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February 24, 1995

Mr. William F. Caton
Secretary
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

RE: Ex Parte Notice
CC Docket No. 94-1

DOCKET FILE COPY ORIGINAL

Dear Mr. Caton:

The attachment to this letter explains how Total Factor Productivity would be calculated each year for purposes of USTA's moving average productivity offset.

As the attachment demonstrates, developing the TFP is a simple eight step process. Ninety percent of the data inputs are available from public sources filed with the FCC.

The original and a copy of this ex parte notice are being filed in the Office of the Secretary. Please include it in the public record of this proceeding.

Respectfully submitted,

Mary McDermott
Vice President -
Legal & Regulatory Affairs

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UNITED STATES TELEPHONE ASSOCIATION

TOTAL FACTOR PRODUCTIVITY (TFP) INSTRUCTIONS MANUAL

As displayed in the attachments, developing a TFP study is a simple eight step process. Almost all of the data inputs (90%) required for the study are available from public sources filed with the FCC. In addition to the inputs, an updated Christensen TFP study, covering the period 1984-1993, is also on file with the Commission. USTA filed this study as an Ex Parte exhibit on January 18, 1995 in CC Docket 94-1. The filing included paper and diskette copies of the study. The diskette copy is in a standard Lotus 1-2-3 (version 3) format which facilitates ongoing revisions to the TFP analysis.

The Christensen TFP study, commissioned by USTA, reflects data for the seven regional Bell Operating companies, GTE and Southern New England Telephone. Total Factor Productivity is the ratio of total output to total input, where total output includes all services provided by the Local Exchange Carriers and total input includes the capital, labor and materials used to provide those services.

Attached is a two part TFP Instructions Manual which details the steps necessary to update the Christensen TFP study. Attachment A list the major steps required to update the TFP in general. It also provides Lotus cell references for all inputs required to update the analysis for 1994 data. Attachment B provides detailed step-by-step instructions on how the LECs developed their Telephone Plant Indexes (TPIs). These TPIs were developed as part of the first step in the TFP process.

ATTACHMENT A

UPDATING TFP - STEPS IN THE PROCESS

Step 1 Update "Capital Input Analysis" Worksheet:

- Populate Current Dollar Investment input section (Lotus cells A:L8..A:L13) with ARMIS 43-02 additions to plant in service.
- Populate Asset Prices input section (Lotus cells A:L20..A:L25) with updated TPI data for current year (see additional writeup on TPIs).
- Develop LEC cost of capital and input at Lotus cell A:L125. LECs used Moody's Composite Public Utility Bond Yield as a proxy for their cost of capital.
- LEC depreciation rates (Lotus cells A:AD5..A:AD7) based on Dale Jorgensen Study of Economic Depreciation rates. These rates will help develop LEC capital stock values.
- 1984 Gross Stock, Economic Stock/Gross Stock Adjustment Factor and Capital/Expense Shift inputs all reflect historical data that are not updated for on-going TFP analyses.

Step 2 Update "MRS Expense Input" Worksheet (Lotus cell G17) for total current year operating expenses (excluding compensation expense and depreciation). Also, update GDPPI inputs (Lotus cell Q17) to develop deflated (real) operating expenses for the current year. The 1984 through 1987 Nonregulated Expense and Capital/Expense Shift Adjustments reflect historical data that are not updated for on-going TFP analyses.

Step 3 Update "Labor Input" worksheet for current year salaries & wages, benefits, labor hours and average number of employees for both management and nonmanagement labor.

- Management data are located at Lotus cells L5..L9
- Nonmanagement data are located at Lotus cells L10..L14

Step 4 Update Operating Revenues worksheet for current year booked (Lotus cells A:K5..A:K15) and billed (Lotus cells A:K22..A:K24) revenues. The 1984 Special Access and 1984 through 1987 Nonregulated Adjustments reflect historical data that are not updated for on-going TFP analyses.

Step 5 Update "Special Access Price Index" (Lotus cell F31) for current year API as reported on LECs' Annual Price Cap TRPs.

Step 6 Update "Rate Changes for Intrastate Price Indexes" worksheet:

- Booked (ARMIS 43-04) Revenues are located at Lotus cells C17 (Local), C33 (Toll) and C50 (Intrastate Access).

