Frontier Corporation

frontier

180 South Clinton Avenue
Rochester, NY 14646

June 27, 1996

Timothy J. Devlin, Director
Auditing & Financial Analysis Division
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, Florida 32399- :0

Dear Mr. Devlin:

960788-TL

Re: Frontier Communications of the South, Inc. - 1996 Depreciation Rate Study

In pursuant to Florida PSC Rule 25-4.0175 (8) (a), F.A.C., and as per Commission Order PSC-96-0490-FOF-TL, dated 4/8/96, the Company is submitting the 1996 Depreciation Rate Study.

The Study includes a summary of each capital account, a generation arrangement of average remaining life and average service life calculation for accounts studied, average age calculation, plant and reserve activity, vintage age distribution for accounts studied, curve selection summary and average year of final retirement calculation for specific accounts.

The Study also includes a copy of "Depreciation Lives for Telecommunications Equipment", a review and update (1995) by Technology Futures, Inc., which the Company used in its analysis of Digital Switching, Transmission and Outside plant accounts.

The Company proposes to increase depreciation expense by 2% of plant in service retroactive 1/1/96.

If you have any questions regarding this study please call Madan Shastri at (716) 777-7032 or me at (716) 777-5125.

Sincerely,

Laurie A. Maffett

Laurie A. Maffett
Manager, Regulatory Matters
Frontier Telephone Group

encl.: 1996 Dep. Rate Study (Original, 5 Copies, and Diskette)
Depreciation Lives for Telecommunications Equipment (Report)

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Frontier Communications of the South, Inc.
FLORIDA

1996 Depreciation Rate Study

***June** 1996*

1996 DEPRECIATION RATE STUDY
GENERAL OVERVIEW

This study was performed by reviewing each account in dete'l to determine the appropriate depreciation rates for the capital investments of Frontier Communications of the South, Inc. The study was based on investments recorded on the Company's books for the period ending December 31, 1995. The total plant in service at the same point in time was $8,284,273 and the Depreciation Reserve $4,032,483.

Company Profile:

The last dep ation study was completed in 1992, based on the plant in service as of December 31, 1991. Since that time the Company has undergone major changes. In a span of three years the Company has invested in Switching, Transmission and Fiber equipment which has led to the network being fully capable of Signaling System 7 (SS7) features. The most important feature being troubleshooting subscriber problems in the intelligent network through the use of common channel signaling. The Company has also upgraded its switches and network to become Equal Access. Class Features are now available for the entire subscriber base. The Switches are 100% digital and are manufactured by Stromberg-Carlson. The current generic is up to level 19. Also all intraLATA trunks are SS7 capable.

The Company has invested earnestly in buried fiber cable and is 80% fiber in interoffice trunking. The Company proposes to become fully fiber in the next few years. Also, as a policy the Company is replacing Air Core Metallic Cable with Jelly Filled in feeder and distribution whenever there is a retirement of Air Core. The Company is committed to replacing all Air Core Cable by the year 2000.

Scope of the Study:

The depreciation rates currently used were adopted in January 1993, pursuant to a Commission order PSC-93-0801-FOF-TL certifying the depreciation rates. The depreciation rates were based on a triennial study conducted by the Company using 1991 year ending plant balances. The principal activities undertaken in this study are:

- Collection of plant and salvage data;
- Reconciliation of data to the Company's official records;
- Statistical life analysis of past retirement experience;
- Analysis of the estimated date of final retirement for life-span categories;
- Identifying future forces of retirement;
- Developmen projection lives and future dispersion patterns;
- Analysis of S age;
- Development of remaining life rates to be used for the recovery of capital investments.

Data Collection:

A statistical life study using actuarial and semi-actuarial life technique is conducted by recording and collecting data in a particular form. The convenance is to assemble data in an aged distribution of surviving plant at the beginning of the study year and the vintage year, activity year and the dollar amounts associated with retirements, transfers and adjustments. All this data (if available) are collected in databases suitable for use by computer software which assist in the development of depreciation rate parameters. For Frontier Communications of the South, Inc., MDSS (Micro-Computer Depreciation Studies System) software developed by Ohio Bell was used in the analysis. Most of the Company's data was semi-actuarial in nature, i.e.., data were calculated in an aged fashion from 1986 to 1995 (the last year before study year, with vintage years going as far back as 1961) for most property accounts.

Life Analysis and Estimation:

As the term suggests, life analysis and estimation is a procedure for analyzing the mortality characteristics of a plant category. The first stage of the procedure is life analysis, which is the study of the historical data collected. Many statistical techniques are used to study the retirement pattern of vintage data to obtain a mathematical expression that determines an estimate of the service life of a plant in question. The mathematical expressions derived are known as survivor curves. The second stage is to determine the remaining life of the property still exposed to the forces of retirement. This process is the integration of the results of life analysis with the expectations of the future (using the Company's plans) to obtain an appropriate projection curve. The amount of weight given to the life analysis will depend upon the extent to which past retirement experience is considered descriptive of the future.

As previously stated, the Company used semi-actuarial techniques to perform life analysis on data assembled for each plant account. This analysis is performed by a systematic treatment of available data for the purpose of constructing a life table. Life table is a calculation using a group of data from either vintage years or activity years and arriving at an aged proportion surviving from each vintage or activity year. Two types of grouped analyses are performed, one is called Rolling Band analysis and the other Shrinking Band analysis. Grouping for the rolling band is performed by adding three, five or seven consecutive vintage or activity years to arrive at one band. Subsequent bands are achieved by dropping one beginning year and adding the next year in sequence. The shrinking band is achieved by grouping the whole database for all vintage years or activity years to arrive at the first band. Subsequent bands are achieved by dropping one beginning year or end year for each new band. In the Company's Study, both shrinking and rolling bands were developed and analyzed.

The life table can be calculated using different methods depending on the availability and type of data. The annual or retirement-rate method was used in the Frontier Communications of the South, Inc., study. The next step is to fit the observed life table to standard (pre-set) survivor curves. In the Company's case, we used Iowa type survivor curves which are mathematically derived in terms of Pearson frequency curves. The goodness-of-fit was arrived, based on an exposure weighted root mean square calculation. Once the survivor curve is selected, the average service life is calculated by the summation of the percent surviving at each age (area under the selected curve).

In the life estimation process, the life of the remaining property and the life of the future investments is estimated to reflect the future plans of the Company. This estimation is based on the type of account that is being studied, effect of technological obsolescence, competition, wear and tear and any other causes that effect the future life of an asset. This projection life is then used in conjunction with the selected curve on the aged survivors as of the study date to arrive (generation arrangement) at a composite service life for the property in question. Also, for property which has definite retirement dates or can be estimated, a life span method of estimation is used. For Frontier Communications of the South, Inc., both the whole life generation arrangement and the life-span method was used.

Salvage Analysis:

An estimate of the net salvage rate applicable to future retirements is usually obtained from an analysis of gross salvage and the cost of removing the retired property in the past. A trend analysis of the past experience over time (using annual and banding techniques--similar to life analysis) provides an appropriate starting point for estimating future salvage and cost of removal. However, consideration should be given to events that may cause deviations from past experiences. Among the factors to be considered are the age of the plant retired, portion of the retired plant that will be reused, changes in the method of removing plant, environmental needs (OSHA included), the type of plant that will be retired in the future, and the ratio of retirements versus the amount added (or in service). In the case of Frontier Communications of the South, Inc., the salvage ratios were not significantly different from the previous study. Hence, salvage values from the last study were used in the calculations and the Company proposes to retain the same.

Depreciation Rate Calculation:

The depreciation rates were calculated as required by the Florida Statutes. The formula used is as follows:

1996 DEPRECIATION RATE STUDY
GENERAL OVERVIEW

$$\text{Dep. Rate} = \frac{\text{1-Future Net Salvage - Depreciation Reserve Ratio}}{\text{Average Remaining Life}}$$

Proposed Depreciation Rates:

The table below provides a summary of the changes in annual rates resulting from the adoption of the depreciation parameters developed in this study.

Account Description	Plant in Service	Proposed Dep Rate	Current Dep Rate	Proposed Dep Exp	Current Dep Exp	Var
General Support Assets	173,822	3.07%	2.60%	5,342	4,519	822
Central Office [illegible]ipment	2,243,849	10.70%	6.69%	240,189	150,178	90,011
Info Orig. and Term Eq.	23,963	5.79%	1.64%	1,388	393	996
Outside Plant	5,842,639	6.45%	5.17%	376,564	302,351	74,214
Total Regulated Assets	**8,284,273**	**7.53%**	**5.52%**	**623,484**	**457,440**	**166,043**

The Company is requesting a composite depreciation rate of **7.53%**. The depreciation expense is currently accrued at 5.52%. The change in composite depreciation rate is **2.01%**, which amounts to an increase in the depreciation expense of **$166,043**, based on ending plant balances at 12/31/95. The increase in depreciation was mainly in the digital switching and jelly filled buried cable account.

FRONTIER COMMUNICATIONS OF THE SOUTH, INC. - FLORIDA

1996 Depreciation Rate Study Proposal

Acct. #	Account Description	Plant Balance @12/31/95	Reserve Balance @12/31/95	Reserve Ratio	Current Dep. Rates	Current Dep. Expense	Proposed ARL Dep Rates	Proposed ARL Dep Expense	Variance
2111090	Land	21,130	0	0.00%	N/A	0	N/A	0	0
2121090	Buildings	148,484	61,656	41.52%	3.0%	4,519	3.60%	5,342	822
2122090	Furniture	3,203	3,203	100.00%	0.0%	0	0.00%	0	0
2123290	Office Equipment	1,005	2,371	235.92%	0.0%	0	0.00%	0	0
2212090	Digital Switching	1,614,461	574,176	35.56%	5.9%	94,890	11.39%	183,861	88,971
2232490	Circuit Equipment Digital	497,864	333,128	66.91%	8.5%	42,266	8.70%	43,306	1,040
2232690	Circuit Equipment Optical	131,524	72,728	55.30%	9.9%	13,022	9.90%	13,022	0
2351090	Public Telephone Equipment	23,963	13,497	56.32%	1.6%	393	5.79%	1,388	996
2422190	U.G. Cable Metallic	1,612	874	54.22%	5.8%	93	5.78%	93	0
2422290	U.G. Fiber Cable	2,692	857	31.84%	5.3%	141	5.25%	141	0
2423190	Buried Cable Metallic - Jelly Filled	3,920,325	1,737,212	44.31%	5.5%	213,745	7.40%	289,996	76,251
2423290	Buried Fiber Cable	799,065	254,694	31.87%	5.0%	39,953	5.00%	39,953	0
2423590	Buried Cable Metallic - Air Core	1,117,236	977,347	87.48%	4.3%	48,389	4.15%	46,352	(2,037)
2441090	Conduit Systems	1,709	740	43.29%	1.7%	29	1.67%	29	0
Total	Regulated Assets	8,284,273	4,032,483	48.68%	5.52%	457,440	7.53%	623,484	166,043

FRONTIER COMMUNICATIONS OF THE SOUTH, INC. - FLORIDA

Depreciation Reserve Calculations

Buildings	Proposed	Current	Variance
Plant	148,484	148,484	0
Reserve	61,65[illegible]	61,656	0
Res Ratio	41.52%	41.52%	0.00%
ASL	30.25		
ARL	16.26	22.00	
ANS	0.00%	0.00%	
FNS	0.00%	0.00%	
ASL Rate	3.31%		
Dep Exp	4,908		
Res Def	(7,045)		
ARL Rate	3.60%	3.04%	0.55%
Dep Exp	5,342	4,519	822
Verification	(7,045)		

Circuit Eq. - Digital	Proposed	Current	Variance
Plant	497,864	497,864	0
Reserve	333,128	333,128	0
Res Ratio	66.91%	66.91%	0.00%
ASL	10.30		
ARL	3.80	6.60	
ANS	0.00%	0.00%	
FNS	0.00%	0.00%	
ASL Rate	9.71%		
Dep Exp	48,350		
Res Def	19,189		
ARL Rate	8.70%	8.49%	0.21%
Dep Exp	43,306	42,266	1,040
Verification	19,189		

UG Cable - Fiber	Proposed	Current	Variance
Plant	2,692	2,692	0
Reserve	857	857	0
Res Ratio	31.84%	31.84%	0.00%
ASL		20.00	
ARL	13.94	0.00	
ANS	-5.00%	-5.00%	
FNS	-5.00%	-5.00%	
ASL Rate	0.00%		
Dep Exp	0		
Res Def	0		
ARL Rate	5.25%	5.25%	0.00%
Dep Exp	141	141	0
Verification	0		

UG Conduit Sys.	Proposed	Current	Variance
Plant	1,709	1,709	0
Reserve	740	740	0
Res Ratio	43.29%	43.29%	0.00%
ASL	55.00	55.00	
ARL	34.01	37.00	
ANS	0.00%		
FNS	0.00%		
ASL Rate	0.00%		
Dep Exp	0		
Res Def	0		
ARL Rate	1.67%	1.67%	0.00%
Dep Exp	29	29	0
Verification	0		

Furniture	Proposed	Current	Variance
Plant	3,203	3,203	0
Reserve	3,203	3,203	0
Res Ratio	100.00%	100.00%	0.00%
ASL	0.00	10.00	
ARL	0.00	Amort	
ANS	0.00%		
FNS	0.00%		
ASL Rate	0.00%		
Dep Exp	0		
Res Def	0		
ARL Rate	0.00%	0.00%	0.00%
Dep Exp	0	0	0
Verification	0		

