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Confidential rebuttal testimony of Richard B. Lee.
(45 pgs)

Confidential
MCI/AT&T #2

BEFORE THE

OHIO PUBLIC UTILITIES COMMISSION

In the Matter of the Application of Cincinnati Bell Telephone Company for Approval of a Retail Pricing Plan which May Result in Future Rate Increases and for Approval of a New Alternative Regulation Plan.	))))))	Case No.: 96-899-TP-ALT

REBUTTAL TESTIMONY OF

RICHARD B. LEE

ON BEHALF OF

AT&T COMMUNICATIONS OF OHIO, INC. AND

MCI TELECOMMUNICATIONS CORPORATION

December 23, 1998

CONFIDENTIAL

MCI-ATT-2

INTRODUCTION

Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.

A. My name is Richard B. Lee. I am Vice President of the economic consulting firm of Snavely King Majoros O'Connor & Lee, Inc. ("Snavely King"). My business address is 1220 L Street, N.W., Suite 410, Washington, D.C. 20005.

Q. ARE YOU THE SAME RICHARD B. LEE WHO SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING ON DECEMBER 17,1997?

A. Yes, I am.

Q. DID YOUR DIRECT TESTIMONY CONTAIN A DESCRIPTION OF YOUR BACKGROUND AND EXPERIENCE?

A. Yes, it did.

Q. WAS THIS TESTIMONY PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. Yes, it was. I should note, however, that this testimony and its analytical framework draws heavily upon work performed by myself and others at Snavely King on behalf of AT&T, MCI and AT&T Canada LDS for use in other proceedings.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. In this testimony, I will respond to the supplemental testimony of Cincinnati Bell Telephone Company ("CBT") witness Robert C. Coogan filed September 28, 1998 ("Coogan Testimony"). I will also provide a few updates to my direct testimony.

Q. HAVE YOU COMPARED CBT'S PROPOSALS TO YOUR RECOMMENDATIONS?

A. Yes, I have. On Page 1 of Attachment 1 to this testimony, I have compared the projection lives prescribed by the Federal Communications Commission ("FCC") which I recommend (Column c) to:

- the range of projection lives prescribed by the FCC pursuant to its Prescription Simplification proceeding[1] (Columns a and b);
- the projection lives last prescribed by the Public Utilities Commission of Ohio ("PUCO") (column d); and
- the proposals of CBT (Column e).

On Page 2 of Attachment 1, I have compared future net salvage percents in the same format.

Q. WHAT DO YOU CONCLUDE FROM THESE COMPARISONS?

A. I conclude that many of the projection lives proposed by CBT are shorter than those currently prescribed by the FCC and PUCO, and thus inappropriate for use in Total Element Long-Run Incremental Cost ("TELRIC") calculations.

Q. HOW DOES CBT ATTEMPT TO SUPPORT THE LIVES IT HAS PROPOSED?

A. CBT relies upon the supplemental direct testimony of Robert C. Coogan. Mr. Coogan, in turn, relies upon the life recommendations of Technology Futures, Inc. ("TFI") in its report "Transforming the Local Exchange Network" ("TFI Study").[2]

Q. WHAT IS THE BASIS OF TFI'S RECOMMENDATIONS?

1 Simplification of the Depreciation Prescription Process, CC Docket No. 92-296 ("Prescription Simplification" proceeding).
2 Coogan Testimony, p. 4.

A. TFI's recommendations are based upon studies sponsored by the Telecommunications Technology Forecasting Group ("TTFG"), an industry association of major local exchange carriers ("LECs") in the United States and Canada.[3] TFI's studies have been frequently used by LECs to justify shorter lives in regulatory depreciation proceedings. TFI's President, Dr. Lawrence K. Vanston, has testified on behalf of GTE, Rochester Telephone Corporation, Southern New England Telephone, and various Regional Bell Operating Companies ("RBOCs") in the U.S., and on behalf of Bell Canada and the other Stentor Companies in Canada.

Q. HAVE REGULATORS GENERALLY ACCEPTED TFI'S LIFE RECOMMENDATIONS?

A. No. For example, by comparing the low end of the current FCC range (Column a on Page 1 of Attachment 1) to CBT's proposed lives (Column e), for digital switching, digital circuit and the cable accounts, one can see the difference between the lives prescribed by the FCC and those based on TFI's recommendations.

Q. HOW DOES TFI DEVELOP ITS LIFE ESTIMATES?

A. Largely through "substitution analysis," which attempts to forecast the pattern by which new technology will replace old technology.[4]

Q. IS SUBSTITUTION ANALYSIS A FORWARD-LOOKING METHOD OF ESTIMATING LIVES?

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3 TFI Study, pp. vii-viii.

4 Id., pp. 4-7.

A. Not really. The assumption that the future will be much like the past is the very basis of substitution analysis. TFI predicts an "avalanche" of retirements in various accounts based upon the application of past retirement patterns of obsolete technologies to future circumstances. This technique relies, for example, on retirement patterns such as those describing the replacement of crossbar switches in the 1980's.[5] In their own way, substitution analyses are as dependent on historical data as mortality analyses.

Q. WHAT SPECIFIC "AVALANCHES" DOES TFI FORESEE FOR TELEPHONE PLANT?

A. TFI's recommendation lives are based upon the premise that the LECs will replace their narrowband telecommunications networks with broadband integrated networks capable of providing both telecommunications services and video services, such as cable television.[6] According to TFI, Fiber In The Loop ("FITL") will bring broadband to the home, displacing copper plant.[7] This will result in the upgrading of all transmission systems to Synchronous Optical Network ("SONET"), replacing existing circuit equipment.[8] And Asynchronous Transfer Mode ("ATM") switching equipment will provide a broadband switching capability replacing today's narrowband switch fabrics.[9]

Q. ARE THE LIVES RESULTING FROM THE USE OF SUBSTITUTION ANALYSIS NECESSARILY ACCURATE?

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5 Id., p. 29.
6 Id. pp. 2, 27 and passim.
7 Id., pp. 2, 8-16 and 74-111.
8 Id., pp. 2, 16-19 and 113-125.
9 Id., pp. 2, 23-27 and 159-172.

A. No. Substitution analysis merely provides a convenient method for plotting by year the growth of a new technology assuming the inputs to one's formula are correct. The output of a substitution analysis is only as correct as the inputs selected.

In the first place, substitution analysis is not even relevant unless it is known that a new technology will replace, not supplement, an older technology. For example, ATM switches will be deployed as a supplemental technology to digital switches, not as a replacement for them. As such, substitution analysis is of no relevance. This helps to explain the extraordinarily low retirement rates for CBT digital switching equipment and the rise in the digital switching depreciation reserve level from 18.0 percent in 1991 to 38.9 percent in 1997.[10] Indeed, even when a substitution has started, it does not necessarily follow that it will finish according to pattern. It appeared at one point, for example, that nuclear fuel would replace fossil fuel in electrical generation in this country. The use of substitution formulae in that case would have resulted in dramatically incorrect predictions.

Even if a full substitution is likely, the formula requires the user to predict both the rate of substitution and the point at which the replacement technology will reach 50 percent of the universe.[11] In other words, the analyst must insert as an <u>input</u>, the average remaining life of the <u>old</u> technology, since this is essentially the 50 percent level of the <u>new</u> technology. Although the substitution methodology allows the preparation and presentation of impressive looking

10 See Attachment 2 to this testimony.

11 The formula can also be used by selecting the rate of substitution and the 1 percent level.

charts and tables, it is merely charting the assumptions made by the analyst. Its outputs at the hands of TFI are no more credible than TFI's inputs.

Q. HAVE TFI'S FORECASTS PROVEN ACCURATE OVER THE LONG RUN?

A. No. Although TFI's forecasts have been provided to the FCC for nearly a decade, they have not been relied upon in the selection of plant projection lives. Fatina K. Franklin, the Chief of the FCC's Competitive Analysis Branch, made a presentation last year at the Annual Meeting of the Society of Depreciation Professionals on the subject of forecasting. The charts from her presentation are provided as Attachment 3 to this testimony. Charts 3 and 4 deal specifically with TFI's estimates. Chart 3 demonstrates that TFI's 1989 estimates for the retirement of circuit equipment have proven grossly inaccurate. The percent of 1987 circuit equipment surviving as of the end of 1996 is nearly three times as great as that predicted by TFI's studies. Chart 4 demonstrates that TFI's 1994 estimates for circuit equipment and analog stored program control ("SPC") switches are already proving inaccurate.