- Credit Amounts are located at Lotus cells B17 (Local), B33 (Toll) and B50 (Intrastate Access).

- Annualized Revenue Changes are located at Lotus cells D17 (Local), D33 (Toll) and D50 (Intrastate Access).

- Effective Revenue Changes are located at Lotus cells E17 (Local), E33 (Toll) E50 and (Intrastate Access).

Step 7 Update "Common Line & Traffic Sensitive" worksheet:

- MOUs are located at Lotus cells A:B15 (CL) and A:C15 (Traffic Sensitive).

- Revenues are located at Lotus cells A:E15 (CL) and A:F15 (Traffic Sensitive).

Step 8 Update "Access Lines" worksheet for end of year Switched Access Lines in Service

- RBOC data is located at Lotus cell C16

- GTE data is located at Lotus cell D16

- SNET data is located at Lotus cell E16

Following are sources for inputs required to update ongoing TFP analyses. In most cases, inputs can be derived from ARMIS reports (43-01, 43-02, 43-04 and 43-08) filed with the FCC. Other inputs (e.g. LEC cost of capital, GDPPI) are readily available as well, as they are reported on publicly available documents. Few inputs (e.g. disaggregation of composite labor data) require special studies by the LECs; however, the underlying data for these special studies reflect ARMIS data..

TFP INPUTS - SOURCES OF HISTORICAL DATA

<u>Worksheet</u>	<u>Item</u>	<u>Source</u>
* Capital Input Analysis	Current Dollar Investment	Reflect additions to plant in service as reported on Form M, Table 12A, Col d and ARMIS 43-02, Table B-1-3 (Balance Sheet Accts), Col (ac)
	Asset Prices	LEC TPI Analyses. See additional writeup on TPIs.
	Cost of Capital	Moody's Composite Public Utility Bond Yield
	Depreciation Rates	Dale Jorgensen Study of Economic Depreciation Rates
	1984 Gross Stock	Reflects the cost of reproducing gross plant for each LEC. Based on analysis of LECs' records.
	Econo Stock/Gross Stock Adjust Factor	Reflects the decline in economic value of gross stock of various vintages. Reflects analysis of Bureau of Economic Analysis (BEA) of the Telecommunications Industry's 1984 gross and economic capital stock
	1984 - 1987 Cap/ Exps Shift	Reflects the shift in costs from capital accounts to expenses accounts resulting from the FCC's change in accounting rules from Part 31 to Part 32. Analysis of 1988 TRP, Forms COS-2(P)31 and COS-2(P)32.
* MRS Expense Inputs	Composite Expenses	Reflect total company operating expenses (excluding salaries, wages, benefits and depreciation) as reported on: 1984 - 1987 Form M reports, (Table 35, Col (b), Row 68- Row 19-compensation expense + Table 36A, Col (f), Row 26

<u>Worksheet</u>	<u>Item</u>	<u>Source</u>
* MRS Expense Inputs	Composite Expenses	1988 - 1993 ARMIS 43-02 reports, Table I-1 (Income Statement Accounts), Cols (ab)-(ac)-(ad), Rows 720-6561
	1984-1987 Nonreg Exp Adjst	Analysis of company records; separately identifies nonregulated expenses reflected in Total Company Form M costs.
	Cap/Exps Shift (1984-1987)	Analysis of 1988 TRP, Forms COS-2(P)31 and COS-2(P)32.
	GDPPI	Used to deflate MRS expenses to reflect MRS quantities (real expenses). Reflects U.S. Government statistics, analysis of BEA
* Composite Labor Data	Management and Nonmanagement costs and labor hours distributions were determined based on analysis of LECs' records. Total labor costs reflect expensed amounts reported on Form M and ARMIS 43-02 reports.	
	Labor Hours	Analysis of LEC records
	Average # of Employees	Analysis of LECs records
	1984 - 1987 Sal & Wages	Analysis of Form M, Table 35, Row 68, Col (b)
	1984 - 1987 Benefits	Analysis of Form M, Table 35, Row 68, Col (b)
	1988 - 1993 Sal & Wages	Armis 43-02, Table I-1 (Income Statement Accounts), Row 720, Col (ac)
	1988 - 1993 Benefits	ARMIS 43-02, Table I-1 (Income Statement Accounts), Row 720, Col (ad)