Circuit Eq. - Optical	Proposed	Current	Variance
Plant	131,524	131,524	0
Reserve	72,728	72,728	0
Res Ratio	55.30%	55.30%	0.00%
ASL	10.10	10.10	
ARL			
ANS	0.00%	0.00%	
FNS	0.00%		
ASL Rate	9.90%		
Dep Exp	13,022		
Res Def	0		
ARL Rate	9.90%	9.90%	0.00%
Dep Exp	13,022	13,022	0
Verification	0		

Buried Cable - Jelly Filled	Proposed	Current	Variance
Plant	3,920,325	3,920,325	0
Reserve	1,737,212	1,737,212	0
Res Ratio	44.31%	44.31%	0.00%
ASL	15.74		
ARL	8.20	13.40	
ANS	-5.00%	-5.00%	
FNS	-5.00%	-5.00%	
ASL Rate	6.67%		
Dep Exp	261,521		
Res Def	(233,611)		
ARL Rate	7.40%	5.45%	1.95%
Dep Exp	289,996	213,745	76,251
Verification	(233,611)		

Total	Proposed	Current	Variance
Plant	8,284,273	8,284,273	0
Reserve	4,032,483	4,032,483	0
Res Ratio	48.68%	48.68%	0.00%
ASL	0.00		
ARL	0.00		
ANS	0.00%		
FNS	0.00%		
ASL Rate	0.00%		
Dep Exp	522,371		
Res Def	(466,415)		
ARL Rate	7.53%	5.52%	2.00%
Dep Exp	623,484	457,440	166,043
Verification	(466,415)		

Office Equipment	Proposed	Current	Variance
Plant	1,005	1,005	0
Reserve	2,371	2,371	0
Res Ratio	235.92%	235.92%	0.00%
ASL	0.00	5.00	
ARL	0.00	Amort	
ANS	0.00%		
FNS	0.00%		
ASL Rate	0.00%		
Dep Exp	0		
Res Def	0		
ARL Rate	0.00%	0.00%	0.00%
Dep Exp	0	0	0
Verification	0		

Public Telephones	Proposed	Current	Variance
Plant	23,963	23,963	0
Reserve	13,497	13,497	0
Res Ratio	56.32%	56.32%	0.00%
ASL	[illegible]		
ARL	[illegible].09	6.00	
ANS	[illegible]	20.00%	
FNS	20.00%	20.00%	
ASL Rate	10.25%		
Dep Exp	2,456		
Res Def	4,363		
ARL Rate	5.79%	1.64%	4.16%
Dep Exp	1,388	393	996
Verification	4,363		

Buried Cable - Air Core	Proposed	Current	Variance
Plant	1,117,236	1,117,236	0
Reserve	977,347	977,347	0
Res Ratio	87.48%	87.48%	0.00%
ASL	18.68		
ARL	3.26	6.10	
ANS	-1.00%	-1.00%	
FNS	-1.00%	-1.00%	
ASL Rate	5.41%		
Dep Exp	60,417		
Res Def	45,[illegible]		
ARL Rate	4.15%	4.33%	-0.18%
Dep Exp	46,352	48,389	(2,037)
Verification	45,838		

Digital	Proposed	Current	Variance
Plant	1,614,461	1,614,461	0
Reserve	574,176	574,176	0
Res Ratio	35.56%	35.56%	0.00%
ASL	12.26		
ARL	5.66	12.00	
ANS	0.00%	0.00%	
FNS	0.00%	0.00%	
ASL Rate	8.16%		
Dep Exp	13[illegible],696		
Res Def	(295,149)		
ARL Rate	11.39%	5.88%	5.51%
Dep Exp	183,861	94,890	88,971
Verification	(295,149)		

UG Cable - Metallic	Proposed	Current	Variance
Plant	1,612	1,612	0
Reserve	874	874	0
Res Ratio	54.22%	54.22%	0.00%
ASL			
ARL	8.79	11.80	
ANS	-5.00%		
FNS	-5.00%		
ASL Rate	0.00%		
Dep Exp	0		
Res Def	0		
ARL Rate	5.78%	5.78%	0.00%
Dep Exp	93	93	0
Verification	0		

Buried Cable - Fiber	Proposed	Current	Variance
Plant	799,065	799,065	0
Reserve	254,694	254,694	0
Res Ratio	31.87%	31.87%	0.00%
ASL	0.00		
ARL	20.00	20.00	
ANS	0.00%	0.00%	
FNS	0.00%	0.00%	
ASL Rate	0.00%		
Dep Exp	0		
Res Def	0		
ARL Rate	5.00%	5.00%	0.00%
Dep Exp	39,953	39,953	0
Verification	0		

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	Total	Description:	Total Regulated Assets

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	8,189,962	100,079	5,768	0	8,284,273
1994	8,014,840	358,193	183,061	(11)	8,189,962
1993	7,863,502	158,992	14,351	6,697	8,014,840
1992	7,649,366	234,249	20,113	0	7,863,502
1991	7,323,552	317,666	12,229	20,377	7,649,366
1990	6,680,68[illegible]	661,608	25,427	6,691	7,323,552
1989	5,091,8[illegible]	1,709,524	105,760	(14,954)	6,680,680
1988	4,181,138	1,143,466	232,734	0	5,091,870
1987	3,756,602	476,008	88,381	36,909	4,181,138
1986	3,554,227	282,808	98,131	17,698	3,756,602
1985	2,814,183	808,028	92,914	24,929	3,554,227
1984	2,310,835	618,563	115,215	0	2,814,183
1983	2,257,080	70,784	17,030	0	2,310,835
1982	2,192,850	74,703	10,473	0	2,257,080
1981	2,097,685	122,735	27,570	0	2,192,850
1980	2,004,160	110,307	16,782	0	2,097,685
1979	1,895,876	120,284	12,000	0	2,004,160
1978	1,856,439	50,574	11,137	0	1,895,876
1977	1,504,615	355,914	4,089	0	1,856,439
1976	1,137,955	374,109	7,449	0	1,504,615
1975	1,061,599	78,529	2,173	0	1,137,955
1974	1,017,913	44,606	920	0	1,061,599
1973	889,504	131,997	3,589	0	1,017,913
1972	811,463	81,304	3,263	0	889,504
1971	570,734	242,837	2,108	0	811,463
1970	354,760	217,027	1,054	0	570,734
1969	14,333	340,427	0	0	354,760
1968	12,075	2,258	0	0	14,333
1967	10,040	2,035	0	0	12,075
1966	5,882	4,158	0	0	10,040
1965	4,522	1,360	0	0	5,882
1964	3,336	1,186	0	0	4,522
1963	2,241	1,095	0	0	3,336
1962	1,260	981	0	0	2,241
1961	0	1,260	0	0	1,260
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	Total	Desc:	Total Regulated Assets

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	3,577,837	458,821	4,068	0	107	0	4,032,483
1994	3,311,932	449,059	183,061	0	93	0	3,577,837
1993	2,885,601	439,300	14,351	1,499	81	(36)	3,311,932
1992	2,344,872	548,271	20,112	12,707	137	0	2,885,601
1991	1,837,386	495,392	12,214	4,911	414	19,811	2,344,872
1990	1,540,078	492,325	27,216	7,357	2,482	(172,676)	1,837,386
1989	1,294,341	358,802	105,761	11,954	4,251	(15,007)	1,540,078
1988	1,381,4[illegible]	394,832	555,912	3,447	0	(79,493)	1,144,372
1987	1,087,0[illegible]	347,09[illegible]	88,415	36	0	35,705	1,381,498
1986	829,446	336,622	98,131	500	0	18,640	1,087,077
1985	0	0	0	0	0	0	829,446

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2111	Description:	Land

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	22,830	0	1,700	0	21,130
1994	22,830	0	0	0	22,830
1993	22,830	0	0	0	22,830
1992	22,830	0	0	0	22,830
1991	22,830	0	0	0	22,830
1990	22,830	0	0	0	22,830
1989	14,[illegible]	7,838	0	0	22,830
1988	14,9[illegible]	0	0	0	14,991
1987	14,991	0	0	0	14,991
1986	14,991	0	0	0	14,991
1985	0	0	0	14,991	14,991
1984	0	0	0	0	0
1983	0	0	0	0	0
1982	0	0	0	0	0
1981	0	0	0	0	0
1980	0	0	0	0	0
1979	0	0	0	0	0
1978	0	0	0	0	0
1977	0	0	0	0	0
1976	0	0	0	0	0
1975	0	0	0	0	0
1974	0	0	0	0	0
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study

Account #:	2121-090	Description:	Buildings

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	148,484	148,484	0
Percent of Total Regulated Investment	1.79%	1.79%	0.00%
Selected Iowa type curve	R3.0	R3.0	No
Projected Life	35/2015	?	NA
Average Service Life	30.25	35.20	-4.95
Average Remaining Life	16.26	22.10	-5.85
Average Net Salvage	0.00%	0.00%	0.00%
Future Net Salvage	0.00%	0.00%	0.00%
Depreciation Reserve @ 12/31/95	61,656	61,656	0
Depreciation Reserve Ratio	41.52%	41.52%	0.00%
Net Plant Balance @ 12/31/95	86,828	86,828	0
Net Plant Ratio	58.48%	58.48%	0.00%
Depreciation Rate	3.60%	3.04%	0.55%
Depreciation Expense	5,342	4,519	822

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY
ELG Year : 0

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2121090
Category : BUILDINGS

GENLIF V1.7

Generation Arrangement
Development of Average Service Life
and Average Remaining Life

	Vin- tage	Age as of Jan.1 1996	Exp to 1-1-1996 % Amt. Surv $	Prop. Surv.	Real. Life	Remain ing Life Yrs	Vintage Average Life Yrs	Average Life Weights $	Average Remaining Life Weights $
	N	A	B	C	D	E+	F++	G=B/F	H=E*G
VG	1996	19.0	0	1.0000	0.00	18.62	18.62	0	0
VG	1995	0.5	0	1.0000	0.50	19.05	19.55	0	0
VG	1994	1.5	0	1.0000	1.50	18.98	20.48	0	0
VG	1993	2.5	2145	1.0000	2.50	18.89	21.39	100	1894
VG	1992	3.5	0	1.0000	3.50	18.80	22.30	0	0
VG	1991	4.5	0	1.0000	4.50	18.69	23.19	0	0
VG	1990	5.5	1429	1.0000	5.50	18.57	24.07	59	1103
VG	1989	6.5	19834	1.0000	6.50	18.44	24.94	795	14665
VG	1988	7.5	25091	1.0000	7.50	18.30	25.80	973	17797
VG	1987	8.5	3000	1.0000	8.50	18.14	26.64	113	2043
VG	1986	9.5	4100	1.0000	9.50	17.96	27.46	149	2682
VG	1985	10.5	21325	1.0000	10.50	17.77	28.27	754	13404
VG	1984	11.5	0	1.0000	11.50	17.56	29.06	0	0
VG	1983	12.5	0	1.0000	12.50	17.32	29.82	0	0
VG	1982	13.5	0	1.0000	13.50	17.07	30.57	0	0
VG	1981	14.5	0	1.0000	14.50	16.79	31.29	0	0
VG	1980	15.5	0	1.0000	15.50	16.49	31.99	0	0
VG	1979	16.5	0	1.0000	16.50	16.16	32.66	0	0
VG	1978	17.5	0	1.0000	17.50	15.81	33.31	0	0
VG	1977	18.5	0	1.0000	18.50	15.43	33.93	0	0
VG	1976	19.5	0	1.0000	19.50	15.02	34.52	0	0
VG	1975	20.5	0	1.0000	20.50	14.58	35.08	0	0
VG	1974	21.5	0	1.0000	21.50	14.12	35.62	0	0
VG	1973	22.5	51232	1.0000	22.50	13.64	36.14	1418	19336
VG	1972	23.5	0	1.0000	23.50	13.14	36.64	0	0
PRE	1972		20327	1.0000				547	6862
Tot	All V		148484					4908	79785
Tot	EMB V		148484					4908	79785
Tot	ELG V		0					0	0
Tot	VG V		148484					4908	79785

	All Vint.	EMB Vint.	ELG Vint.	VG Vint.
Avg. Service Life = Tot B/Tot G	30.252	30.252	0.000	30.252
Avg. Remaining Life = Tot H/Tot G	16.255	16.255	0.000	16.255
Computed Gross Additions = Sum of (B/C)	148484	148484	0	148484
Avg. Prop. Surv = Tot B/ Sum of (B/C)	1.00000	1.00000	0.00000	1.00000

I/H: R3.0 I/H Life: 35.00

Calc Type: AYFR (2015.0)

Computed Life 35.00

% ACTUAL
\+ From Proj. Life Table ++ For ELG Vints A+E For VG Vints D+C*E

Frontier Communications of the South, Inc. - Florida

Average Year of Final Retirement Calculations

Acct:	2121	Desc:	Buildings

CO	Walnut Hill	Bratt	Molino	Storage	Molino 3	Davisville	Total
Total	22,963	21,325	61,940	2,509	21,263	18,483	148,484
1995	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0
1993	2,145	0	0	0	0	0	2,145
1992	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0
1990	0	0	0	0	1,429	0	1,429
1989	0	0	0	0	19,834	0	19,834
1988	0	0	6,608	0	0	18,463	25,091
1987	3,000	0	0	0	0	0	3,000
1986	0	0	4,100	0	0	0	4,100
1985	0	21,325	0	0	0	0	21,325
1984	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0
1973	0	0	51,232	0	0	0	51,232
1972	0	0	0	0	0	0	0
1971	17,818	0	0	0	0	0	17,818
1970	0	0	0	2,509	0	0	2,509
AYP	1975	1985	1975	1970	1989	1988	1980
Term	35	35	35	35	35	35	35
AYFR	2010	2020	2010	2005	2024	2023	2015