Attachment 6 to this testimony provides a similar analysis of TFI's fiber in the feeder estimates. Page 1 of this analysis shows TFI's predictions for the percent of fiber in the feeder in 1988, 1994 and 1997, and actuals (in bold) through 1995. In 1988 TFI predicted a substitution of 22.55 percent by 1995; in 1994 its prediction dropped to 11.20 percent; and its latest study shows an actual of 9.30 percent. Page 2 graphically portrays this data and demonstrates how his life estimates have lengthened as actuals became available.

Q. MR. COOGAN SUGGESTS THAT "OTHER FACTORS" WILL SHORTEN PLANT LIVES.[12] IS THIS NECESSARILY TRUE?

A. No. Certainly, the forward-looking lives prescribed by the FCC already reflect the life shortening effects of facilities bypass, or competition, that have been predicted for over a decade. However, the passage of the Telecommunications Act of 1996 has promised potential competitors alternatives to bypass, such as resale and the leasing of unbundled network elements. These alternatives may reduce the incidence of bypass, increase demand for existing facilities, and lengthen plant lives.

Moreover, some facilities based competition might also serve to lengthen plant lives overall. It is generally accepted that competition spurs innovation and drives prices toward cost. Some innovative technologies result in the replacement of existing plant; some result in the enhancement of existing plant. In the early 1990's it appeared that the LECs would be replacing their copper distribution plant with fiber and coax to enable them to provide broadband video services as well as telephony. The development of Digital Subscriber Line ("DSL") technology has progressed to the point, however, where it is practical, and economic, to provide high speed Internet access, and even cable television services, over plain old copper wire.[13] CBT has introduced DSL service under the brand name Zoom.[14] In the case of DSL technology, the innovation spurred by competition has served to extend the life of existing copper facilities.

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12 Coogan Testimony, pp. 3-4.

13 See Attachment 7 for U S West's description of its DSL-based cable television service.

14 See Attachment 8 for CBT's description of Zoom.

In summary, it is not clear what the net effect of competition will be on CBT plant lives. To the extent that competition drives CBT to replace plant, lives would be shorter. To the extent that competition drives CBT to enhance its plant, lives will be longer.

Currently prescribed FCC projection lives represent the most unbiased, forward-looking estimates of the life expectancy of newly placed plant. My direct testimony describes this fact at length. It must be remembered that a shorter life is not necessarily a more forward-looking life. It may simply be a biased estimate.

Q. WHAT DO YOU CONCLUDE FROM THE TABLE OF PRESCRIBED PROJECTION LIVES PROVIDED BY MR. COOGAN ON PAGE 3 OF HIS TESTIMONY?

A. I conclude that the FCC and PUCO have been willing to change CBT's prescribed life when appropriate to ensure appropriate capital recovery. In 1997, the life of Analog Electronic Switching was lengthened and the projection lives of the other accounts shown were shortened. Whether the next prescription will bring longer or shorter lives remains to be seen, as discussed above.

Q. DO YOU HAVE ANY UPDATES TO THE ATTACHMENTS TO YOUR DIRECT TESTIMONY?

A. Yes, I do. Attachment 4 to my direct testimony showed that the composite reserve level for all LECs had risen from 18.7 percent in 1980 to 47.1 percent in 1996. The attached update shows that this reserve level reached 48.8 percent in 1997. Similarly, Attachment 5 to my direct testimony showed that CBT's composite reserve level had reached 44.8 percent in 1996. The attached update shows that the Ohio intrastate reserve level reached 48.1 percent in 1997.

Q. SINCE YOU PREPARED YOUR DIRECT TESTIMONY, HAVE ANY ADDITIONAL STATE COMMISSIONS ISSUED ORDERS WHICH ADOPTED FCC PRESCRIBED PROJECTION LIVES, OR SIMILAR STATE PRESCRIBED LIVES, FOR USE IN TELRIC CALCULATIONS?

A. Yes. In addition to the state commissions listed on Page 10 of my direct testimony, prescribed lives have been adopted by Georgia,[15] Illinois,[16] and Virginia[17] for use in TELRIC calculations. The list in my direct testimony should also have noted that the Texas commission adopted FCC lives for use in TELRIC in 1996.[18]

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

15 Docket 7061-U, December 16, 1997.

16 Docket 96-0569, February 17, 1998.

17 Docket 970005, May 22, 1998.

18 Docket 16189, et al., November 8, 1996.

Projection Life Comparison

	Account Number	Account Name	FCC Range Low (a)	FCC Range High (b)	CBT OH FCC (c)	CBT OH PUCO (d)	CBT OH Co. (e)
1	2112	Motor Vehicles	7.5	9.5	7.9	7.9	7.9
2	2115	Garage Work Eqpt	12.0	18.0	12.0	12.0	12.0
3	2116	Other Work Eqpt	12.0	18.0	14.0	14.0	14.0
4	2121	Buildings (Large)	N/A	N/A	46.0	46.0	40.0
5	2122	Furniture	15.0	20.0	15.0	15.0	15.0
6	2123.1	Ofc. Support Eqpt	10.0	15.0	12.0	12.0	12.0
7	2123.2	Co. Comm. Eqpt	7.0	10.0	7.0	7.0	7.0
8	2124	Gen. Purpose Computers	6.0	8.0	5.5	5.5	3.0
9	2212	Digital Switching	16.0	18.0	15.0	15.0	12.0
10	2220	Operator Systems	8.0	12.0	7.5	7.5	7.5
11	2231	Radio Systems	9.0	15.0	5.5	5.5	3.5
12	2232	Digital Circuit	11.0	13.0	11.0	11.0	9.0
13	2232	Analog Circuit	8.0	11.0	8.0	8.0	
14	2362	Other Terminal Equip.	5 0	8.0	5.8	5.8	
15	2411	Poles	25.0	35.0	29.0	29.0	29.0
16	2421	Aerial Cable - Met	20.0	26.0	21.0	21.0	15.0
17	2421	Aerial Cable - Fiber	25.0	30.0	25.0	25.0	22.0
18	2422	Underground Cable - Met	25.0	30.0	24.0	24.0	15.0
19	2422	Underground Cable - Fiber	25.0	30.0	25.0	25.0	22.0
20	2423	Buried Cable - Met	20.0	26.0	22.0	22.0	17.0
21	2423	Buried Cable - Fiber	25.0	30.0	25.0	25.0	22.0
22	2426	Intrabldg Cable - Met	20.0	25.0	18.0	18.0	14.5
23	2426	Intrabldg Cable - Fiber	25.0	30.0	25.0	25.0	20.0
24	2431	Aerial Wire	N/A	N/A	12.0	12.0	
25	2441	Conduit Systems	50.0	60.0	50.0	50.0	50.0

Source: Col a, b = FCC Docket No. 92-296 Orders released 6/28/94 and 5/4/95
Col c, d = FCC Parameter Report, July 14, 1997
Col e = 2/18/97 CBT proposal in Depreciation Study