<u>Worksheet</u>	<u>Item</u>	<u>Source</u>
* Output Indexes (Operating Revenues)	Booked Revenues	1984 through 1987 - Form M, Table 34 :
	Local	Row 13, Col (b)
	EU IS Access	Row 15, Col (d)
	Switched IS Access	Row 16, Col (d)
	Special IS Access	Row 17, Col (d)
	Intrastate Access	Row 19, Col (b)
	Total Toll	Row 31, Col (b)
	Total Misc	Row 40, Col (b)
	Total Uncoll	Row 41, Col (b)
	Nonreg Adjst	Analysis of company records; separately identifies nonregulated revenues in account 5280 reflected in Total Company Form M revenues.
	1984 Special Access Adjst	Analysis of 1985 Ad Hoc Data Reporting Task Group Submissions. Reflects misclassified Special Access Revenues.
	Booked Revenues	1988 - 1993 Jurisdictional revenues, ARMIS 43-04 Table I:
	EU IS Access	Row 4010 and EU portion of Row 4012, Col (d)
	Switched IS Access	Row 4011, Col (d)
	Special IS Access	Row 4012, Col (d)
	Intrastate Access	Row 4013, Col (d)
	Booked Revenues	1988 - 1993 Total company revenues, ARMIS 43-02 Table I (Income Statement Accounts):
	Local	Row 520, Col (b)
	Total Toll	Row 525, Col (b)
	Total Misc	Row 5200, Col (b)
	Total Uncoll	Row 5300, Col (b)
	Billed Revenues	Analysis of companies' records

<u>Worksheet</u>	<u>Item</u>	<u>Source</u>
* Special Access Price Index	1988 - 1992 indexes	Reflects the relative change in Special Access prices: Reflect input data which supported Special Access Portion of Frenthrup/Uretsky TFP analysis done by NERA.
	1984 - 1987 indexes	Reflect the average 1988 - 1992 index.
	1993 index	Reflects Special Access API as reported on LECs annual price cap TRP filings.
* Rate Changes for Intra-state Price Indexes	Booked Revenues	1984 - 1987 Form M, Table 34, analysis of Col (b):
	Local	Row 13
	Intrastate Access	Row 19
	Total Toll	Row 31
	Booked Revenues	1988 - 1993 ARMIS 43-04 Table I:
	Local	Row 4005, Col (c)
Intrastate Access	Row 4013, Col (c)	
Total Toll	Row 4024, Col (c)	
	Revenue Changes & Credits	Reflect impact of state utility commissions' orders in state rate case proceedings.
* CL & TS MOU and Revs	Minute of Use	Reflect derived MOUs as reported on: 1984 - 1987 Annual TRP, Table DMD3:
	Common Line	Row 130, Col A
	Traffic Sensitive	Row 130, Col B
		1988 - 1993 ARMIS 43-01, Table II, Cols (b) through (d) sum of four quarterly reports:
	Common Line	Rows 2010 through 2040
	Traffic Sensitive	Rows 2050 + 2060

<u>Worksheet</u>	<u>Item</u>	<u>Source</u>
* CL & TS MOU and Revs	Revenues	Reflect booked revenues as reported on: 1984 - 1987 Annual TRP , Table COS 1H: Common Line Traffic Sensitive Row 175, Col K Row 175, Col P 1988 - 1993 ARMIS 43-01, Table I: Common Line Traffic Sensitive Row 1020, Col (m) Row 1020, Col (r)
* Switched Access Lines	Demand Data	1984 - 1990, DMD2, Row 170 1991 - 1993, ARMIS 43-08, Row 0910, Col (cj)

TELEPHONE PLANT INDEXES (TPIs)

DEFINITION:

Telephone Plant Indexes are measures of the relative changes in the cost of constructing telephone plant-in-service (including materials and labor components), with respect to the embedded base of telephone plant. All major elements of cost are included in constructing the TPI. They are capital purchases (materials), contracted labor and engineering, company labor and company engineering. Using an index year of 1984, the TPI plant accounts are weighted to a composite index using the dollar value of current year booked costs.