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2121	Desc:	Buildings

Year	Plant	Age	Weights
Total	148,483	15.30	2,271,929
1995	0	0.5	0
1994	0	1.5	0
1993	2,145	2.5	5,363
1992	0	3.5	0
1991	0	4.5	0
1990	1,429	5.5	7,860
1989	19,834	6.5	128,921
1988	25,091	7.5	188,183
1987	3,000	8.5	25,500
1986	4,100	9.5	38,950
1985	21,325	10.5	223,913
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	51,232	22.5	1,152,720
1972	0	23.5	0
1971	17,818	24.5	436,541
1970	2,509	25.5	63,980
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2121090
Category : BUILDIN^S

INPVNT V1.5

Vintage Input File

Vint Year	Amount Surviving	Prop. Surviving	Realized Life	Actual Reserve	Adjust-ments	Assigned Retire-ments
1995	0	1.000000	0.50000			
1994	0	1.000000	1.50000			
1993	2145	1.000000	2.50000			
1992	0	[illegible]	3.50000			
1991	0	[illegible]	4.50000			
1990	1429	[illegible]	5.50000			
1989	19834	1.000000	6.50000			
1988	25091	1.000000	7.50000			
1987	3000	1.000000	8.50000			
1986	4100	1.000000	9.50000			
1985	21325	1.000000	10.50000			
1984	0	1.000000	11.50000			
1983	0	1.000000	12.50000			
1982	0	1.000000	13.50000			
1981	0	1.000000	14.50000			
1980	0	1.000000	15.50000			
1979	0	1.000000	16.50000			
1978	0	1.000000	17.50000			
1977	0	1.000000	18.50000			
1976	0	1.000000	19.50000			
1975	0	1.000000	20.50000			
1974	0	1.000000	21.50000			
1973	51232	1.000000	22.50000			
1972	0	1.000000	23.50000			
1971	17818	1.000000	24.50000			
1970	2509	1.000000	25.50000			

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2121	Description:	Buildings

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	148,484	0	0	0	148,484
1994	148,484	0	0	0	148,484
1993	146,339	2,145	0	0	148,484
1992	146,339	0	0	0	146,339
1991	146,339	0	0	0	146,339
1990	144,910	1,429	0	0	146,339
1989	125,076	19,834	0	0	144,910
1988	[illegible]	25,091	0	0	125,076
1987	[illegible]	3,000	0	0	99,985
1986	92,885	4,100	0	0	96,985
1985	66,924	25,961	0	0	92,885
1984	66,924	0	0	0	66,924
1983	66,532	392	0	0	66,924
1982	66,532	0	0	0	66,532
1981	66,532	0	0	0	66,532
1980	66,532	0	0	0	66,532
1979	66,532	0	0	0	66,532
1978	65,139	1,393	0	0	66,532
1977	64,640	499	0	0	65,139
1976	64,640	0	0	0	64,640
1975	60,869	3,771	0	0	64,640
1974	58,162	2,707	0	0	60,869
1973	7,821	50,341	0	0	58,162
1972	7,821	0	0	0	7,821
1971	1,824	5,996	0	0	7,821
1970	0	1,824	0	0	1,824
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2121	Desc:	Buildings

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	57,202	4,454	0	0	0	0	61,656
1994	52,748	4,454	0	0	0	0	57,202
1993	48,356	4,392	0	0	0	0	52,748
1992	44,112	4,244	0	0	0	0	48,356
1991	39,869	4,243	0	0	0	0	44,112
1990	35,661	4,208	0	0	0	0	39,869
1989	32,009	3,652	0	0	0	0	35,661
1988	29,[illegible]	2,946	0	0	0	0	32,009
1987	26,[illegible]	2,831	0	0	0	0	29,063
1986	23,440	2,792	0	0	0	0	26,232
1985	0	0	0	0	0	0	23,440

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study

Account #:	2122-090	Description:	Office Furniture

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	3,203	3,203	0
Percent of Total Regulated Investment	0.04%	0.04%	0.00%
Selected Iowa type curve	NA	10 yr Amort	NA
Projected Life	0.00	0.00	0.00
Average Service Life	0.00	0.00	0.00
Average Remaining Life	0.00	0.00	0.00
Average Net Salvage	0.00%	0.00%	0.00%
Future Net Salvage	0.00%	0.00%	0.00%
Depreciation Reserve @ 12/31/95	3,203	3,203	0
Depreciation Reserve Ratio	100.01%	100.01%	0.00%
Net Plant Balance @ 12/31/95	(0)	(0)	0
Net Plant Ratio	-0.01%	-0.01%	0.00%
Depreciation Rate	0.00%	10 yr Amort	0.00%
Depreciation Expense	0	0	0

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2122	Desc:	Furniture

Year	Plant	Age	Weights
Total	3,203	10.50	33,632
1995	0	0.5	0
1994	0	1.5	0
1993	0	2.5	0
1992	0	3.5	0
1991	0	4.5	0
1990	0	5.5	0
1989	0	6.5	0
1988	0	7.5	0
1987	0	8.5	0
1986	0	9.5	0
1985	3,203	10.5	33,632
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2122	Description:	Furniture

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	3,203	0	0	0	3,203
1994	3,203	0	0	0	3,203
1993	3,203	0	0	0	3,203
1992	3,203	0	0	0	3,203
1991	3,203	0	0	0	3,203
1990	3,203	0	0	0	3,203
1989	3,203	0	0	0	3,203
1988	3,203	0	0	0	3,203
1987	3,203	0	0	0	3,203
1986	4,145	0	0	(942)	3,203
1985	0	0	0	4,145	4,145
1984	0	0	0	0	0
1983	0	0	0	0	0
1982	0	0	0	0	0
1981	0	0	0	0	0
1980	0	0	0	0	0
1979	0	0	0	0	0
1978	0	0	0	0	0
1977	0	0	0	0	0
1976	0	0	0	0	0
1975	0	0	0	0	0
1974	0	0	0	0	0
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2122	Desc:	Furniture

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	3,203	0	0	0	0	0	3,203
1994	3,203	0	0	0	0	0	3,203
1993	7,464	0	0	0	0	(4,261)	3,203
1992	6,164	1,300	0	0	0	0	7,464
1991	3,045	3,119	0	0	0	0	6,164
1990	2,965	80	0	0	0	0	3,045
1989	2,[illegible]35	80	0	0	0	0	2,965
1988	[illegible]05	80	0	0	0	0	2,885
1987	2,[illegible]25	80	0	0	0	0	2,805
1986	2,623	102	0	0	0	0	2,725
1985	0	0	0	0	0	0	2,623

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study

Account #:	2123-290	Description:	Company Communications Eq.

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	1,005	1,005	0
Percent of Total Regulated Investment	0.01%	0.01%	0.00%
Selected Iowa type curve	NA	5 yr Amort	NA
Projected Life	0.00	0.00	0.00
Average Service Life	0.00	0.00	0.00
Average Remaining Life	0.00	0.00	0.00
Average Net Salvage	0.00%	0.00%	0.00%
Future Net Salvage	0.00%	0.00%	0.00%
Depreciation Reserve @ 12/31/95	2,371	2,371	0
Depreciation Reserve Ratio	235.83%	235.83%	0.00%
Net Plant Balance @ 12/31/95	(1,366)	(1,366)	0
Net Plant Ratio	-135.83%	-135.83%	0.00%
Depreciation Rate	0.00%	5 yr Amort	0.00%
Depreciation Expense	0	0	0

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2123	Desc:	Office Equipment

Year	Plant	Age	Weights
Total	1,005	10.50	10,553
1995	0	0.5	0
1994	0	1.5	0
1993	0	2.5	0
1992	0	3.5	0
1991	0	4.5	0
1990	0	5.5	0
1989	0	6.5	0
1988	0	7.5	0
1987	0	8.5	0
1986	0	9.5	0
1985	1,005	10.5	10,553
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2123	Description:	Office Equipment

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	1,005	0	0	0	1,005
1994	1,005	0	0	0	1,005
1993	1,005	0	0	0	1,005
1992	1,005	0	0	0	1,005
1991	1,005	0	0	0	1,005
1990	1,005	0	0	0	1,005
1989	1,005	0	0	0	1,005
1988	1,005	0	0	0	1,005
1987	[illegible]	0	0	0	1,005
1986	[illegible]	0	0	0	1,005
1985	[illegible]	0	0	1,005	1,005
1984	0	0	0	0	0
1983	0	0	0	0	0
1982	0	0	0	0	0
1981	0	0	0	0	0
1980	0	0	0	0	0
1979	0	0	0	0	0
1978	0	0	0	0	0
1977	0	0	0	0	0
1976	0	0	0	0	0
1975	0	0	0	0	0
1974	0	0	0	0	0
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2123	Desc:	Office Equipment

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	2,371	0	0	0	0	0	2,371
1994	2,371	0	0	0	0	0	2,371
1993	2,371	0	0	0	0	0	2,371
1992	1,972	399	0	0	0	0	2,371
1991	963	1,009	0	0	0	0	1,972
1990	1,274	55	0	0	0	(366)	963
1989	1,218	56	0	0	0	0	1,274
1988	1,162	56	0	0	0	0	1,218
1987	1,107	55	0	0	0	0	1,162
1986	1,05[illegible]	55	0	0	0	0	1,107
1985	[illegible]	0	0	0	0	0	1,052

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate St'dy
Account #:	2212-090	Description:	Digital Electronic Switching

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	1,614,461	1,614,461	0
Percent of Total Regulated Investment	19.49%	19.49%	0.00%
Selected Iowa type cu	S1.0	Life Span	Yes
Projected Life	15.5/2002.5	15/2003	0.00
Average Service Life	12.26	14.60	-2.34
Average Remaining Life	5.66	12.00	-6.34
Average Net Salvage	0.00%	0.00%	0.00%
Future Net Salvage	0.00%	0.00%	0.00%
Depreciation Reserve @ 12/31/95	574,176	574,176	0
Depreciation Reserve Ratio	35.56%	35.56%	0.00%
Net Plant Balance @ 12/31/95	1,040,285	1,040,285	0
Net Plant Ratio	64.44%	64.44%	0.00%
Depreciation Rate	11.39%	5.88%	5.51%
Depreciation Expense	183,861	94,890	88,971

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY
ELG Year : 1985

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2212000
Category : DIGITAL SWITCHING

GENLIF V1.7

Generation Arrangement
Development of Average Service Life
and Average Remaining Life

	Vin-tage	Age as of Jan.1 1996	Exp to 1-1-1996 % Amt. Surv $	Prop. Surv.	Real. Life	Remain ing Life Yrs	Vintage Average Life Yrs	Average Life Weights $	Average Remaining Life Weights $
	N	A	B	C	D	E+	F++	G=B/F	H=E*G
ELG	1996	0.0	0	1.0000	0.00	9.49	0.00	0	0
ELG	1995	0.5	14663	1.0000	0.50	9.02	9.52	1541	13893
ELG	1994	1.5	187051	1.0000	1.50	8.24	9.74	19198	158253
ELG	1993	2.5	0	0.0000	2.00	7.58	0.00	0	0
ELG	1992	3.5	1255	1.0000	2.50	7.00	10.50	120	837
ELG	1991	4.5	1168	1.0000	3.50	6.48	10.98	13136	85057
ELG	1990	5.5	1239	1 0000	4.50	6.00	11.50	16894	101323
ELG	1989	6.5	131451	1.0000	5.50	5.56	12.06	10904	60577
ELG	1988	7.5	473029	1.0000	6.50	5.14	12.64	37416	192408
ELG	1987	8.5	4606	1.0000	7.50	4.75	13.25	348	1652
ELG	1986	9.5	64853	1.0000	8.50	4.38	13.88	4672	20474
ELG	1985	10.5	399146	1.0000	9.50	4.03	14.53	27473	110684
Tot	All V		1614461					131700	745156
Tot	EMB V		1614461					131700	745156
Tot	ELG V		1614461					131700	745156
Tot	VG V		0					0	0

	All Vint.	EMB Vint.	ELG Vint.	VG Vint.
Avg. Service Life = Tot B/Tot G	12.259	12.259	12.259	0.000
Avg. Remaining Life = Tot H/Tot G	5.658	5.658	5.658	0.000
Computed Gross Additions = Sum of (B/C)	1614461	1614461	1614461	0
Avg. Prop. Surv = Tot B/ Sum of (B/C)	1.00000	1.00000	1.00000	0.00000

I/H: S1.0 I/H Life: 12.10

Calc Type: Full Mortality

% ACTUAL
+ From Proj. Life Table ++ For ELG Vints A+E

Computed Life 12.10
For VG Vints D+C*E

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY
ELG Year : 0

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2212000
Category : DIGITAL SWITCHING

GENLIF V1.7

Generation Arrangement
Development of Average Service Life
and Average Remaining Life