Future Net Salvage Comparison

	Account Number	Account Name	FCC Range Low (a)	FCC Range High (b)	CBT OH FCC (c)	CBT OH PUCO (d)	CBT OH Co. (e)
1	2112	Motor Vehicles	10.0	20.0	11.0	11.0	11.0
2	2115	Garage Work Eqpt	0.0	10.0	-5.0	-5.0	-5.0
3	2116	Other Work Eqpt	0.0	10.0	3.0	3.0	3.0
4	2121	Buildings	N/A	N/A	-6.0	-6.0	-10.0
5	2122	Furniture	0.0	10.0	7.0	7.0	7.0
6	2123.1	Ofc. Support Eqpt	0.0	10.0	5.0	5.0	5.0
7	2123.2	Co. Comm. Eqpt	-5.0	10.0	2.0	2.0	2.0
8	2124	Gen. Purpose Computers	0.0	5.0	5.0	5.0	5.0
9	2212	Digital Switching	0.0	5.0	1.0	1.0	1.0
10	2220	Operator Systems	0.0	5.0	-1.0	-1.0	-1.0
11	2231	Radio Systems	-5.0	5.0	-9.0	-9.0	-9.0
12	2232	Digital Circuit	0.0	5.0	0.0	0.0	0.0
13	2232	Analog Circuit	-5.0	0.0	-5.0	-5.0	
14	2362	Other Terminal Equip.	-5.0	5.0	-4.0	-4.0	
15	2411	Poles	-75.0	-50.0	-97.0	-97.0	-97.0
16	2421	Aerial Cable - Met	-35.0	-10.0	-49.0	-49.0	-49.0
17	2421	Aerial Cable - Fiber	-25.0	-10.0	-17.0	-17.0	-17.0
18	2422	Underground Cable - Met	-30.0	-5.0	-53.0	-53.0	-53.0
19	2422	Underground Cable - Fiber	-20.0	-5.0	-14.0	-14.0	-14.0
20	2423	Buried Cable - Met	-10.0	0.0	-10.0	-10.0	-12.0
21	2423	Buried Cable - Fiber	-10.0	0.0	-5.0	-5.0	-12.0
22	2426	Intrabldg Cable - Met	-30.0	-5.0	-32.0	-32.0	-32.0
23	2426	Intrabldg Cable - Fiber	-15.0	0.0	-10.0	-10.0	-10.0
24	2431	Aerial Wire	N/A	N/A	-74.0	-74.0	
25	2441	Conduit Systems	-10.0	0.0	-15.0	-15.0	-50.0

Source: Col a, b = FCC Docket No. 92-296 Orders released 6/28/94 and 5/4/95
Col c, d = FCC Parameter Report, July 14, 1997
Col e = 2/18/97 CBT proposal in Depreciation Study

Cincinnati Bell Telephone - Ohio Intrastate Digital Switching Rates

(Dollars in Millions)

	Telecommunications Plant in Service												
	BOY (a)	EOY (b)	Average (c)=(a+b)/2	Increase (d) = b-a	Add (e)	Ret (f)	Deprec (g)	EOY Reserve (h)	AVG. Reserve (i)	Add Rate (j) = e/a	Retire Rate (k) = f/a	Deprec Rate (l) = g/c	Reserve Percent (m) = h/b
1990	118	154	136	36	36	0	8	28	23	30.8	0.1	6.0	18.0
1991	154	176	165	23	24	2	11	39	33	15.6	1.2	6.4	22.0
1992	176	195	186	18	21	3	13	47	43	12.0	1.5	6.9	24.3
1993	195	217	206	23	26	4	15	59	53	13.5	2.0	7.2	27.3
1994	217	232	225	15	29	18	16	61	60	13.5	8.5	7.2	26.1
1995	232	249	241	17	19	2	18	77	69	8.3	1.0	7.6	31.0
1996	249	256	252	7	12	5	19	93	85	4.7	1.9	7.5	36.3
1997	256	283	269	27	30	5	21	110	101	11.8	1.9	8.0	38.9
Avg.										13.8	2.3	7.1	

Source: Cols. a, b & e = CBT response to AT&T Data Request No. 1
Cols. f, g & h = CBT response to AT&T Data Request No. 2

Attachment 2

SOCIETY OF DEPRECIATION PROFESSIONALS

Annual Meeting

FORECASTING

FATINA K. FRANKLIN
FEDERAL COMMUNICATIONS COMMISSION
SEPTEMBER 22, 1997

Chart 1

LIFE SPAN OR FORECAST METHOD

1. Large Individual Identifiable Units
2. Forecast Of An Individual Retirement Date Or Overall Life Span
3. Life Span - Yrs. From Avg. Date Of Placing To Avg. Date Of Retirement
4. Future Additions Are Integral Part Of Initial Installation

ANALOG ELECTRONIC SWITCHING

(INDIVIDUAL RETIREMENT DATE)

Location Name	Type	Equipped Lines	Year Placed	Book Investment	Est. Date Of Retirement
Springfield	1A	50,000	1979	15,000,000	1999
Paris	2B	10,000	1980	2,500,000	1998
Lexington	RSS	1,000	1984	500,000	1997
Total or Composite		61,000	1979.3	18,000,000	1998.8

DIGITAL ELECTRONIC SWITCHING

(OVERALL LIFE SPAN)

Location Name	Type	Equipped Lines	Year Placed	Book Investment
Jackson	5ESS	56,000	1985	20,000,000
Gainesville	DMS-100	9,000	1987	5,000,000
Lexington	RSS	200	1990	300,000
Total or Composite		65,200	1985.5	25,300,000

Est. Avg. Retirement Year = 1985.5 + 20 Year Span = 2005.5

Chart 2

PRODUCT LIFE CYCLE

Company A
Buried Metallic Cable

Year	1994 Study Forecast	1997 Study Actuals/Forecast	Beg of Year Investment
1994	214.9	229.8 (A)	
1995	140.5	153.5 (A)	
1996	86.5	62.1 (A)	
Total	441.9	445.4 (A)	
1997	43.4	33.2 (F)	221.3
1998	41.0	132.8 (F)	188.1
1999	44.6	55.3 (F)	55.3
Total	129.0	221.3 (F)	464.7

Average Remaining Life (As of 1/1/97) = 464.7 / 221.3 - 0.5 = 1.6 Years

Company B
Aerial Metallic Cable

Year	1991 Study Forecast	1994 Study Forecast	1997 Study Actuals
1994	7,418	5,887	3,532
1995	10,318	7,532	3,818
1996	12,697	9,037	3,490
Total	30,433	22,456	10,840

Chart 3

Substitution Analysis 1

OBSOLESCENCE OF CIRCUIT EQUIPMENT-ALL CATEGORIES
SURVIVORS REMAINING FROM 1987 INVESTMENT

Technology Futures Inc.*		Percent Surviving From FCC Carriers Reviewed In	
End Of Year	Percentage Surviving	1996#	1997@
1987	100		
1988	90		
1989	83		
1990	73		
1991	62		
1992	53		
1993	44		
1994	35		
1995	27	60.6	
1996	21		59.2

ARL (As of 1-1-89) = 5.3 Years

* Technological Substitution in Circuit Equipment
For Local Telecommunications
Copyright 1989, Technology Futures, Inc.

Includes NET, SNET, US West, GTE- South & GTE-SW

@ Includes Southwestern Bell, Cincinnati Bell & US West

Chart 4

Substitution Analysis 2

Non-SONET Circuit Equipment Survivors

Technology Futures Inc.*		Percent Surviving From Carriers Reviewed By FCC Staff In	
End Of Year	% Of 1994 Investment Surviving	1996#	1997@
1994	100		
1995	89	97.6	
1996	76		93.7

