' first argument flows from their advocacy of the Simplified Christensen Model, which incorporates a five-year moving average based only on data from the LEC price cap period. If the Christensen model is adopted, the LECs argue, the CPD would be unnecessary, because the Commission adopted the CPD in part to account for the additional efficiencies that it anticipated would result from a change to incentive regulation.[81] As AT&T has shown, however, the Christensen model is seriously flawed and produces unreliable results, and thus the Commission should adopt the Performance-Based Model, which is derived in part on data from LEC performance occurring prior to the initiation of price caps. Moreover, the inclusion of the CPD provides an additional incentive for each LEC to improve its

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[81] See, e.g., USTA Comments at 12-14; NYNEX Comments at 27-28; Bell Atlantic Comments at 13; SWB Comments at 20-21; BellSouth Comments at 28; US West Comments at 19-20; Ameritech Comments at 8; see also USTA Comments, Appendix C at 33.