	Vin-tage	Age as of Jan.1 1996	Exp to 1-1-1996 % Amt. Surv $	Prop. Surv.	Real. Life	Remaining Life Yrs	Vintage Average Life Yrs	Average Life Weights $	Average Remaining Life Weights $
	N	A	B	C	D	E+	F++	G=B/F	H=E*G
VG	1996	0.0	0	1.0000	0.00	12.10	12.10	0	0
VG	1995	0.5	14663	1.0000	0.50	11.60	12.10	1212	14057
VG	1994	1.5	187051	1.0000	1.50	10.63	12.13	15418	163924
VG	1993	2.5	0	0.0000	2.00	9.72	2.00	0	0
VG	1992	3.5	1255	1.0000	2.50	8.87	11.37	110	979
VG	1991	4.5	144168	1.0000	3.50	8.10	11.60	12429	100665
VG	1990	5.5	194235	1.0000	4.50	7.39	11.89	16339	120713
VG	1989	6.5	131451	1.0000	5.50	6.74	12.24	10743	72365
VG	1988	7.5	473029	1.0000	6.50	6.14	12.64	37433	229715
VG	1987	8.5	4606	1.0000	7.50	5.58	13.08	352	1966
VG	1986	9.5	64853	1.0000	8.50	5.07	13.57	4778	24237
VG	1985	10.5	399146	1.0000	9.50	4.60	14.10	28316	130142
Tot	All V		1614461					127131	858763
Tot	EMB V		1614461					127131	858763
Tot	ELG V		0					0	0
Tot	VG V		1614461					127131	858763

	All Vint.	EMB Vint.	ELG Vint.	VG Vint.
Avg. Service Life = Tot B/Tot G	12.699	12.699	0.000	12.699
Avg. Remaining Life = Tot H/Tot G	6.755	6.755	0.000	6.755
Computed Gross Additions = Sum of (B/C)	1614461	1614461	0	1614461
Avg. Prop. Surv = Tot B/ Sum of (B/C)	1.00000	1.00000	0.00000	1.00000

I/H: S1.0 I/H Life: 12.10

Calc Type: Full Mortality

% ACTUAL
\+ From Proj. Life Table ++ For ELG Vints A+E

Computed Life 12.10
For VG Vints D+C*E

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY
ELG Year : 0

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2212000
Category : DIGITAL SWITCHING

GENLIF V1.7

Generation Arrangement
Development of Average Service Life
and Average Remaining Life

	Vin- tage	Age as of Jan.1 1996	Exp to 1-1-1996 % Amt. Surv $	Prop. Surv.	Real. Life	Remain ing Life Yrs	Vintage Average Life Yrs	Average Life Weights $	Average Remaining Life Weights $
	N	A	B	C	D	E+	F++	G=B/F	H=E*G
VG	1996	6.5	0	1.0000	0.00	6.29	6.29	0	0
VG	1995	0.5	14663	1.0000	0.50	6.76	7.26	2020	13653
VG	1994	1.5	187051	1.0000	1.50	6.76	8.26	22644	153086
VG	1993	2.5	0	0.0000	2.00	6.76	2.00	0	0
VG	1992	3.5	1255	1.0000	2.50	6.76	9.26	136	916
VG	1991	4.5	1441[illegible]	1.0000	3.50	6.76	10.26	14051	94991
VG	1990	5.5	194[illegible]	1.0000	4.50	6.76	11.26	17249	116617
VG	1989	6.5	131[illegible]	1.0000	5.50	6.76	12.26	10721	72484
VG	1988	7.5	473029	1.0000	6.50	6.76	13.26	35672	241164
VG	1987	8.5	4606	1.0000	7.50	6.76	14.26	323	2184
VG	1986	9.5	64853	1.0000	8.50	6.76	15.26	4250	28731
VG	1985	10.5	399146	1.0000	9.50	6.76	16.26	24547	165952
Tot All V			1614461					131611	889777
Tot EMB V			1614461					131611	889777
Tot ELG V			0					0	0
Tot VG V			1614461					131611	889777

	All Vint.	EMB Vint.	ELG Vint.	VG Vint.
Avg. Service Life = Tot B/Tot G	12.267	12.267	0.000	12.267
Avg. Remaining Life = Tot H/Tot G	6.761	6.761	0.000	6.761
Computed Gross Additions = Sum of (B/C)	1614461	1614461	0	1614461
Avg. Prop. Surv = Tot B/ Sum of (B/C)	1.00000	1.00000	0.00000	1.00000

Const Ret Rate: 1.0000

Calc Type: AYFR (2002.5)

Computed Life 99.31

% ACTUAL
+ From Proj. Life Table ++ For ELG Vints A+E For VG Vints D+C*E

Frontier Communications of the South, Inc. - Florida

Average Year of Final Retirement Calculations

Acct:	2121	Desc:	Digital Switching

Plant	Total	Walnut Hill	Molino	Bratt	Molino 3	Davisville
Total	1,614,460.98	533,062.72	671,663.46	128,063.74	124,723.01	156,948.05
1995	14,662.66	14,662.66	0.00	0.00	0.00	0.00
1994	187,050.52	71,529.92	115,520.60	0.00	0.00	0.00
1993	0.00	0.00	0.00	0.00	0.00	0.00
1992	1,254.75	0.00	1,254.75	0.00	0.00	0.00
1991	144,167.68	125,475.89	18,691.79	0.00	0.00	0.00
1990	194,239.15	9,832.95	27,458.15	0.00	0.00	156,948.05
1989	131,451.33	6,728.32	0.00	0.00	124,723.01	0.00
1988	473,028.86	0.00	473,028.86	0.00	0.00	0.00
1987	4,60[illegible]9	4,606.49	0.00	0.00	0.00	0.00
1986	64,85[illegible]9	29,[illegible]44.18	35,709.31	0.00	0.00	0.00
1985	399,146.05	271,082.31	0.00	128,063.74	0.00	0.00
AYP	1987	1985	1988	1985	1989	1990
Term	15.5	15.5	15.5	15.5	15.5	15.5
AYFR	2002.5	2000	2003	2000	2004	2005

Date 06/18/96 Page 1

Study Year	: 1996	Company	: FRONTIER OF SOUTH, FL
Study Code	: S	State	: FLORIDA
Study	: 1996 DEP RATE STUDY	Account	: 2212000
		Category	: DIGITAL SWITCHING

BSTSTS V1.1

BEST REGRESSION STATISTICS

Curve	G.O.F.	Graduated Life
S1.0	4.87567100E+07	15.90
L2.0	5.32130500E+07	15.90
R3.0	5.62614000E+07	13.00
S2.0	6.46178600E+07	13.80
L1.0	6.49235800E+07	20.10
R2.0	8.16251200E+07	15.40
S0.0	8.87449200E+07	20.20
L3.0	9.61306500E+07	13.70
R4.0	1.13286300E+08	11.90
L0.0	1.25841[illegible]+08	28.50
S3.0	1.32499[illegible]E+08	12.60
R1.0	1.56108900E+08	21.70
L4.0	1.70209400E+08	12.30
O2.0	1.93215700E+08	38.70
O3.0	1.96065200E+08	56.00
O4.0	1.97505800E+08	77.40
S4.0	2.75295300E+08	11.80
R5.0	3.12334400E+08	11.40
L5.0	3.25611700E+08	11.60
S5.0	4.49192800E+08	11.40
S6.0	6.19160500E+08	11.10

T-Cut = 11
Band Start 1991
Band End 1995

	Exposures	Retirements	O.L.T.	S.L.T.
Total	8168186	183908	1027019	1027019
Exclude	0	0	0	0
% Exclude:	0.00	0.00	0.00	0.00

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2212000
Category : DIGITAL SWITCHING

BSTSTS V1.1

BEST REGRESSION STATISTICS

Curve	G.O.F.	Graduated Life
S1.0	1.06173400E+08	12.70
L2.0	1.14694200E+08	13.00
R3.0	1.25978300E+08	10.70
L1.0	1.29755800E+08	15.70
S2.0	1.30644600E+08	11.40
R2.0	1.43878800E+08	12.10
S0.0	1.67695600E+08	15.30
L3.0	1.92403800E+08	11.50
R4.0	2.23544800E+08	10.20
L0.0	2.27834600E+08	20.80
S3.0	2.38348600E+08	10.70
R1.0	2.569790[illegible]08	15.50
L4.0	3.087129[illegible]+08	10.60
O2.0	3.301924[illegible]08	26.20
O3.0	3.37158300E+08	37.80
O4.0	3.40716500E+08	52.10
S4.0	4.63717800E+08	10.20
R5.0	5.25404300E+08	9.90
L5.0	5.42575000E+08	10.20
S5.0	7.07665200E+08	10.00
S6.0	9.14237600E+08	9.90

T-Cut = 10
Band Start 1992
Band End 1994

	Exposures	Retirements	O.L.T.	S.L.T.
Total	4958326	177679	910689	910689
Exclude	0	0	0	0
% Exclude:	0.00	0.00	0.00	0.00

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2212000
Category : DIGITAL SWITCHING

BSTSTS V1.1

BEST REGRESSION STATISTICS

Curve	G.O.F.	Graduated Life
S0.5	1.03591100E+08	14.50
L1.5	1.06407000E+08	14.90
R2.5	1.31411900E+08	12.10
L0.5	1.34055700E+08	18.30
S1.5	1.35483200E+08	12.80
R1.5	1.53428000E+08	14.00
S-.5	1.99054200E+08	18.60
R0.5	2.47412300E+08	19.00

T-Cut = 11
Band Start 1993
Band End 1995

	Exposures	Retirements	O.L.T.	S.L.T.
Total	4982362	177679	986931	986931
Exclude	0	0	0	0
% Exclude:	0.00	0.00	0.00	0.00

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2212	Desc:	Digital Electronic Switching

Year	Plant	Age	Weights
Total	1,614,461	6.97	11,257,808
1995	14,663	0.5	7,332
1994	187,051	1.5	280,577
1993	0	2.5	0
1992	1,255	3.5	4,393
1991	144,168	4.5	648,756
1990	194,239	5.5	1,068,315
1989	131,451	6.5	854,432
1988	473,029	7.5	3,547,718
1987	4,606	8.5	39,151
1986	64,853	9.5	616,104
1985	399,146	10.5	4,191,033
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2212000
Category : DIGITAL SWITCHING

INPVNT V1.5

Vintage Input File

Vint Year	Amount Surviving	Prop. Surviving	Realized Life	Actual Reserve	Adjust-ments	Assigned Retire-ments
1995	14663	1.000000	0.50000			
1994	187051	1.000000	1.50000			
1993	0	0.000000	2.00000			
1992	1255	1.000000	2.50000			
1991	4168	1.000000	3.50000			
1990	4239	1.000000	4.50000			
1989	131451	1.000000	5.50000			
1988	473029	1.000000	6.50000			
1987	4606	1.000000	7.50000			
1986	64853	1.000000	8.50000			
1985	399146	1.000000	9.50000			

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2212	Description:	Digital Electronic Switching

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	1,599,798	14,663	0	0	1,614,461
1994	1,590,425	187,051	177,679	0	1,599,798
1993	1,590,425	0	0	0	1,590,425
1992	1,589,170	1,255	0	0	1,590,425
1991	1,442,539	152,860	6,229	0	1,589,170
1990	1,248,300	194,239	0	0	1,442,539
1989	1,116,849	131,451	0	(1)	1,248,300
1988	534,194	582,655	0	0	1,116,849
1987	[illegible]9,588	4,606	0	0	534,194
1986	[illegible]4,735	64,853	0	0	529,588
1985	0	464,735	0	0	464,735
1984	0	0	0	0	0
1983	0	0	0	0	0
1982	0	0	0	0	0
1981	0	0	0	0	0
1980	0	0	0	0	0
1979	0	0	0	0	0
1978	0	0	0	0	0
1977	0	0	0	0	0
1976	0	0	0	0	0
1975	0	0	0	0	0
1974	0	0	0	0	0
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2212	Desc:	Digital Electronic Switching

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	479,247	94,929	0	0	0	0	574,176
1994	562,610	94,316	177,679	0	0	0	479,247
1993	432,630	93,832	0	0	0	36,148	562,610
1992	327,100	104,923	0	607	0	0	432,630
1991	231,103	102,378	6,229	0	0	(152)	327,100
1990	210,166	86,523	0	0	0	(65,586)	231,103
1989	131,433	78,733	0	0	0	0	210,166
1988	534,552	129,568	454,831	1,637	0	(79,493)	131,433
1987	[illegible]3,870	120,682	0	0	0	0	534,552
1986	[illegible]4,368	115,689	25,327	500	0	18,640	413,870
1985	0	0	0	0	0	0	304,368

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study

Account #:	2232-490	Description:	Circuit Equipment - Digital

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	497,864	497,864	0
Percent of Total Regulated Investment	6.01%	6.01%	0.00%
Selected Iowa type curve	R2.0	R1.0	Yes
Projected Life	9.50	12.00	-2.50
Average Service Life	10.30	12.00	-1.70
Average Remaining Life	3.80	6.60	-2.80
Average Net Salvage	0.00%	0.00%	0.00%
Future Net Salvage	0.00%	0.00%	0.00%
Depreciation Reserve @ 12/31/95	333,128	333,128	0
Depreciation Reserve Ratio	66.91%	66.91%	0.00%
Net Plant Balance @ 12/31/95	164,736	164,736	0
Net Plant Ratio	33.09%	33.09%	0.00%
Depreciation Rate	8.70%	8.49%	0.21%
Depreciation Expense	43,306	42,266	1,040