ARL (As of 1-1-95) = 3.7 Years

Analog SPC Survivors

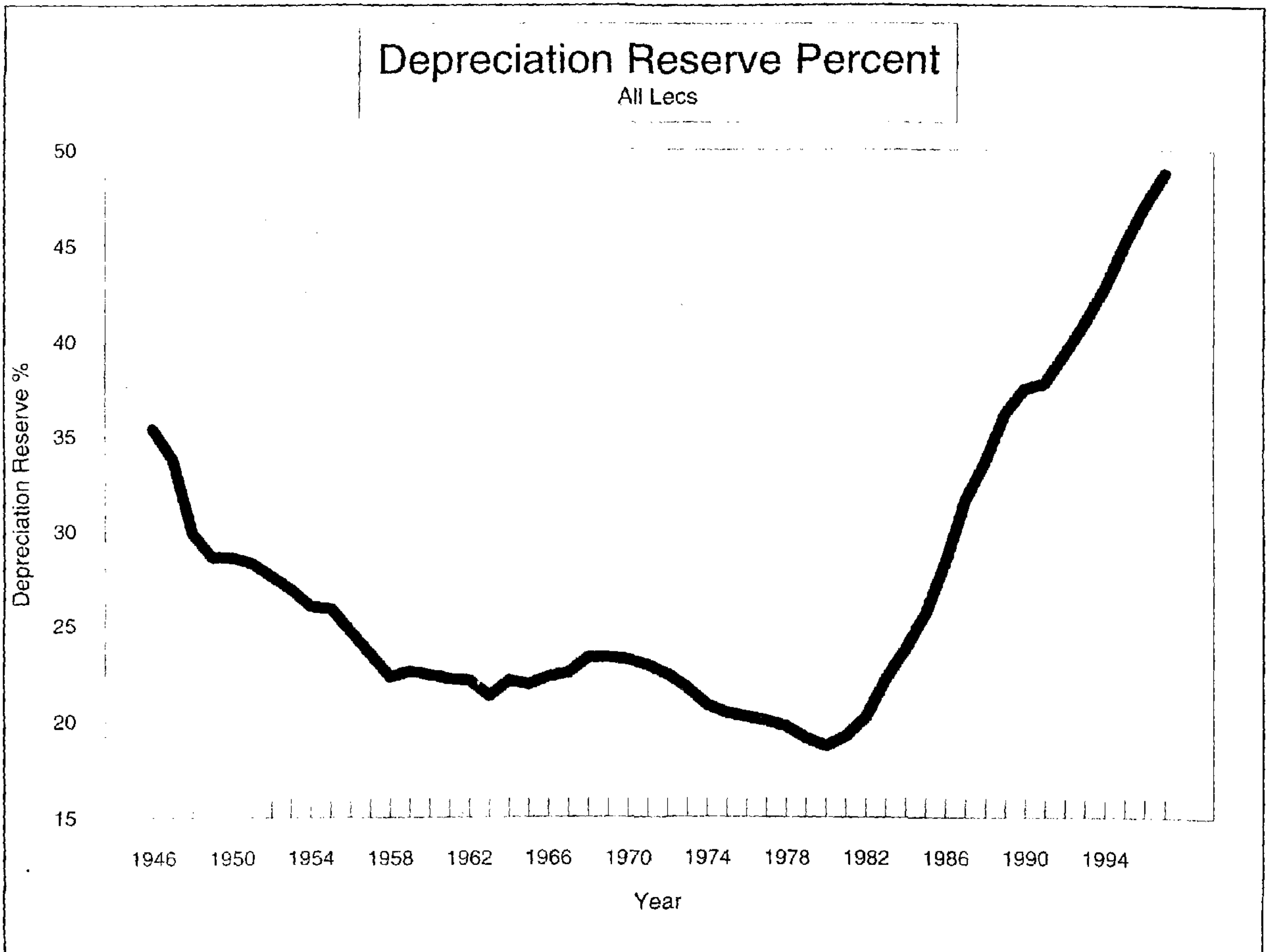
Technology Futures Inc.*		Percent Surviving From Carriers Reviewed By FCC Staff In	
End Of Year	% Of 1994 Investment Surviving	1996#	1997@
1994	100.0		
1995	82.1	95.0	
1996	58.9		84.1

ARL (As of 1-1-95) = 2.8 Years

* Depreciation Lives for Telecommunications Equipment: Review & Update Copyright 1995, Technology Futures, Inc.

\# Includes NET, SNET, US West, GTE- South & GTE-SW

@ Includes Southwestern Bell, Cincinnati Bell & US West



Attachment 4
Page 1 of 4

All LEC's Plant Related Rates
(Dollars in Millions)

	Telecommunications Plant in Service												
	BOY (a)	EOY (b)	Average (c)=(a+b)/2	Increase (d) = b-a	Add (e)	Ret (f)	Deprec (g)	EOY Reserve (h)	AVG Reserve (i)	Add Rate (j) = e/a	Retire Rate (k) = f/a	Deprec Rate (l) = g/c	Reserve Percent (m) = h/b
1946		6,500	3,250	6,500				2,300					35.4
1947	6,500	7,400	6,950	900				2,500	2,400				33.8
1948	7,400	8,700	8,050	1,300				2,600	2,550				29.9
1949	8,700	9,800	9,250	1,100				2,800	2,700				28.6
1950	9,800	10,500	10,150	700				3,000	2,900				28.6
1951	10,500	11,300	10,900	800				3,200	3,100				28.3
1952	11,300	12,300	11,800	1,000				3,400	3,300				27.6
1953	12,300	13,400	12,850	1,100				3,600	3,500				26.9
1954	13,400	14,600	14,000	1,200				3,800	3,700				26.0
1955	14,600	15,800	15,200	1,200				4,100	3,950				25.9
1956	15,800	17,400	16,600	1,600				4,300	4,200				24.7
1957	17,400	19,600	18,500	2,200				4,600	4,450				23.5
1958	19,600	22,000	20,800	2,400				4,900	4,750				22.3
1959	22,000	23,000	22,500	1,000				5,200	5,050				22.6
1960	23,000	25,000	24,000	2,000	2,700	700	1,100	5,600	5,400	11.7	3.0	4.6	22.4
1961	25,000	27,000	26,000	2,000	2,800	800	1,200	6,000	5,800	11.2	3.2	4.6	22.2
1962	27,000	29,000	28,000	2,000	2,900	900	1,300	6,400	6,200	10.7	3.3	4.6	22.1
1963	29,000	32,000	30,500	3,000	4,000	1,000	1,400	6,800	6,600	13.8	3.4	4.6	21.3
1964	32,000	34,000	33,000	2,000	2,900	900	1,600	7,500	7,150	9.1	2.8	4.8	22.1
1965	34,000	37,000	35,500	3,000	4,100	1,100	1,700	8,100	7,800	12.1	3.2	4.8	21.9
1966	37,000	40,000	38,500	3,000	4,100	1,100	1,900	8,900	8,500	11.1	3.0	4.9	22.3
1967	40,000	44,000	42,000	4,000	5,100	1,100	2,100	9,900	9,400	12.8	2.8	5.0	22.5

All LEC's Plant Related Rates

(Dollars in Millions)

	Telecommunications Plant in Service BOY (a)	EOY (b)	Average (c)=(a+b)/2	Increase (d) = b-a	Add (e)	Ret (f)	Deprec (g)	EOY Reserve (h)	AVG Reserve (i)	Add Rate (j) = e/a	Retire Rate (k) = f/a	Deprec Rate (l) = g/c	Reserve Percent (m) = h/b
1968	43,249	47,123	45,186	3,874	5,104	1,230	2,304	10,979	10,440	11.8	2.8	5.1	23.3
1969	47,175	51,724	49,450	4,549	6,022	1,473	2,507	12,072	11,526	12.8	3.1	5.1	23.3
1970	51,723	56,951	54,337	5,228	6,880	1,651	2,751	13,213	12,643	13.3	3.2	5.1	23.2
1971	56,972	63,090	60,031	6,118	8,052	1,933	3,016	14,447	13,830	14.1	3.4	5.0	22.9
1972	63,068	69,870	66,469	6,802	9,044	2,242	3,330	15,643	15,045	14.3	3.6	5.0	22.4
1973	69,951	77,442	73,697	7,491	10,085	2,595	3,659	16,769	16,206	14.4	3.7	5.0	21.7
1974	77,107	84,888	80,998	7,781	11,024	3,243	4,047	17,685	17,227	14.3	4.2	5.0	20.8
1975	84,799	92,284	88,542	7,485	10,881	3,396	4,486	18,809	18,247	12.8	4.0	5.1	20.4
1976	92,591	99,879	96,235	7,288	11,139	3,856	4,934	20,163	19,486	12.0	4.2	5.1	20.2
1977	101,237	109,496	105,367	8,259	12,438	4,136	5,630	21,903	21,033	12.3	4.1	5.3	20.0
1978	109,502	119,336	114,419	9,834	14,549	4,681	6,199	23,474	22,689	13.3	4.3	5.4	19.7
1979	118,612	129,972	124,292	11,360	16,843	5,452	6,820	24,881	24,178	14.2	4.6	5.5	19.1
1980	129,767	142,096	135,932	12,329	18,694	6,378	7,804	26,512	25,697	14.4	4.9	5.7	18.7
1981	142,121	155,845	148,983	13,724	19,482	5,749	8,664	29,932	28,222	13.7	4.0	5.8	19.2
1982	155,907	168,075	161,991	12,168	18,466	6,409	9,757	33,957	31,945	11.8	4.1	6.0	20.2
1983	169,162	178,482	173,822	9,320	16,076	6,664	11,340	39,571	36,764	9.5	3.9	6.5	22.2
1984	152,315	159,798	156,057	7,483	14,994	4,994	10,048	37,996	38,784	9.8	3.3	6.4	23.8
1985	174,218	186,294	180,256	12,076	18,972	6,687	11,469	43,837	40,917	10.9	3.8	6.9	25.7
1986	186,972	198,758	192,865	11,786	18,907	6,954	13,142	51,543	47,690	10.1	3.7	7.5	28.4
1987	199,063	209,687	204,375	10,624	18,535	7,886	15,263	61,471	56,507	9.3	4.0	8.1	31.6
1988	210,720	220,395	215,558	9,675	17,947	8,949	16,627	74,123	67,797	8.5	4.2	7.7	33.6