The TPI is a variable weight price index. The calculations are based on a generally accepted adaptation of the Divisia Index which takes the growth rates of individual prices (the various telephone plant accounts) between successive periods and weights each by its proportion of total expenditure in the latest period. Its advantage is that, as a variable weight type price index, improvements made in technology or technology shifts are automatically reflected by the dollars reported in each account. For example, if new equipment decreases the amount of time it takes for an installer to complete his job, this will be reflected in the dollars for associate labor. As network composition shifts from copper to fiber, efficiencies gained from the new technology in added capacity will be reflected in plant subaccounts with fiber by a materials weight inversely related to the increased capacity.

DEVELOPMENT OF TPIs:

The TPI is developed using company data sources such as: subsidiary ledgers that support the ARMIS 43-02 and Form M reports and financial systems. The TPI for each sub-account is calculated separately, then aggregated to form the overall TPI. Within each subaccount, the growth rates of each component is calculated separately, and then weighted together each year. These components are materials, company labor costs and contract labor costs. The components are aggregated for a given subaccount based on the portion of actual capital dollars in that subaccount devoted to each component in a given year.

Actual data are used to calculate the current year growth rate for each component of each subaccount. The weights used to aggregate the materials and labor costs are updated periodically. The weights used to aggregate subaccounts are determined each year based on booked costs, as reflected in company subsidiary ledgers. For example, 1993 dollars were used for computation of the 1993 TPIs which became available in the third quarter of 1994.

STEPS IN THE PROCESS:

- Step 1 Determine beginning and end of year booked component costs for each account. Aggregated beginning and end of year component costs for each account reflect data reported on ARMIS 43-02, Table B-1, Columns ab and af, respectively. Pre-USOA data ties to the company's Form M reports. The individual beginning and end of year component costs are derived based on special studies performed by the company, utilizing accounting reporting codes (e.g. EXTCs) and company financial systems.
- Step 2 For each account, determine component distributions (weights) based on the dollars in that account (as derived in Step 1) devoted to each component.
- Step 3 For each account, determine year-over-year growth rate of each component: The contract labor price growth rate is based on Bureau of Labor Statistics Price Indexes (e.g. Employment Cost, CPIW). Labor growth rates reflect the year-over-year change in actual salary, wage and fringe benefit costs. Labor costs are derived from company subsidiary ledgers which support the ARMIS 43-02 report. Growth rates for material costs in each account are based on special studies. One growth rate is calculated for each labor component (contract and company) and used in every account.
- Step 4 Calculate the weighted average growth rate of each subaccount utilizing the component weights (Step 3) and growth rates (Step 3). See mathematical example below that yields a growth rate of 7.78% for account A.
- Step 5 Calculate the weighted average growth rate of each account utilizing the subaccount growth rates (developed in step 4). See the mathematical example above that yields a 4.96% growth rate for account C below.
- Step 6 Determine current year plant index by multiplying the weighted average growth rate of each account (or subaccount) by the prior year plant index.

Suppose, for example, that component costs (based on the most recently updated data) in subaccount A, which is company labor intensive, are \$1,000 for materials, \$8,500 for company labor, and \$500 for contract labor -- for a total of \$10,000 in account A. Then, 10% of the booked costs are for materials, 85% for company labor and 5% contract labor. Suppose further that in year Y materials costs in that subaccount are growing at a rate of 4%, company labor costs at 8.5% and contract labor costs at 3%. Then, the growth rate for that subaccount is $(10\% * 4\%) + (85\% * 8.5\%) + (5\% * 3\%)$ -- for a growth rate in year Y for account A of 7.78%. Also in year Y subaccount B is growing at a rate of 3.55%, and A and B are the subaccounts of account C. If the end of year book costs (as reported in company subsidiary ledgers) for subaccounts A and B are \$11,000 and \$22,000, respectively, then A is $33 \frac{1}{3}\%$ of account C and B is $66 \frac{2}{3}\%$ of account C. The growth rate of account C in year Y is $(33 \frac{1}{3}\% * 7.78\%) + (66 \frac{2}{3}\% * 3.55\%)$, or 4.96%.

Calculating the index in year Y for account A uses the index for the prior year and grows it by 7.78%. If, for example, account A's index was 130.0 for the prior year, then the account's index for year Y is 130.0 times 1.0778 or 140.114, which would round to 140.1.