Study Year	: 1996	Company	: FRONTIER OF SOUTH, FL
Study Code	: S	State	: FLORIDA
Study	: 1996 DEP RATE STUDY	Account	: 2232490
ELG Year	: 1982	Category	: CIRCUIT EQ - DIGITAL

GENLIF V1.7

Generation Arrangement
Development of Average Service Life
and Average Remaining Life

Vin- tage		Age as of Jan.1 1996	Exp to 1-1-1996 % Amt. Surv $	Prop. Surv.	Real. Life	Remain ing Life Yrs	Vintage Average Life Yrs	Average Life Weights $	Average Remaining Life Weights $
N		A	B	C	D	E+	F++	G=B/F	H=E*G
ELG	1996	0.0	0	1.0000	0.00	6.78	0.00	0	0
ELG	1995	0.5	15909	1.0000	0.50	6.77	7.27	2188	14815
ELG	1994	1.5	3474	1.0000	1.50	6.48	7.98	435	2821
ELG	1993	2.5	0	0.0000	0.00	5.99	0.00	0	0
ELG	1992	3.5	123002	1.0000	3.50	5.44	8.94	13756	74855
ELG	1991	4.5	37495	1.0000	4.50	4.88	9.38	3996	19511
ELG	1990	5.5	8291	1.0000	5.50	4.33	9.83	843	3652
ELG	1989	6.5	[illegible]1532	0.9983	6.49	3.80	10.30	2091	7942
ELG	1988	7.5	[illegible]4987	0.9851	7.40	3.30	10.80	10651	35106
ELG	1987	8.5	7813	0.9540	8.18	2.83	11.33	689	1953
ELG	1986	9.5	41492	0.9109	8.87	2.41	11.91	3483	8401
ELG	1985	10.5	63072	0.8520	9.44	2.04	12.54	5030	10255
ELG	1984	11.5	6740	0.7790	9.89	1.71	13.21	510	873
ELG	1983	12.5	11404	0.6927	10.19	1.42	13.92	819	1166
ELG	1982	13.5	29	0.6000	10.42	1.16	14.66	2	2
VG	1981	14.5	11538	0.5034	10.59	0.93	11.05	1044	972
VG	1980	15.5	10002	0.4063	10.71	0.68	10.99	910	618
VG	1979	16.5	10326	0.3113	10.83	0.51	10.99	940	475
VG	1978	17.5	2470	0.2207	10.95	0.50	11.06	223	113
VG	1977	18.5	4201	0.1363	11.10	0.50	11.16	376	188
VG	1976	19.5	3782	0.0607	11.27	0.50	11.30	335	167
VG	1975	20.5	303	0.0060	11.58	0.50	11.58	26	13
VG	1974	21.5	2	0.0001	12.28	0.50	12.28	0	0
Tot All V			497864					48349	183658
Tot EMB V			497864					48349	183898
Tot ELG V			455240					44495	181351
Tot VG V			42624					3654	2546

	All Vint.	EMB Vint.	ELG Vint.	VG Vint.
Avg. Service Life = Tot B/Tot G	10.297	10.297	10.231	11.060
Avg. Remaining Life = Tot H/Tot G	3.804	3.804	4.076	0.661
Computed Gross Additions = Sum of (B/C)	735098	735098	479399	255699
Avg. Prop. Surv = Tot B/ Sum of (B/C)	0.67728	0.67728	0.94961	0.16670

I/H: R2.0 I/H Life: 9.50

Calc Type: Full Mortality

% ACTUAL

\+ From Proj. Life Table ++ For ELG Vints A+E

Computed Life 9.50
For VG Vints D+C*E

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2232	Desc:	Circuit Equipment - Digital

Year	Plant	Age	Weights
Total	497,864	7.43	3,697,311
1995	15,909	0.5	7,955
1994	3,474	1.5	5,211
1993	0	2.5	0
1992	123,002	3.5	430,507
1991	37,495	4.5	168,728
1990	8,291	5.5	45,601
1989	21,532	6.5	139,958
1988	114,987	7.5	862,403
1987	7,813	8.5	66,411
1986	41,492	9.5	394,174
1985	63,072	10.5	662,256
1984	6,740	11.5	77,510
1983	11,404	12.5	142,550
1982	29	13.5	392
1981	11,538	14.5	167,301
1980	10,002	15.5	155,031
1979	10,326	16.5	170,379
1978	2,470	17.5	43,225
1977	4,201	18.5	77,719
1976	3,782	19.5	73,749
1975	303	20.5	6,212
1974	2	21.5	43
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Date 06/26/96

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2232490
Category : CIRCUIT EQ - DIGITAL

INPVNT V1.5

Vintage Input File

Vint Year	Amount Surviving	Prop. Surviving	Realized Life	Actual Reserve	Adjust-ments	Assigned Retire-ments
1995	15909	1.000000	0.50000			
1994	3474	1.000000	1.50000			
1993	0	0.000000	0.00000			
1992	123002	1.000000	3.50000			
1991	3749[illegible]	1.000000	4.50000			
1990	8291	1.000000	5.50000			
1989	21532	0.998270	6.48876			
1988	114987	0.985079	7.40017			
1987	7813	0.953976	8.18068			
1986	41492	0.910943	8.87491			
1985	63072	0.851997	9.44368			
1984	6740	0.779045	9.88885			
1983	11404	0.692686	10.19197			
1982	29	0.599991	10.42037			
1981	11538	0.503418	10.58565			
1980	10002	0.406303	10.71478			
1979	10326	0.311308	10.83079			
1978	2470	0.220659	10.95267			
1977	4201	0.136279	11.09504			
1976	3782	0.060692	11.27249			
1975	303	0.005958	11.57518			
1974	2	0.000101	12.27991			

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2232	Description:	Circuit Equipment - Digital

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	481,955	15,909	0	0	497,864
1994	478,481	3,474	0	0	481,955
1993	478,481	0	0	0	478,481
1992	355,479	10,656	0	112,346	478,481
1991	317,984	16,276	0	21,219	355,479
1990	309,693	8,291	0	0	317,984
1989	320,810	36,576	32,686	(15,007)	309,693
1988	335.734	116,729	131,653	0	320,810
1987	[illegible],544	8,190	0	0	335,734
1986	[illegible],323	26,908	25,327	18,640	327,544
1985	256,866	74,028	23,571	0	307,323
1984	322,729	8,652	74,515	0	256,866
1983	306,265	16,464	0	0	322,729
1982	306,216	49	0	0	306,265
1981	283,297	22,919	0	0	306,216
1980	258,681	24,616	0	0	283,297
1979	225,511	33,170	0	0	258,681
1978	214,316	11,195	0	0	225,511
1977	183,490	30,826	0	0	214,316
1976	121,182	62,308	0	0	183,490
1975	70,376	50,806	0	0	121,182
1974	47,630	22,746	0	0	70,376
1973	41,802	5,828	0	0	47,630
1972	29,017	12,785	0	0	41,802
1971	25,293	3,724	0	0	29,017
1970	21,919	3,374	0	0	25,293
1969	14,333	7,586	0	0	21,919
1968	12,075	2,258	0	0	14,333
1967	10,040	2,035	0	0	12,075
1966	5,882	4,158	0	0	10,040
1965	4,522	1,360	0	0	5,882
1964	3,336	1,186	0	0	4,522
1963	2,241	1,095	0	0	3,336
1962	1,260	981	0	0	2,241
1961	0	1,260	0	0	1,260
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2232	Desc:	Circuit Equipment - Digital

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	291,324	41,804	0	0	0	0	333,128
1994	250,641	40,683	0	0	0	0	291,324
1993	213,434	40,276	0	0	0	(3,069)	250,641
1992	137,092	76,082	0	260	0	0	213,434
1991	91,366	25,763	0	0	0	19,963	137,092
1990	138,585	66,920	0	651	108	(114,682)	91,366
1989	149,969	26,500	32,686	10,477	668	(15,007)	138,585
1988	0	0	0	0	0	0	149,969
1987	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study
Account #:	2232-690	Description:	Circuit Equipment - Optical

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	131,524	131,524	0
Percent of Total Regulated Investment	1.59%	1.59%	0.00%
Selected Iowa type curve	NA	NA	NA
Projected Life	10.00	10.00	0.00
Average Service L	10.10	10.10	0.00
Average Remaining Life	0.00	0.00	0.00
Average Net Salvage	0.00%	0.00%	0.00%
Future Net Salvage	0.00%	0.00%	0.00%
Depreciation Reserve @ 12/31/95	72,728	72,728	0
Depreciation Reserve Ratio	55.30%	55.30%	0.00%
Net Plant Balance @ 12/31/95	58,796	58,796	0
Net Plant Ratio	44.70%	44.70%	0.00%
Depreciation Rate	9.90%	9.90%	0.00%
Depreciation Expense	13,022	13,022	0

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2232	Desc:	Circuit Equipment - Fiber Optic

Year	Plant	Age	Weights
Total	131,524	5.66	744,239
1995	4,180	0.5	2,090
1994	0	1.5	0
1993	0	2.5	0
1992	4,699	3.5	16,447
1991	0	4.5	0
1990	71,490	5.5	393,195
1989	51,155	6.5	332,507
1988	0	7.5	0
1987	0	8.5	0
1986	0	9.5	0
1985	0	10.5	0
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2232	Description:	Circuit Equipment - Fiber Optic

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	127,344	4,180	0	0	131,524
1994	127,344	0	0	0	127,344
1993	127,344	0	0	0	127,344
1992	234,991	4,699	0	(112,346)	127,344
1991	234,991	0	0	0	234,991
1990	163,501	71,490	0	0	234,991
1989	0	163,501	0	0	163,501
1988	0	0	0	0	0
1987		0	0	0	0
1986		0	0	0	0
1985	0	0	0	0	0
1984	0	0	0	0	0
1983	0	0	0	0	0
1982	0	0	0	0	0
1981	0	0	0	0	0
1980	0	0	0	0	0
1979	0	0	0	0	0
1978	0	0	0	0	0
1977	0	0	0	0	0
1976	0	0	0	0	0
1975	0	0	0	0	0
1974	0	0	0	0	0
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2232	Desc:	Circuit Equipment - Fiber Optic

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	59,862	12,866	0	0	0	0	72,728
1994	47,255	12,607	0	0	0	0	59,862
1993	63,013	13,056	0	0	0	(28,814)	47,255
1992	46,233	16,693	0	87	0	0	63,013
1991	22,734	23,499	0	0	0	0	46,233
1990	3,107	19,627	0	0	0	0	22,734
1989	0	3,107	0	0	0	0	3,107
1988	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study
Account #:	2351-090	Description:	Public Telephone Equipment

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	23,963	23,963	0
Percent of Total Regulated Investment	0.29%	0.29%	0.00%
Selected Iowa type curve	S2.0	S2.0	No
Projected Life	8.00	8.00	3.70
Average Service Life	7.81	8.00	-0.20
Average Remaining Life	4.09	6.00	-1.91
Average Net Salvage	20.00%	20.00%	0.00%
Future Net Salvage	20.00%	20.00%	0.00%
Depreciation Reserve @ 12/31/95	13,497	13,497	0
Depreciation Reserve Ratio	56.32%	56.32%	0.00%
Net Plant Balance @ 12/31/95	10,466	10,436	0
Net Plant Ratio	43.68%	43.68%	0.00%
Depreciation Rate	5.79%	1.64%	4.16%
Depreciation Expense	1,389	393	996

Date 06/26/96

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY
ELG Year : 0

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2351090
Category : PUBLIC TELEPHONE EQ

GENLIF V1.7

Generation Arrangement
Development of Average Service Life
and Average Remaining Life

	Vin- tage	Age as of Jan.1 1996	Exp to 1-1-1996 % Amt. Surv $	Prop. Surv.	Real. Life	Remain ing Life Yrs	Vintage Average Life Yrs	Average Life Weights $	Average Remaining Life Weights $
	N	A	B	C	D	E+	F++	G=B/F	H=E*G
VG	1996	0.0	0	1.0000	0.00	8.00	8.00	0	0
VG	1995	0.5	0	0.0000	0.00	7.50	0.00	0	0
VG	1994	1.5	0	0.0000	0.00	6.51	0.00	0	0
VG	1993	2.5	8192	0.9989	2.50	5.55	8.04	1018	5654
VG	1992	3.5	2873	0.9929	3.48	4.68	8.13	353	1654
VG	1991	4.5	[illegible]777	0.9485	4.34	3.91	8.05	593	2323
VG	1990	5.5	220	0.8550	5.01	3.26	7.80	285	929
VG	1989	6.5	330	0.7139	5.48	2.72	7.41	584	1586
VG	1988	7.5	0	0.0000	0.00	2.26	0.00	0	0
VG	1987	8.5	1152	0.3749	6.03	1.87	6.73	171	319
VG	1986	9.5	0	0.0000	0.00	1.53	0.00	0	0
VG	1985	10.5	418	0.0873	6.33	1.25	6.44	65	81
Tot	All V		23963					3070	12546
Tot	EMB V		23963					3070	12546
Tot	ELG V		0					0	0
Tot	VG V		23963					3070	12546

	All Vint.	EMB Vint.	ELG Vint.	VG Vint.
Avg. Service Life = Tot B/Tot G	7.805	7.805	0.000	7.805
Avg. Remaining Life = Tot H/Tot G	4.086	4.086	0.000	4.086
Computed Gross Additions = Sum of (B/C)	32658	32658	0	32658
Avg. Prop. Surv = Tot B/ Sum of (B/C)	0.73377	0.73377	0.00000	0.73377

I/H: S2.0 I/H Life: 8.00

Calc Type: Full Mortality

% ACTUAL
+ From Proj. Life Table ++ For ELG Vints A+E

Computed Life 8.00
For VG Vints D+C*E

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2351	Desc:	Public Telephone Terminal Eq.