All LEC's Plant Related Rates

(Dollars in Millions)

	Telecommunications Plant in Service BOY (a)	EOY (b)	Average (c)=(a+b)/2	Increase (d) = b-a	Add (e)	Ret (f)	Deprec (g)	EOY Reserve (h)	AVG Reserve (i)	Add Rate (j) = e/a	Retire Rate (k) = f/a	Deprec Rate (l) = g/c	Reserve Percent (m) = h/b
1989	220,126	229,326	224,726	9,200	16,868	8,145	16,839	83,115	78,619	7.7	3.7	7.5	36.2
1990	229,103	235,247	232,175	6,144	18,473	12,380	16,955	88,146	85,631	8.1	5.4	7.3	37.5
1991	236,093	241,620	238,857	5,527	18,322	12,896	16,607	91,427	89,787	7.8	5.5	7.0	37.8
1992	242,599	249,508	246,054	6,909	18,877	12,138	17,036	98,053	94,740	7.8	5.0	6.9	39.3
1993	250,570	258,782	254,676	8,212	18,864	11,217	17,676	106,079	102,066	7.5	4.5	6.9	41.0
1994	259,216	267,443	263,330	8,227	18,781	10,990	18,656	114,598	110,339	7.2	4.2	7.1	42.8
1995	268,555	278,946	273,751	10,391	19,482	9,411	19,393	125,789	120,194	7.3	3.5	7.1	45.1
1996	278,974	291,569	285,272	12,595	22,401	10,271	20,527	137,278	131,534	8.0	3.7	7.2	47.1
1997	291,569	303,809	297,689	12,240	23,171	11,627	21,156	148,163	142,721	7.9	4.0	7.1	48.8
Avg.	'60-'71									12.0	3.1	4.9	
	'72-'83									13.1	4.1	5.5	
	'84-'97									8.4	4.2	7.2	

Source: 1946 - 1967 Report on Telephone Industry Depreciation, Tax and Capital/Expense Policy, Accounting and Audits Division, FCC, April 15, 1987, pp.6, 9
1968 - 1983 FCC Statistics of Common Carriers, Tables 12 and 16
1984 - 1987 FCC Statistics of Common Carriers, Tables 10 and 14
1988 - 1997 FCC Statistics of Common Carriers, Tables 2.7 and 2.9

Note 1: 1946 - 1983 Includes AT&T
Note 2: From FCC Statistics of Common Carriers, Table 14
Col l = 1985 Col g/165,076
1986 Col g/175,926
1987 Col g/187,920
Col m = 1985 Col h/170,355
1986 Col h/181,496
1987 Col h/194,343

Cincinnati Bell Telephone - Ohio Intrastate Plant Related Rates

(Dollars in Millions)

	Telecommunications Plant in Service												
	BOY (a)	EOY (b)	Average (c)=(a+b)/2	Increase (d) = b-a	Add (e)	Ret (f)	Deprec (g)	EOY Reserve (h)	AVG. Reserve (i)	Add Rate (j) = e/a	Retire Rate (k) = f/a	Deprec Rate (l) = g/c	Reserve Percent (m) = h/b
1990	988	1,058	1,023	70	120	47	63	315	307	12.1	4.7	6.2	29.8
1991	1,058	1,100	1,079	43	81	32	66	351	333	7.6	3.0	6.1	31.9
1992	1,100	1,137	1,119	36	75	31	80	398	375	6.8	2.8	7.1	35.0
1993	1,137	1,159	1,148	22	88	41	81	440	419	7.8	3.6	7.0	38.0
1994	1.159	1,165	1,162	6	88	82	86	445	443	7.6	7.1	7.4	38.2
1995	1,165	1,209	1,187	44	76	31	90	504	475	6.5	2.6	7.6	41.7
1996	1,209	1,257	1,233	48	75	25	93	573	539	6.2	2.1	7.5	45.6
1997	1,257	1,336	1,296	79	109	34	104	642	608	8.7	2.7	8.0	48.1
Avg.										7.9	3.6	7.1	

Source: Cols. a, b & e = CBT response to AT&T Data Request No. 1
Cols. f, g & h = CBT response to AT&T Data Request No. 2

Note: Excludes Customer Premise Wiring

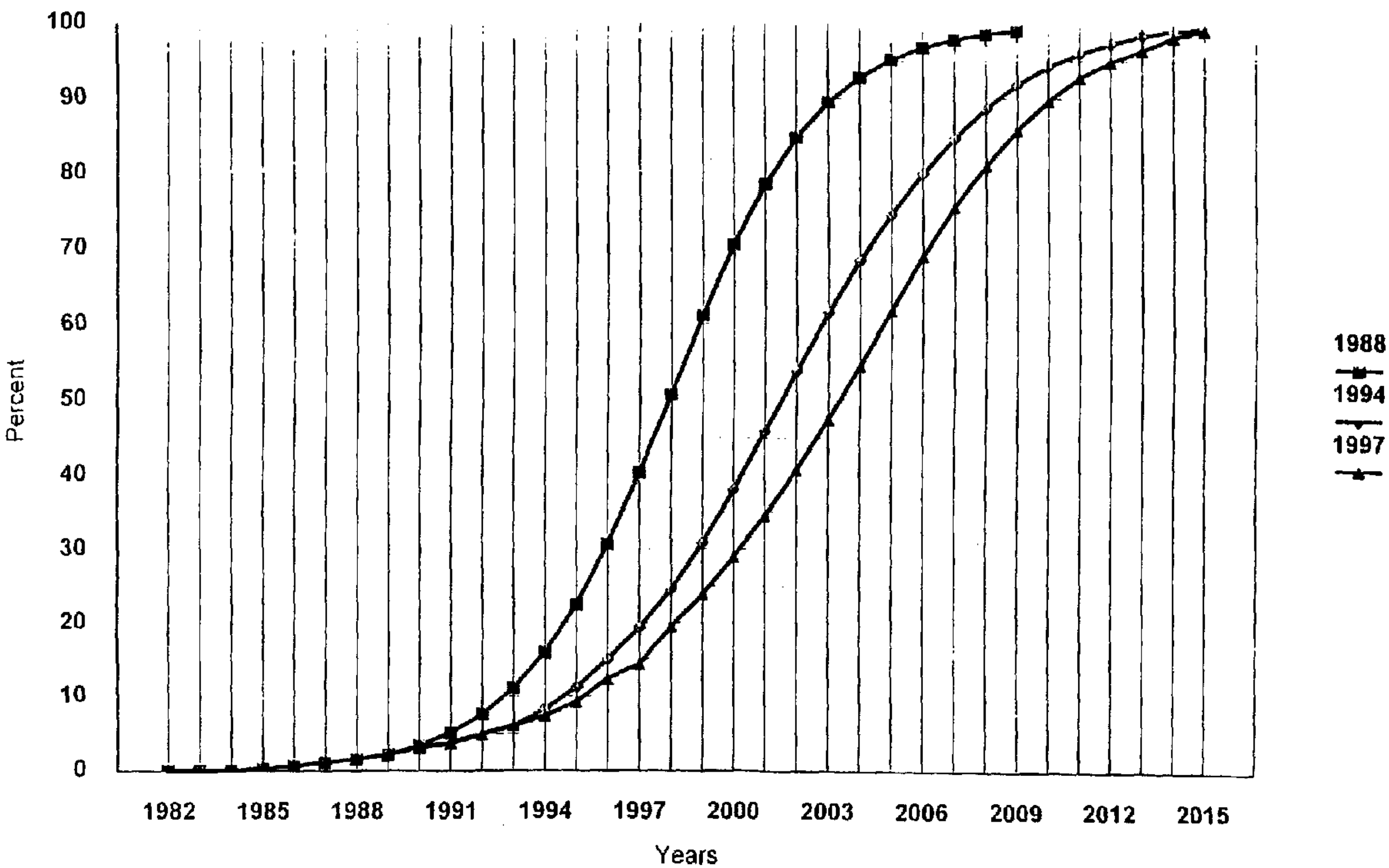
Attachment 5

PERCENT FIBER IN FEEDER

	TFI STUDY		
Year	1988	1994	1997
1982	**0.00**	**0.00**	**0.00**
1983	**0.05**	**0.10**	**0.10**
1984	**0.13**	**0.10**	**0.10**
1985	**0.35**	**0.40**	**0.40**
1986	**0.69**	**0.70**	**0.70**
1987	1.14	**1.10**	**1.10**
1988	1.57	**1.60**	**1.60**
1989	2.18	**2.20**	**2.20**
1990	3.41	**3.10**	**3.10**
1991	5.11	**3.80**	**3.70**
1992	7.59	**5.10**	**4.90**
1993	11.13	**6.10**	**6.10**
1994	16.03	8.30	**7.40**
1995	22.55	11.20	**9.30**
1996	30.75	15.00	12.40
1997	40.37	19.40	14.40
1998	50.80	24.60	19.50
1999	61.15	30.80	23.90
2000	70.59	38.00	29.00
2001	78.54	45.90	34.60
2002	84.81	53.90	40.80
2003	89.49	61.60	47.50
2004	92.85	68.50	54.60
2005	95.19	74.60	61.90
2006	96.79	80.00	69.10
2007	97.87	84.70	75.60
2008	98.59	88.70	81.10
2009	99.07	91.90	85.80
2010		94.30	89.70
2011		96.00	92.80
2012		97.30	94.90
2013		98.40	96.50
2014		99.10	98.20
2015		99.50	99.20

Note: Bold indicates actuals.

TFI STUDIES - PERCENT FIBER IN FEEDER



April 20, 1998

For more information please contact:
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U S WEST Announces Nation's First Fully Integrated Digital TV and On-line Service That Provides Cable TV Programming Over Existing Phone Lines

—Breakthrough VDSL Technology Offers Customers Superior Digital TV Picture and Sound Quality,
Packaged with "On -Screen" Telephone and Internet Services on Home TV Sets—

PHOENIX — U S WEST Communications today announced availability of a new first-in-the-nation service offering customers integrated digital TV and high-speed Internet access over existing home phone lines. The service, to be called U S WEST TeleChoice®, utilizes Very-high-speed Digital Subscriber Line (VDSL) technology and gives customers an unprecedented range of entertainment, Internet and phone services, all combined on their home TV sets. The service debuts in Phoenix this summer and will expand to other U S WEST markets in 1999 and beyond.

"This is an exciting breakthrough," said Solomon D. Trujillo, president and CEO of U S WEST Communications. "At last, people will be able to marry the convenience of television and telephones with the power of the Internet. This new digital TV and on-line service will give customers a much sharper picture and CD quality sound. They'll even be able to see who's calling on the phone and scan the Internet, all as they're watching their favorite shows on TV."

U S WEST's digital TV and on-line service is unique because it integrates familiar cable programming with telephone features such as Caller ID. While watching TV, phone numbers for incoming callers can pop up on screen, letting viewers choose to continue watching or take the call. Later this year, viewers will be able to pull up Internet information that relates to whatever the viewer is watching.

In the announcement, Trujillo outlined the benefits of TeleChoice® digital TV and on-line service:

- Fully digital service, providing sharper pictures and CD quality sound to all TVs in the home:

- Access to more than 120 channels of entertainment and information cable programming - more than traditional cable TV - including basic, premium and pay-per-view;
- "Impulse pay-per-view" movies and events are also available, ordered through a remote control;
- "On-screen" integration with popular telephone features such as Caller ID and Voice Messaging;
- Advanced Internet services at higher speeds than traditional modems, packaged with video;
- Parental control features, enabling better content management for families with kids;
- A choice of multiple packages to meet a variety of customer needs, all competitively priced compared to standard cable offerings.

U S WEST is partnering with NextLevel Communications to provide the residential infrastructure and in-home gateway boxes that will be installed with the TeleChoice® digital TV and on-line service.

Trujillo said the new integrated digital TV and on-line technology is a breakthrough because it modifies and works with the existing telecommunications network rather than requiring construction of a whole new network. Previous deployments of such services by telecommunications companies required massive construction of all new fiber-optic networks that were both costly and time-prohibitive.

Trujillo said the future of TeleChoice® digital TV and on-line service would include new consumer choices not possible through older technologies available today. "We're stretching the boundaries by exploring innovative ways to integrate your telephone, TV and computer."

He cited examples such as surfing the World Wide Web while watching television, or receiving a message indicator on your television when one of your stock holdings changes in price. Viewers could also pull up on-screen statistics of their favorite player over the Internet while watching a sports game on TV, and even trade those stats with a friend watching the same game across town.

In a related announcement, U S WEST and the Phoenix Suns launched a partnership that will enable U S WEST to carry Suns games exclusively over the company's digital TV and on-line service beginning 2003. Suns fans will receive all 41 home games and home playoff games with their basic U S WEST video package.

U S WEST's new service will be available in a phased roll-out from wire centers serving some 400,000 customer lines in Phoenix by year-end 1998. The first customers to receive the service will be in the Gilbert area by the end of May. TeleChoice® will be available to other Phoenix areas starting in the summer, depending on franchise negotiations in specific communities.

The company will bring its new integrated digital TV and on-line service to the entire metropolitan Phoenix area as well as to other selected markets by the year 2000.

"Starting this summer, Phoenix will be connected like no other city in the country," said Trujillo. "And other markets will follow. We're at the forefront of an exciting era of advanced entertainment and communications technology. Customers are only beginning to see the possibilities."

In addition to providing cable programming over existing phone lines, U S WEST also has committed to deploying its high-speed ADSL MegaBit Services and U S WEST.net Internet access to customers in more than forty markets across its 14-state region by mid-1998. The company also has partnered with Williams Communications, Qwest, Cisco Systems and others to create a next-generation national data network. U S WEST currently offers cable services to customers in Omaha, Nebraska, and at the DC Ranch community in Scottsdale, Arizona.

U S WEST Communications (NYSE:USW) provides telecommunications services - including wireline, wireless PCS and data networking - to more than 25 million customers in 14 western and Midwestern states. The company is one of two major groups that make up U S WEST, a company in the connections business, helping customers share information, entertainment and communications services in local markets worldwide. U S WEST's other major group, MediaOne Group, is involved in domestic and international cable and telephone, wireless communications, and directory and information services. U S WEST has proposed splitting the two groups into separate companies sometime after mid-1998, pending shareowner approval.

Frequently Asked Questions

What is Zoom?
Zoom is Cincinnati Bell's brand name for ADSL (Asymmetric Digital Subscriber Line). ADSL is a new technology that enables you to obtain high-speed access to the Internet over your existing copper phone line, without purchasing an additional line. Zoom uses special technology to separate voice signals from high-speed data signals, and Zoom allows you to simultaneously make voice calls while maintaining an online data connection.

How fast is Zoom?
Cincinnati Bell is currently offering three Zoom speeds:
Zoom 90Kbps Upstream* / 384Kbps Downstream*
Turbo Zoom 384Kbps Upstream / 768Kpbs Downstream
Hyper Zoom 768Kbps Upstream / 1.5Mbps Downstream

*Upstream refers to the dataflow from the customer's PC to the Internet. Downstream refers to the data flow from the Internet to the customer's PC.