Year	Plant	Age	Weights
Total	23,962	4.45	106,568
1995	0	0.5	0
1994	0	1.5	0
1993	8,192	2.5	20,480
1992	2,873	3.5	10,056
1991	4,777	4.5	21,497
1990	2,220	5.5	12,210
1989	4,330	6.5	28,145
1988	0	7.5	0
1987	1,152	8.5	9,792
1986	0	9.5	0
1985	418	10.5	4,389
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2351090
Category : PUBLIC TELEPHONE EQ

INPVNT V1.5

Vintage Input File

Vint Year	Amount Surviving	Prop. Surviving	Realized Life	Actual Reserve	Adjust-ments	Assigned Retire-ments
1995	0	0.000000	0.00000			
1994	0	0.000000	0.00000			
1993	8192	0.998863	2.49829			
1992	2873	0.992900	3.48341			
1991	4777	0.[illegible]8473	4.33789			
1990	2220	[illegible]54985	5.01059			
1989	4330	[illegible]13870	5.47506			
1988	0	0.000000	0.00000			
1987	1152	0.374881	6.03023			
1986	0	0.000000	0.00000			
1985	418	0.087270	6.32900			

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2351	Description:	Public Telephone Terminal Equipment

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	23,963	0	0	0	23,963
1994	24,353	0	390	0	23,963
1993	16,151	0	0	8,201	24,353
1992	18,099	2,894	4,842	0	16,151
1991	14,748	5,037	1,686	0	18,099
1990	13,515	2,597	1,364	0	14,748
1989	7,539	6,065	89	0	13,515
1988	7,539	0	0	0	7,539
1987	4,787	3,072	320	0	7,539
1986	4,787	0	0	0	4,787
1985	0	0	0	4,787	4,787
1984	0	0	0	0	0
1983	0	0	0	0	0
1982	0	0	0	0	0
1981	0	0	0	0	0
1980	0	0	0	0	0
1979	0	0	0	0	0
1978	0	0	0	0	0
1977	0	0	0	0	0
1976	0	0	0	0	0
1975	0	0	0	0	0
1974	0	0	0	0	0
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2351	Desc:	Public Telephone Terminal Equipment

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	13,114	383	0	0	0	0	13,497
1994	13,115	389	390	0	0	0	13,114
1993	11,332	284	0	1,499	0	0	13,115
1992	12,257	1,986	4,842	2,068	137	0	11,332
1991	7,627	1,573	1,686	4,911	168	0	12,257
1990	6,045	1,367	1,364	1,789	210	0	7,627
1989	6,312	1,016	89	(1,194)	0	0	6,045
1988	3,754	748	0	1,810	0	0	6,312
1987	3,570	504	320	0	0	0	3,754
1986	2,243	1,327	0	0	0	0	3,570
1985	0	0	0	0	0	0	2,243

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study
Account #:	2422-190	Description:	Underground Cable - Metallic

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	1,612	1,612	0
Percent of Total Regulated Investment	0.02%	0.02%	0.00%
Selected Iowa type curve	R3.0	R3.0	No
Projected Life	17.00	17.00	0.00
Average Service Life	17.00	17.00	0.00
Average Remaining Life	8.79	11.80	-3.01
Average Net Salvage	-5.00%	-5.00%	0.00%
Future Net Salvage	-5.00%	-5.00%	0.00%
Depreciation Reserve @ 12/31/95	874	874	0
Depreciation Reserve Ratio	54.23%	54.23%	0.00%
Net Plant Balance @ 12/31/95	738	738	0
Net Plant Ratio	45.77%	45.77%	0.00%
Depreciation Rate	5.78%	5.78%	0.00%
Depreciation Expense	93	93	0

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2422	Desc:	Underground Cable - Metallic

Year	Plant	Age	Weights
Total	1,612	9.50	15,314
1995	0	0.5	0
1994	0	1.5	0
1993	0	2.5	0
1992	0	3.5	0
1991	0	4.5	0
1990	0	5.5	0
1989	0	6.5	0
1988	0	7.5	0
1987	0	8.5	0
1986	1,612	9.5	15,314
1985	0	10.5	0
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2422	Description:	Underground Cable - Metallic

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	1,612	0	0	0	1,612
1994	1,612	0	0	0	1,612
1993	1,612	0	0	0	1,612
1992	1,612	0	0	0	1,612
1991	1,612	0	0	0	1,612
1990	1,612	0	0	0	1,612
1989	1,612	0	0	0	1,612
1988	1,612	0	0	0	1,612
1987	1,612	0	0	0	1,612
1986	0	0	0	1,612	1,612
1985	0	0	0	0	0
1984	0	0	0	0	0
1983	0	0	0	0	0
1982	0	0	0	0	0
1981	0	0	0	0	0
1980	0	0	0	0	0
1979	0	0	0	0	0
1978	0	0	0	0	0
1977	0	0	0	0	0
1976	0	0	0	0	0
1975	0	0	0	0	0
1974	0	0	0	0	0
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2422	Desc:	Underground Cable - Metallic

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	781	93	0	0	0	0	874
1994	687	94	0	0	0	0	781
1993	801	93	0	0	0	(207)	687
1992	706	95	0	0	0	0	801
1991	540	166	0	0	0	0	706
1990	309	231	0	0	0	0	540
1989	117	192	0	0	0	0	309
1988	61	56	0	0	0	0	117
1987	5	56	0	0	0	0	61
1986	0	5	0	0	0	0	5
1985	0	0	0	0	0	0	0

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study
Account #:	2422-290	Description:	Underground Cable - Fiber

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	2,692	2,692	0
Percent of Total Regulated Investment	0.03%	0.03%	0.00%
Selected Iowa type curve	NA	NA	NA
Projected Life	20.00	20.00	0.00
Average Service Life	20.00	20.00	0.00
Average Remaining Life	20.00	20.00	0.00
Average Net Salvage	-5.00%	-5.00%	0.00%
Future Net Salvage	-5.00%	-5.00%	0.00%
Depreciation Reserve @ 12/31/95	857	857	0
Depreciation Reserve Ratio	31.83%	31.83%	0.00%
Net Plant Balance @ 12/31/95	1,835	1,835	0
Net Plant Ratio	68.17%	68.17%	0.00%
Depreciation Rate	5.25%	5.25%	0.00%
Depreciation Expense	141	141	0

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2422	Desc:	Underground Cable - Fiber

Year	Plant	Age	Weights
Total	2,692	6.50	17,498
1995	0	0.5	0
1994	0	1.5	0
1993	0	2.5	0
1992	0	3.5	0
1991	0	4.5	0
1990	0	5.5	0
1989	2,692	6.5	17,498
1988	0	7.5	0
1987	0	8.5	0
1986	0	9.5	0
1985	0	10.5	0
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2422	Description:	Underground Cable - Fiber

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	2,692	0	0	0	2,692
1994	2,692	0	0	0	2,692
1993	2,692	0	0	0	2,692
1992	2,692	0	0	0	2,692
1991	2,692	0	0	0	2,692
1990	2,692	0	0	0	2,692
1989	0	2,692	0	0	2,692
1988	0	0	0	0	0
1987	0	0	0	0	0
1986	0	0	0	0	0
1985	0	0	0	0	0
1984	0	0	0	0	0
1983	0	0	0	0	0
1982	0	0	0	0	0
1981	0	0	0	0	0
1980	0	0	0	0	0
1979	0	0	0	0	0
1978	0	0	0	0	0
1977	0	0	0	0	0
1976	0	0	0	0	0
1975	0	0	0	0	0
1974	0	0	0	0	0
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2422	Desc:	Underground Cable - Fiber

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	714	143	0	0	0	0	857
1994	571	143	0	0	0	0	714
1993	221	143	0	0	0	207	571
1992	78	143	0	0	0	0	221
1991	7	71	0	0	0	0	78
1990	0	7	0	0	0	0	7
1989	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0
1986	[illegible]	0	0	0	0	0	0
1985	[illegible]	0	0	0	0	0	0

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study
Account #:	2423-190	Description:	Buried Cable and Terminals - Jelly Filled

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	3,920,325	3,920,325	0
Percent of Total Regulated Investment	47.32%	47.32%	0.00%
Selected Iowa type curve	R2.0	R2.0	No
Projected Life	17.2/2006	26/2017	0.00
Average Service Life	15.74	19.00	-3.26
Average Remaining Life	8.20	13.40	-5.20
Average Net Salvage	-5.00%	-5.00%	0.00%
Future Net Salvage	-5.00%	-5.00%	0.00%
Depreciation Reserve @ 12/31/95	1,737,212	1,737,212	0
Depreciation Reserve Ratio	44.31%	44.31%	0.00%
Net Plant Balance @ 12/31/95	2,183,113	2,183,113	0
Net Plant Ratio	55.69%	55.69%	0.00%
Depreciation Rate	7.40%	5.45%	1.95%
Depreciation Expense	289,996	213,745	76,251

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY
ELG Year : 0

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2423190
Category : BCM - JELLY FILLED

GENLIF V1.7

Generation Arrangement
Development of Average Service Life
and Average Remaining Life

	Vin-tage	Age as of Jan.1 1996	Exp to 1-1-1996 % Amt. Surv $	Prop. Surv.	Real. Life	Remain ing Life Yrs	Vintage Average Life Yrs	Average Life Weights $	Average Remaining Life Weights $
	N	A	B	C	D	E+	F++	G=B/F	H=E*G
VG	1996	10.0	0	1.0000	0.00	9.46	9.46	0	0
VG	1995	0.5	58127	0.9990	0.50	9.83	10.32	5630	55372
VG	1994	1.5	167267	0.9977	1.50	9.71	11.19	14950	145217
VG	1993	2.5	154716	0.9960	2.49	9.57	12.03	12862	123145
VG	1992	3.5	203848	0.9942	3.49	9.42	12.85	15864	149369
VG	1991	4.5	142647	0.9941	4.49	9.23	13.67	10437	96369
VG	1990	5.5	3[illegible]24	0.9940	5.49	9.03	14.46	26825	242140
VG	1989	6.5	5[illegible]26	0.9939	6.49	8.79	15.23	36351	319606
VG	1988	7.5	4[illegible]122	0.9939	7.49	8.53	15.96	26085	222460
VG	1987	8.5	490984	0.9938	8.49	8.23	16.67	29453	242499
VG	1986	9.5	185773	0.9937	9.49	7.91	17.35	10710	84690
VG	1985	10.5	238526	0.9804	10.35	7.55	17.75	13438	101471
VG	1984	11.5	230460	0.9632	11.17	7.17	18.07	12754	91403
VG	1983	12.5	51722	0.9591	12.12	6.76	18.61	2780	18788
VG	1982	13.5	71258	0.9545	13.08	6.33	19.12	3727	23600
VG	1981	14.5	94707	0.9488	14.02	5.89	19.61	4829	28469
VG	1980	15.5	80683	0.9416	14.94	5.45	20.07	4019	21915
VG	1979	16.5	81227	0.9324	15.85	5.01	20.52	3959	19844
VG	1978	17.5	34994	0.9212	16.73	4.58	20.95	1671	7653
VG	1977	18.5	126944	0.9078	17.59	4.16	21.37	5941	24739
VG	1976	19.5	111352	0.8918	18.42	3.76	21.77	5114	19248
VG	1975	20.5	20910	0.8730	19.22	3.39	22.18	943	3193
VG	1974	21.5	16309	0.8515	19.99	3.03	22.57	722	2192
Tot	All V		3920326					249064	2043383
Tot	EMB V		3920326					249064	2043383
Tot	ELG V		0					0	0
Tot	VG V		3920326					249064	2043383

	All Vint.	EMB Vint.	ELG Vint.	VG Vint.
Avg. Service Life = Tot B/Tot G	15.740	15.740	0.000	15.740
Avg. Remaining Life = Tot H/Tot G	8.204	8.204	0.000	8.204
Computed Gross Additions = Sum of (B/C)	4006422	4006422	0	4006422
Avg. Prop. Surv = Tot B/ Sum of (B/C)	0.97851	0.97851	0.00000	0.97851

I/H: R2.0 I/H Life: 17.20

Calc Type: AYFR (2006.0)

% ACTUAL
\+ From Proj. Life Table ++ For ELG Vints A+E

Computed Life 17.20
For VG Vints D+C*E

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2423	Desc:	Buried Cable - Jelly Filled

Year	Plant	Age	Weights
Total	3,920,326	8.53	33,453,933
1995	58,127	0.5	29,064
1994	167,267	1.5	250,901
1993	154,716	2.5	386,790
1992	203,848	3.5	713,468
1991	142,647	4.5	641,912
1990	387,924	5.5	2,133,582
1989	553,526	6.5	3,597,919
1988	416,422	7.5	3,123,165
1987	490,984	8.5	4,173,364
1986	185,773	9.5	1,764,844
1985	238,526	10.5	2,504,523
1984	2[illegible]460	11.5	2,650,290
1983	[illegible]722	12.5	646,525
1982	71,258	13.5	961,983
1981	94,707	14.5	1,373,252
1980	80,683	15.5	1,250,587
1979	81,227	16.5	1,340,246
1978	34,994	17.5	612,395
1977	126,944	18.5	2,348,464
1976	111,352	19.5	2,171,364
1975	20,910	20.5	428,655
1974	16,309	21.5	350,644
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2423190
Category : BCM - JELLY FILLED