The maximum speeds you achieve will depend on such factors as your computer configuration (see section entitled "Hardware Requirements"), the distance between your Zoom modem and the Cincinnati Bell serving office, the condition of your telephone line, and the speed of the Internet at any given time.

Can I still use my telephone if I have Zoom?
Yes! In addition to Zoom's speed, one of the most exciting features is that you can simultaneously use a single ·lephone line to make voice calls and surf the Net. The Zoom modem, which makes such simultaneous line use ,ossible, operates at frequencies above the voice channel. It is this use of different frequencies that allow ADSL and voice telephone service to operate concurrently.

By using your existing copper telephone line, there's no need to get a new telephone number to use your Zoom service. Moreover, Zoom modems are designed so that your normal telephone service will operate even if the modem is unplugged or otherwise disabled.

What will happen to the voice features on an existing phone line?
Zoom works in conjunction with all existing features (such as Custom Calling services Caller ID, Call Return, Call 3lock, etc.) available in your area.

)oes it matter what Internet Service Provider I use?
(es. Your Internet Service Provider (ISP) must be connected to the Cincinnati Bell Zoom network for you to enjoy ıe benefits of Zoom. Contact your ISP to see whether this exciting new technology is available.

re there applications that do not work well over Zoom?
es. Because Zoom sends and receives data at different rates (hence the term "asymmetric"), some types of ·o-way video tend work better at the higher Zoom line speeds. At the lowest Zoom speed, 90 Kbps/384 Kbps, o-way video users will receive video data but the 90 Kbps sending rate may cause jerky frame-by-frame video nsmissions.

The asymmetric nature of Zoom means that Zoom sends and receives information at differing rates. For example: a Zoom line speed of 384 Kbps ls data at 90 Kbps and receives data at 384 Kbps, a line speed of 760 Kbps sends data at 384 Kbps and receives data at 768 Kbps, and a line speed of 6 Mbps sends data at 768 Kbps and receives data at 1500 Kbps.

ll Zoom work with other services such as ISDN?
Zoom services will not work with digital services such as ISDN because Zoom is designed to work with voice

grade circuits over analog copper cable facilities.

/hat equipment do I need for Zoom access?
See the requirements section of this site.

What limitations or restrictions are there for Zoom?
You must be located within three cable miles of a Zoom-equipped serving office in order for Zoom to operate effectively. This distance will vary depending on the specific type and condition of the telephone line.

Do I need any peripheral equipment to enhance my Zoom experience?
As with any computer technology, the more-well equipped you are, the more fun you will have. To fully enjoy your Zoom investment, we recommend the following hardware and peripherals: a good quality sound card, speakers, microphone, video card, video camera (either black and white or color), as well as Internet telephone and video e-mail capability.

Whom Should I Call for Assistance?
For installation or service questions:

Residence customers should call 611
Business customers should call 566-1611

For ordering or general information call 565-ADSL.
For Internet or application specific questions please contact your ISP.

AT+T 11H
Confidential

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Cincinnati Bell Telephone Company for Approval of a Retail Pricing Plan which May Result in Future Rate Increases and for Approval of a New Alternative Regulation Plan.	))))))	Case No.: 96-899-TP-ALT

REBUTTAL TESTIMONY OF

JAMES D. WEBBER

ON BEHALF OF

AT&T COMMUNICATIONS OF OHIO, INC.

December 23, 1998

PROPRIETARY

ATT- 4(5)

I. INTRODUCTION AND PURPOSE

Q. Please state your name and business address.

A. My name is James D. Webber and my business address is 222 W. Adams Street, Suite 1500, Chicago, Illinois 60606.

Q. By whom are you employed and in what capacity?

A. I am employed by AT&T as a District Manager – Government Affairs.

Q. Are you the same James Webber who previously filed direct testimony in this proceeding?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. My primary purpose is to discuss CBT's proposal to employ actual fill factors throughout its Total Element Long Run Incremental Cost ("TELRIC") studies and to recommend more appropriate fill factors to the Commission that comport with the local competition guidelines as well as the FCC's TELRIC methodology.

II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your conclusions and recommendations.

A. My conclusions are as follows:

- CBT has requested that the Commission approve its use of outdated actual fill factors, yet it also proposes a new methodology for determining forward-looking fill factors;
- While CBT's new fill methodology is a step in the right direction, CBT refuses to implement it;
- The unreasonableness of CBT's proposed fills is demonstrated by the fact that those proposals are significantly lower than <u>any</u> approved fills I have seen in the midwest, even for companies whose service territories are more rural and less densely populated than CBT's;
- As indicated in my direct testimony, CBT's proposed fills are lower than Ameritech Ohio's Commission approved fills and I see no reason why Ameritech Ohio's forward-looking fills should not hold equally true for CBT's operations; and
- CBT has not justified its proposed fill factors with any persuasive evidence that these fills are forward-looking.

Based upon these conclusions, I continue to recommend that CBT utilize the fill factors this Commission currently requires Ameritech Ohio to utilize in its

TELRIC studies. Alternatively, the Commission could order CBT to utilize a more standardized set of fill assumptions similar to those required by the Michigan or Indiana Commissions. For example, the Commission could require an 80% fill factor for all outside plant accounts and a minimum 90% fill factor for electronics.

The Commission could also more thoroughly investigate CBT's alternative methodology for computing fill factors in a future proceeding, which should be completed before CBT updates its current TELRIC studies.

III. CBT's TELRIC STUDIES EMPLOY OUTDATED, ACTUAL FILL FACTORS THAT ARE SUBSTANTIALLY LOWER THAN THE FILL FACTORS I HAVE SEEN USED THROUGHOUT THE MIDWEST

Q. *Have you reviewed CBT's testimony regarding the fill used in its TELRIC studies?*

A. Yes, I have. In particular, I have reviewed 1) Mr. Mette's additional supplemental direct testimony, filed on December 23, 1997; 2) Mr. Mette's supplemental direct testimony, filed on September 28, 1998, and 3) Mr. Meier's direct testimony filed on September 28, 1998.

Q. How did CBT determine the fill factors used in its TELRIC studies?

A. From what I have been able to ascertain, in 1997 the Company made a decision to use its most recent network engineering data in order to develop current fills for use in its TELRIC studies because it believes that "actual fill factors represent forward looking fill." (Mr. Mette's supplemental direct at page 16). Although CBT refers to these fills as its "actual" fills, in reality these "actual" fills are quite dated, as they reflect CBT's fills from the 1992 to 1995 time frame.

While it may be theoretically possible for a particular company to design its network such that actual fill factors could be used to develop the forward-looking fill factors required in a TELRIC study, I have seen no evidence indicating that CBT's network is currently designed in such a fashion. In fact, although CBT infers that it used current data in developing its fill factors, it actually used data that is three to six years old. [1] Hence, the "actual fill factors" used in CBT's TELRIC studies are not only outdated but, more importantly, they certainly do not reflect the forward-looking fills that could be reasonably achieved in a least-cost, most-efficiently designed network like that prescribed by the TELRIC methodology.

[1] In fact, CBT has admitted that its current fiber and distribution fill factors are higher than those used in the TELRIC studies. (See Mette supplemental direct at 22 and Meier direct at 6.

Q. At pages 19 and 20 of his supplemental direct testimony, Mr. Mette discusses *the methodology* CBT *plans to use when developing fill factors for future* TELRIC studies. Is it your understanding that CBT will modify its current studies to reflect this alternative proposal?

A. No, it is not. Although the Company has had over a year to do so, CBT has specifically indicated that it does not intend to update the TELRIC studies at issue in this proceeding to reflect its new position on the proper development of fill factors. As such, I will not comment on the specifics of Mr. Mette's alternative proposal, including how it should be modified to more effectively comport with the TELRIC requirements.

Q. From a more general perspective, is CBT's new position on the development of fill factors substantially different from its proposal to use actual fills?

A. Yes, it is. CBT's alternative fill factor methodology represents a substantial step in the right direction in that it attempts to account for the level of network utilization which should actually be achieved in a least-cost, most-efficient telecommunications network. In fact, CBT's new proposal accepts the fact that over time fill rates will grow toward full utilization.

Q. How do CBT's proposed fill factors compare to those required by public utility commissions throughout the midwest?

A. While I have not seen a state commission approve fill factors as low as those CBT proposes here, I cannot provide a great deal of detail due to fact that the various state public utility commissions have typically afforded the fill factors of Local Exchange Carriers ("LECs") proprietary treatment.

In fact, I am currently aware of only three state public utility commission orders in the midwest which disclosed the approved fill factors. The Indiana Utility Regulatory Commission ("IURC") concluded that GTE's actual fills are not indicative of those fills that should be achieved in a least-cost, most-efficient and forward-looking network such as that which should be modeled in a TELRIC study. The IURC, therefore, required GTE to apply an 80% fill factor to its outside plant and electronic equipment, stating:

> The Commission finds that that GTE's reliance on a "snapshot" analysis of its actual fill factors has led it to understate the capacity utilization that would likely occur in a competitive market using least-cost, most-efficient, forward-looking technology. (May 7, 1998 Order in Cause No. 40618 at 11).

Similarly, the Michigan Public Service Commission ("MPSC") required the Michigan Exchange Carrier Association ("MECA") companies to utilize an 80% fill factor for outside plant and a 90% fill factor for electronics, indicating that it would be "more cost effective to add the next increment of capacity instead of increasing the use of the existing facilities." (See

January 28, 1998 Order in Case No U-11448 at 5-7) The MPSC also requires GTE of Michigan to apply an 80% fill factor for outside plant and a 90% fill factor for electronics. (See February 25, 1998 Order in Case No. U-11281).

Q. How do GTE and the MECA companies compare to CBT in terms of access lines and population density?

A. GTE, in both the states of Indiana and Michigan, serves a physically larger and less densely populated territory than does CBT in Ohio. In fact, GTE's service territory in Indiana is several times larger than CBT's, yet the two companies serve roughly the same number of customers.[2] MECA is a group of rurally located telephone companies whose access lines number between 600 and 50,000. Hence, it appears that CBT is substantially more urban than the companies I have previously discussed. With this fact in mind, it is reasonable to conclude that CBT's fills should be as high, if not higher, than the fills for GTE and the MECA companies.

[2] In fact, while CBT and GTE serve roughly the same number of customers here in Ohio, CBT's service territory covers only 12 exchanges while GTE's covers 244.

IV. CBT HAS NOT DEMONSTRATED THAT ITS PROPOSED FILL FACTORS COMPORT WITH TELRIC PRINCIPLES

Q. You suggested CBT has not demonstrated that its proposed fill factors comport with TELRIC principles. Please explain your comment.

A. The FCC and the Commission's local competition guidelines define TELRIC with terms such as least-cost, forward-looking and most-efficient. Moreover, the Commission's guidelines specifically indicate that the "ILEC has the burden to justify the reasonableness of the fill factors used in its TELRIC studies." (Order in Case No. 95-845-TP-COI at Appendix A, p.42).

Based upon this background, I believe that CBT should have demonstrated unequivocally for <u>each</u> of its proposed fill factors that the rate it has chosen comports with the definition of TELRIC. More specifically, CBT should have demonstrated that the fills it has chosen to employ in its TELRIC studies -- studies it is requesting the Commission approve -- are least-cost, most efficient and forward-looking.

Q. Has CBT presented evidence in this proceeding that addresses whether its proposed fill factors are least-cost, most-efficient and/or forward-looking?

A. No. The only evidence that CBT has offered in this regard is Mr. Mette's suggestion that CBT's engineering practices are prudent, citing to the lack of any

PUCO Staff reports to the contrary as "evidence" supporting his claim. He also indicated his belief that the use of CBT's actual fill factors is forward-looking because it is not anticipated that the network will be more efficiently managed on a going forward basis than it is today. (Mette Supplemental Direct at page 16). These statements alone, however, hardly constitute the "justification" envisioned by the Commission when it placed the burden on the ILECs to demonstrate that their proposed fill factors comport with the Commission's local competition guidelines.

Q In your opinion, what sort of evidence would satisfy the Commission's guidelines?

A. While it is certainly not my intention here to provide an exhaustive list of demonstrations that the ILECs could/should make to satisfy the Commission's guidelines, a benefit/cost analysis would certainly have been helpful to determine whether the additional cost of network facilities in cases where fills are extraordinary low is correct from an economic perspective (i.e., whether those fills are least-cost). For example, the Company could have compared the implicit costs of an extraordinarily low distribution fill with the incremental maintenance and/or incremental reinforcement costs associated with higher fills to determine the optimal fill from an economic perspective. No demonstrable evidence of this sort has been offered – most probably because none exists

In fact, based upon information provided in this proceeding, it appears that CBT would likely fail any such tests. For example, CBT has indicated in its testimony that copper distribution fills have been stable for the past six years at roughly [35%] and that its copper distribution carrying charges are in the range of [33% to 40%]. Hence, the incremental cost of carrying this additional capacity (as opposed to the additional capacity associated with an 85% fill) over the economic life of CBT's distribution facilities is 6 times greater than the initial cable investment. Yet copper facilities such as these are not typically considered for reinforcement until they reach 85% of capacity. Therefore, while the cost of these additional facilities are clearly extraordinary, there does not appear to be any corresponding benefit.

CBT's reasoning is also internally inconsistent. On one hand, it claims that fills in the range of [33%] are necessary to account for future growth, yet it also concedes that such growth generally takes place in areas where it <u>does not</u> have current facilities. Thus, by its own admission CBT's fills have remained stable (i.e., if growth is taking place outside of areas served by existing facilities, the fill of such facilities would generally remain stable). However, if CBT's fills have remained constant and unaffected by future growth, a reasonable conclusion to be drawn from these facts is that CBT should drastically increase its [33%] fill rates much closer to maximum utilization. Put simply, if CBT's fills are stable, it is economically reasonable to place facilities in the ground with fill rates close to maximum utilization.

Based on these facts, I have not seen any evidence supporting the argument that CBT's proposed fills are least-cost and I do not believe that they are. It is obvious that CBT has not met its burden and its proposed fill factors should be rejected.

Q. CBT advocates a [33%] fill factor for its fiber optic cable accounts; how does that compare with the Company's actual fills?

A. CBT has indicated that its average fiber fill is, in fact, in the neighborhood of [38%]. However, on a route specific basis, CBT's fiber fills range from near zero to 100%. Based upon the fact that higher fills result in lower network costs and that CBT can, in fact, utilize up to 100% of its fiber optic cables, I see no reason why its fill levels cannot be increased.

V. THE COMMISSION SHOULD REQUIRE CBT TO UTILIZE THE FILL FACTORS IT REQUIRES AMERITECH TO UTILIZE FOR PURPOSES OF ITS TELRIC STUDIES

Q. If CBT's proposed fill factors do not comport with the Commission's guidelines, which fill factors should CBT use in its TELRIC studies?

A. Clearly, CBT has failed to justify its proposed fill factors in this proceeding. Hence, I recommend that the Commission require CBT to use the same fill factors it currently requires Ameritech to use within its TELRIC studies. After all, the equipment used by the two companies is the same and should be used in the same manner – particularly for purposes of a TELRIC study – and the companies are operating under the same rules in the same state.

As an alternative to Ameritech's fill factors, I would encourage the Commission to require CBT to employ a standardized fill factor within its TELRIC studies similar to that discussed earlier in this testimony. Specifically, the Commission could require CBT to assume an outside plant fill of 80% and a minimum electronics fill of 90% like the MPSC requires for GTE and the MECA member companies. It could also use a minimum 80% fill factor for all equipment like the IURC requires for GTE.

Q. Earlier you suggested that CBT's alternative fill factor methodology has some merit. Why don't you recommend that the Commission use that methodology as opposed to using Ameritech's fills?

A. By the time this case is ultimately concluded, almost 2 years will have past. Quite frankly, I believe progress has been held-up long enough and the industry should get to the business of doing business. However, to the extent that the Commission finds merit in the premise upon which Mr. Mette's alternative fill factor methodology is based, it could certainly explore that methodology in a future proceeding which should be completed <u>before</u> CBT renews its current TELRIC studies.

Q. ***Does this conclude your testimony?***

A. Yes.

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