INPVNT V1.5

Vintage Input File

Vint Year	Amount Surviving	Prop. Surviving	Realized Life	Actual Reserve	Adjust-ments	Assigned Retire-ments
1995	58127	0.998963	0.49948			
1994	167267	0.997675	1.49755			
1993	154716	0.995965	2.49327			
1992	203848	0.994180	3.48880			
1991	142647	0.994101	4.48860			
1990	387324	0.994032	5.48843			
1989	553526	[illegible]	6.48822			
1988	416422	[illegible]	7.48802			
1987	490984	0.993797	8.48784			
1986	185773	0.993721	9.48765			
1985	238526	0.980361	10.34734			
1984	230460	0.963211	11.16692			
1983	51722	0.959088	12.12404			
1982	71258	0.954512	13.07637			
1981	94707	0.948817	14.01691			
1980	80683	0.941556	14.94085			
1979	81227	0.932421	15.84504			
1978	34994	0.921231	16.72756			
1977	126944	0.907769	17.58600			
1976	111352	0.891800	18.41806			
1975	20910	0.873005	19.22013			
1974	16309	0.851499	19.98975			

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2423	Description:	Buried Cable - Jelly Filled

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	3,353,447	58,187	4,068	0	3,407,566
1994	3,190,782	167,668	4,992	(11)	3,353,447
1993	3,049,790	156,847	14,351	(1,504)	3,190,782
1992	2,970,277	79,513	0	0	3,049,790
1991	2,925,561	44,716	0	0	2,970,277
1990	2,627,922	290,948	0	6,691	2,925,561
1989	2,097,713	530,178	0	31	2,627,922
1988	1,678,722	418,991	0	0	2,097,713
1987	1,184,673	457,140	0	36,909	1,678,722
1986	997,72[illegible]	186,947	0	0	1,184,673
1985	850,5[illegible]	209,832	62,685	0	997,726
1984	644,232	206,346	0	0	850,579
1983	597,723	46,509	0	0	644,232
1982	533,340	64,384	0	0	597,723
1981	447,255	86,084	0	0	533,340
1980	373,353	73,902	0	0	447,255
1979	298,223	75,130	0	0	373,353
1978	265,463	32,760	0	0	298,223
1977	144,860	120,604	0	0	265,463
1976	37,175	107,685	0	0	144,860
1975	16,518	20,657	0	0	37,175
1974	0	16,518	0	0	16,518
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2423	Description:	Buried Cable - Jelly Filled Drop

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	512,759	0	0	0	512,759
1994	512,759	0	0	0	512,759
1993	512,759	0	0	0	512,759
1992	387,231	125,528	0	0	512,759
1991	288,454	98,777	0	0	387,231
1990	195,840	92,614	0	0	288,454
1989	169,153	26,687	0	0	195,840
1988	169,153	0	0	0	169,153
1987	169,153	0	0	0	169,153
1986	169,153	0	0	0	169,153
1985	135,681	33,472	0	0	169,153
1984	102,766	32,916	0	0	135,681
1983	95,[illegible]	7,419	0	0	102,766
1982	85,[illegible]	10,270	0	0	95,347
1981	71,345	13,732	0	0	85,076
1980	59,556	11,789	0	0	71,345
1979	47,572	11,984	0	0	59,556
1978	42,346	5,226	0	0	47,572
1977	23,107	19,238	0	0	42,346
1976	5,930	17,177	0	0	23,107
1975	2,635	3,295	0	0	5,930
1974	0	2,635	0	0	2,635
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2423	Desc:	Buried Cable - Jelly Filled

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	1,394,155	214,923	4,068	0	107	0	1,604,903
1994	1,190,533	208,707	4,992	0	93	0	1,394,155
1993	1,007,438	199,527	14,351	0	30	(2,051)	1,190,533
1992	842,276	165,162	0	0	0	0	1,007,438
1991	680,434	162,013	0	0	171	0	842,276
1990	524,554	147,007	0	2,182	0	6,691	680,434
1989	424,929	99,625	0	0	0	0	524,554
1988	810,852	261,354	101,081	0	0	(546,196)	424,929
1987	640,344	222,862	88,095	36	0	35,705	810,852
1986	495,2[illegible]	217,899	72,804	0	0	0	640,344
1985	[illegible]	0	0	0	0	0	495,249

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2423	Desc:	Buried Cable - Jelly Filled Drop

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	132,309	0	0	0	0	0	132,309
1994	132,309	0	0	0	0	0	132,309
1993	132,309	0	0	0	0	0	132,309
1992	107,585	24,724	0	0	0	0	132,309
1991	89,682	17,903	0	0	0	0	107,585
1990	78,253	11,429	0	0	0	0	89,682
1989	69,748	8,505	0	0	0	0	78,253
1988	0	0	0	0	0	69,748	69,748
1987	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0
1985		0	0	0	0	0	0

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study

Account #:	2423-590	Description:	Buried Cable and Drop - Air Core

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	1,117,236	1,117,236	0
Percent of Total Regulated Investment	13.49%	13.49%	0.00%
Selected Iowa type curve	R2.5	R2.0	Yes
Projected Life	19.00	15.00	4.00
Average Service Life	18.68	15.00	3.68
Average Remaining Li	3.26	6.10	-2.84
Average Net Salvage	-1.00%	-1.00%	0.00%
Future Net Salvage	-1.00%	-1.00%	0.00%
Depreciation Reserve @ 12/31/95	977,347	977,347	0
Depreciation Reserve Ratio	87.48%	87.48%	0.00%
Net Plant Balance @ 12/31/95	139,889	139,889	0
Net Plant Ratio	12.52%	12.52%	0.00%
Depreciation Rate	**4.15%**	**4.33%**	**-0.18%**
Depreciation Expense	46,352	48,389	(2,037)

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY
ELG Year : 0

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2423590
Category : BCM - AIR CORE

GENLIF V1.7

Generation Arrangement
Development of Average Service Life
and Average Remaining Life

	Vin- tage	Age as of Jan.1 1996	Exp to 1-1-1996 % Amt. Surv $	Prop. Surv.	Real. Life	Remain ing Life Yrs	Vintage Average Life Yrs	Average Life Weights $	Average Remaining Life Weights $
	N	A	B	C	D	E+	F++	G=B/F	H=E*G
VG	1996	4.0	0	1.0000	0.00	3.97	3.97	0	0
VG	1995	0.5	0	0.0000	0.00	4.46	0.00	0	0
VG	1994	1.5	0	0.0000	0.00	4.44	0.00	0	0
VG	1993	2.5	0	0.0000	0.00	4.43	0.00	0	0
VG	1992	3.5	0	0.0000	0.00	4.42	0.00	0	0
VG	1991	4.5	0	0.0000	0.00	4.40	0.00	0	0
VG	1990	5.5	0	0.0000	0.00	4.38	0.00	0	0
VG	1989	6.5	0	0.0000	0.00	4.35	0.00	0	0
VG	1988	7.5	0	0.0000	0.00	4.32	0.00	0	0
VG	1987	8.5	0	0.0000	0.00	4.29	0.00	0	0
VG	1986	9.5	0	0.0000	0.00	4.24	0.00	0	0
VG	1985	10.5	0	0.0000	0.00	4.19	0.00	0	0
VG	1984	11.5	358511	0.9736	11.32	4.14	15.34	23367	96623
VG	1983	12.5	0	0.0000	0.00	4.07	0.00	0	0
VG	1982	13.5	0	0.0000	0.00	3.98	0.00	0	0
VG	1981	14.5	0	0.0000	0.00	3.88	0.00	0	0
VG	1980	15.5	0	0.0000	0.00	3.77	0.00	0	0
VG	1979	16.5	0	0.0000	0.00	3.64	0.00	0	0
VG	1978	17.5	0	0.0000	0.00	3.49	0.00	0	0
VG	1977	18.5	156867	0.8491	17.21	3.34	20.04	7828	26124
VG	1976	19.5	152417	0.8153	17.88	3.17	20.47	7447	23624
VG	1975	20.5	0	0.0000	0.00	3.00	0.00	0	0
VG	1974	21.5	0	0.0000	0.00	2.84	0.00	0	0
VG	1973	22.5	50032	0.6750	19.47	2.68	21.28	2351	6299
VG	1972	23.5	42011	0.6131	19.81	2.52	21.36	1967	4963
PRE	1972		357398	0.4595				16859	37289
Tot	All V		1117236					59819	194922
Tot	EMB V		1117236					59819	194922
Tot	ELG V		0					0	0
Tot	VG V		1117236					59819	194922

	All Vint.	EMB Vint.	ELG Vint.	VG Vint.
Avg. Service Life = Tot B/Tot G	18.677	18.677	0.000	18.677
Avg. Remaining Life = Tot H/Tot G	3.259	3.259	0.000	3.259
Computed Gross Additions = Sum of (B/C)	1660331	1660331	0	1660331
Avg. Prop. Surv = Tot B/ Sum of (B/C)	0.67290	0.67290	0.00000	0.67290

I/H: R2.5 I/H Life: 19.00

Calc Type: AYFR (2000.0)

% ACTUAL
\+ From Proj. Life Table ++ For ELG Vints A+E

Computed Life 19.00
For VG Vints D+C*E

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2423	Desc:	Buried Cable - Air Core

Year	Plant	Age	Weights
Total	1,117,234	19.00	21,227,799
1995	0	0.5	0
1994	0	1.5	0
1993	0	2.5	0
1992	0	3.5	0
1991	0	4.5	0
1990	0	5.5	0
1989	0	6.5	0
1988	0	7.5	0
1987	0	8.5	0
1986	0	9.5	0
1985	0	10.5	0
1984	[illegible]8,510	11.5	4,122,865
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	156,867	18.5	2,902,040
1976	152,417	19.5	2,972,132
1975	0	20.5	0
1974	0	21.5	0
1973	50,032	22.5	1,125,720
1972	42,011	23.5	987,259
1971	126,847	24.5	3,107,752
1970	99,542	25.5	2,538,321
1969	131,008	26.5	3,471,712
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2423590
Category : BCM - AIR CORE

INPVNT V1.5

Vintage Input File

Vint Year	Amount Surviving	Prop. Surviving	Realized Life	Actual Reserve	Adjust-ments	Assigned Retire-ments
1995	0	0.000000	0.00000			
1994	0	0.000000	0.00000			
1993	0	0.000000	0.00000			
1992	0	0.000000	0.00000			
1991	0	0.000000	0.00000			
1990	0	0.000000	0.00000			
1989	0	0.000000	0.00000			
1988	0	0.000000	0.00000			
1987	0	0.000000	0.00000			
1986	0	0.000000	0.00000			
1985	0	0.000000	0.00000			
1984	358510	0.973635	11.31679			
1983	0	0.000000	0.00000			
1982	0	0.000000	0.00000			
1981	0	0.000000	0.00000			
1980	0	0.000000	0.00000			
1979	0	0.000000	0.00000			
1978	0	0.000000	0.00000			
1977	156867	0.849093	17.20582			
1976	152417	0.815333	17.87956			
1975	0	0.000000	0.00000			
1974	0	0.000000	0.00000			
1973	50032	0.675024	19.47147			
1972	42011	0.613132	19.81467			
1971	126847	0.544136	20.04978			
1970	99542	0.469914	20.18231			
1969	131008	0.393605	20.23559			

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2423	Description:	Buried Cable - Air Core

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	901,950	0	0	0	901,950
1994	901,950	0	0	0	901,950
1993	901,950	0	0	0	901,950
1992	914,741	0	12,791	0	901,950
1991	919,897	0	4,314	(842)	914,741
1990	943,960	0	24,063	0	919,897
1989	1,016,922	0	72,985	23	943,960
1988	1,118,003	0	101,081	0	1,016,922
1987	1,206,064	0	88,061	0	1,118,003
1986	1,280,480	0	72,804	(1,612)	1,206,064
1985	1,286,18[illegible]	0	5,700	0	1,280,480
1984	1,003,7[illegible]	317,301	34,842	0	1,286,180
1983	1,018,29[illegible]	0	14,579	0	1,003,720
1982	1,027,264	0	8,966	0	1,018,298
1981	1,050,866	0	23,602	0	1,027,264
1980	1,065,232	0	14,367	0	1,050,866
1979	1,075,505	0	10,273	0	1,065,232
1978	1,085,039	0	9,534	0	1,075,505
1977	930,383	158,156	3,500	0	1,085,039
1976	776,727	160,033	6,377	0	930,383
1975	778,588	0	1,860	0	776,727
1974	779,375	0	788	0	778,588
1973	718,997	63,451	3,072	0	779,375
1972	663,133	58,657	2,793	0	718,997
1971	465,373	199,564	1,805	0	663,133
1970	284,935	181,340	902	0	465,373
1969	0	284,935	0	0	284,935
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2423	Description:	Buried Cable - Air Core Drop

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	215,286	0	0	0	215.286
1994	215,286	0	0	0	215,286
1993	215,286	0	0	0	215,286
1992	215,286	0	0	0	215,286
1991	215,286	0	0	0	215,286
1990	215,286	0	0	0	215,286
1989	215,286	0	0	0	215,286
1988	215,286	0	0	0	215,286
1987	215,286	0	0	0	215,286
1986	215,286	0	0	0	215,286
1985	216,244	0	958	0	215,286
1984	168,[illegible]	53,348	5,858	0	216,244
1983	171,2[illegible]	0	2,451	0	168,754
1982	172,713	0	1,507	0	171,205
1981	176,681	0	3,968	0	172,713
1980	179,096	0	2,415	0	176,681
1979	180,824	0	1,727	0	179,096
1978	182,427	0	1,603	0	180,824
1977	156,424	26,591	589	0	182,427
1976	130,590	26,906	1,072	0	156,424
1975	130,903	0	313	0	130,590
1974	131,036	0	132	0	130,903
1973	120,884	10,668	517	0	131,036
1972	111,492	9,862	470	0	120,884
1971	78,243	33,553	303	0	111,492
1970	47,906	30,489	152	0	78,243
1969	0	47,906	0	0	47,906
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2423	Desc:	Buried Cable - Air Core

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	766,171	48,041	0	0	0	0	814,212
1994	718,130	48,041	0	0	0	0	766,171
1993	668,083	48,087	0	0	51	2,011	718,130
1992	588,076	91,441	11,439	5	0	0	668,083
1991	499,803	92,647	4,299	0	75	0	588,076
1990	431,041	94,043	25,852	2,735	2,164	0	499,803
1989	387,678	117,261	72,986	2,671	3,583	0	431,041
1988	0	0	0	0	0	387,678	387,678
1987	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2423	Desc:	Buried Cable - Air Core Drop

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	163,135	0	0	0	0	0	163,135
1994	163,135	0	0	0	0	0	163,135
1993	163,135	0	0	0	0	0	163,135
1992	142,832	21,654	1,351	0	0	0	163,135
1991	121,088	21,744	0	0	0	0	142,832
1990	99,524	21,564	0	0	0	0	121,088
1989	88,770	10,754	0	0	0	0	99,524
1988	0	0	0	0	0	88,770	88,770
1987	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study

Account #:	2423-290	Description:	Buried Cable - Fiber

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	799,065	799,065	0
Percent of Total Regulated Investment	9.65%	9.65%	0.00%
Selected Iowa type curve	NA	NA	NA
Projected Life	20.00	20.00	0.00
Average Service Life	20.00	20.00	0.00
Average Remaining Life	20.00	20.00	0.00
Average Net Salvage	0.00%	0.00%	0.00%
Future Net Salvage	0.00%	0.00%	0.00%
Depreciation Reserve @ 12/31/95	254,694	254,694	0
Depreciation Reserve Ratio	31.87%	31.87%	0.00%
Net Plant Balance @ 12/31/95	544,371	544,371	0
Net Plant Ratio	68.13%	68.13%	0.00%
Depreciation Rate	5.00%	5.00%	0.00%
Depreciation Expense	39,953	39,953	0

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2423	Desc:	Buried Cable - Fiber

Year	Plant	Age	Weights
Total	799,065	6.41	5,121,971
1995	7,140	0.5	3,570
1994	0	1.5	0
1993	0	2.5	0
1992	9,704	3.5	33,964
1991	0	4.5	0
1990	0	5.5	0
1989	782,221	6.5	5,084,437
1988	0	7.5	0
1987	0	8.5	0
1986	0	9.5	0
1985	0	10.5	0
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	0	22.5	0
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Study Year : 1996
Study Code : S
Study : 1996 DEP RATE STUDY

Company : FRONTIER OF SOUTH, FL
State : FLORIDA
Account : 2423290
Category : BURIED FIBER CABLE

INPVNT V1.5

Vintage Input File

Vint Year	Amount Surviving	Prop. Surviving	Realized Life	Actual Reserve	Adjust-ments	Assigned Retire-ments
1995	7140	1.000000	0.50000			
1994	0	0.000000	0.00000			
1993	0	0.000000	0.00000			
1992	9704	1.000000	3.50000			
1991	0	0.000000	0.00000			
1990	0	0.000000	0.00000			
1989	782221	0.996840	6.49210			

Frontier Communications of the South, Inc. - Florida

Plant In Service Activity

Acct:	2423	Description:	Buried Cable - Fiber

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	791,925	7,140	0	0	79[illegible],065
1994	791,925	0	0	0	791,925
1993	791,925	0	0	0	791,925
1992	784,701	9,704	2,480	0	791,925
1991	784,701	0	0	0	784,701
1990	784,701	0	0	0	784,701
1989	0	784,701	0	0	784,701
1988	0	0	0	0	0
1987	0	0	0	0	0
1986	0	0	0	0	0
1985	0	0	0	0	0
1984	0	0	0	0	0
1983	0	0	0	0	0
1982	0	0	0	0	0
1981	0	0	0	0	0
1980	0	0	0	0	0
1979	0	0	0	0	0
1978	0	0	0	0	0
1977	0	0	0	0	0
1976	0	0	0	0	0
1975	0	0	0	0	0
1974	0	0	0	0	0
1973	0	0	0	0	0
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

Frontier Communications of the South, Inc. - Florida

Depreciation Reserve Activity

Acct:	2423	Desc:	Buried Cable - Fiber

Year	Beg. Bal.	Accrual	Rets	Salvage	COR	Adjustments	End. Bal.
1995	213,538	41,156	0	0	0	0	254,694
1994	173,942	39,596	0	0	0	0	213,538
1993	134,361	39,581	0	0	0	0	173,942
1992	87,765	39,396	2,480	9,680	0	0	134,361
1991	48,530	39,235	0	0	0	0	87,765
1990	9,295	39,235	0	0	0	0	48,530
1989	0	9,295	0	0	0	0	9,295
1988	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0

Account Summary

Company:	FC of the South - Florida	Study:	1996 Depreciation Rate Study

Account #:	2441-090	Description:	Conduit Systems

Description	Proposed	Current	Change
Plant in Service @ 12/31/95	1,709	1,709	0
Percent of Total Regulated Investment	0.02%	0.02%	0.00%
Selected Iowa type curve	R4.0	R4.0	No
Projected Life	55.00	55.00	0.00
Average Service Life	55.00	55.00	0.00
Average Remaining Life	34.01	37.00	-2.99
Average Net Salvage	0.00%	0.00%	0.00%
Future Net Salvage	0.00%	0.00%	0.00%
Depreciation Reserve @ 12/31/95	740	740	0
Depreciation Reserve Ratio	43.29%	43.29%	0.00%
Net Plant Balance @ 12/31/95	969	969	0
Net Plant Ratio	56.71%	56.71%	0.00%
Depreciation Rate	**1.67%**	**1.67%**	**0.00%**
Depreciation Expense	29	29	0

Frontier Communications of the South, Inc. - Florida

Average Age Calculations

Account #:	2441	Desc:	Conduit Systems

Year	Plant	Age	Weights
Total	1,709	22.50	38,453
1995	0	0.5	0
1994	0	1.5	0
1993	0	2.5	0
1992	0	3.5	0
1991	0	4.5	0
1990	0	5.5	0
1989	0	6.5	0
1988	0	7.5	0
1987	0	8.5	0
1986	0	9.5	0
1985	0	10.5	0
1984	0	11.5	0
1983	0	12.5	0
1982	0	13.5	0
1981	0	14.5	0
1980	0	15.5	0
1979	0	16.5	0
1978	0	17.5	0
1977	0	18.5	0
1976	0	19.5	0
1975	0	20.5	0
1974	0	21.5	0
1973	1,709	22.5	38,453
1972	0	23.5	0
1971	0	24.5	0
1970	0	25.5	0
1969	0	26.5	0
1968	0	27.5	0
1967	0	28.5	0
1966	0	29.5	0
1965	0	30.5	0
1964	0	31.5	0
1963	0	32.5	0
1962	0	33.5	0
1961	0	34.5	0

Frontier Communications of the South, Inc. - Florida

Plant in Service Activity

Acct:	2441	Description:	Conduit Systems

Year	Beg. Bal.	Additions	Retirements	Adjustments	End. Bal.
1995	1,709	0	0	0	1,709
1994	1,709	0	0	0	1,709
1993	1,709	0	0	0	1,709
1992	1,709	0	0	0	1,709
1991	1,709	0	0	0	1,709
1990	1,709	0	0	0	1,709
1989	1,709	0	0	0	1,709
1988	1,709	0	0	0	1,709
1987	1,709	0	0	0	1,709
1986	1,709	0	0	0	1,709
1985	1,709	0	0	0	1,709
1984	1,7[illegible]	0	0	0	1,709
1983	1,7[illegible]	0	0	0	1,709
1982	1,709	0	0	0	1,709
1981	1,709	0	0	0	1,709
1980	1,709	0	0	0	1,709
1979	1,709	0	0	0	1,709
1978	1,709	0	0	0	1,709
1977	1,709	0	0	0	1,709
1976	1,709	0	0	0	1,709
1975	1,709	0	0	0	1,709
1974	1,709	0	0	0	1,709
1973	0	1,709	0	0	1,709
1972	0	0	0	0	0
1971	0	0	0	0	0
1970	0	0	0	0	0
1969	0	0	0	0	0
1968	0	0	0	0	0
1967	0	0	0	0	0
1966	0	0	0	0	0
1965	0	0	0	0	0
1964	0	0	0	0	0
1963	0	0	0	0	0
1962	0	0	0	0	0
1961	0	0	0	0	0
1960	0	0	0	0	0

LAWRENCE K. VANSTON

RAY L. HODGES

Depreciation Lives for Telecommunications Equipment:

Review & Update

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Ray L. Hodges

Technology Futures, Inc.

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Attachments

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Depreciation Lives for Telecommunications Equipment:

Review & Update

Local exchange carriers (LECs) have over $250 billion invested in their networks. Over 80% of this investment falls into three categories—outside plant, circuit, and switching. In each category, tremendous changes are underway which are obsoleting the bulk of existing investment and making necessary large amounts of new investment. Since telephone equipment has traditionally been assigned long depreciation lives, these changes mean that existing equipment will be obsolete, and likely out of service, well before existing investment has been recovered under current regulatory depreciation schedules. This report reviews our assessment of the situation and our recommendations for LEC depreciation lives.

Drivers for Change

There are three highly-interrelated drivers that are driving change in telecommunications: technology, competition, and new services. None of these are fully accounted for in the traditional approach to regulatory depreciation. This section briefly reviews these drivers and how they reinforce each other.

Technology Advance

Advances in technology are providing more efficient and functional ways of offering traditional telephone services, as well as wireless services, video services, and new digital communications. Four of the key technologies are:

- Fiber in the loop (FITL), including any architecture that extends fiber into the distribution portion of the local loop. The last link to the customer may be on fiber, copper pairs, coaxial cable, or wireless.

> There are a number of architectures that are under consideration or are being planned. A true consensus has yet to emerge on a single FITL architecture. Continuing changes in technology costs, regulation, business relationships, market forecasts, and market share assumptions probably mean that consensus will be arrived at only gradually. Whatever architecture is chosen, it will displace the vast majority of copper investment.

- Advanced digital switching, especially Asynchronous Transfer Mode (ATM) switching.

> The next major switching generation, ATM switching, is optimized to handle all types of traffic on the network efficiently and quickly. Today's digital switches use time division multiplexing to connect continuous streams of digitized voice or data at 64 Kb/s for the duration of a call. This is efficient for low-speed, circuit-switched applications such as voice, but it is unusable or inefficient for high-speed digital applications, especially those with bursty (non-continuous) traffic characteristics. ATM switches, on the other hand, use small fixed-length packets called cells. Unlike conventional packet switches, ATM switches do not introduce significant signal delay (because of the simple cell structure) which means they can be used for continuous, real-time applications such as voice and videoconferencing. However, since ATM uses packet switching, it is also good for bursty data traffic. The ability to handle all types of traffic, at all variable data rates, not only makes ATM an efficient switch, but it is also ideal for networked multimedia applications that use all types of communications.

- Synchronous Optical Network (SONET) transmission on fiber optic systems, including Next Generation Digital Loop Carrier (NGDLC) systems incorporating SONET.

SONET is a new format for organizing information on a fiber optics channel that recognizes the need for integrating different types of traffic on the same pair of fibers. Among its many advantages are standardized optical and electrical interfaces to which all suppliers must adhere. Another is that an individual information stream on a fiber channel can be efficiently separated from the rest of the information on the channel. With a SONET add-drop multiplexer, any signal can be extracted with a single piece of equipment without breaking down the whole signal. SONET add-drop multiplexers are already cost-competitive with asynchronous equipment, and soon will be commodity items that are integrated into almost every piece of circuit (and switching) equipment. This will render redundant much existing circuit equipment, including digital crossconnects and multiplexers.

Further, with SONET, carriers can mix-and-match circuit equipment so that they can use different manufacturers' equipment. This, of course, provides operational and equipment savings, as well as more competition between manufacturers. Later on, SONET interfaces will be built directly into switches, leading to even more equipment savings. NGDLC systems will directly link to switches through SONET interfaces. From the same unit, some channels may be connected to other switches or facilities using a built-in SONET add-drop multiplexer. Circuits could be transferred from one switch to another instantaneously. This will give carriers much more flexibility when it comes [illegible] dealing with switch manufacturers. SONET will benefit customers as well as carriers. In [illegible]ion to the inherent economic benefits of a more efficient network, SONET will provide greater reliability through its support of fiber ring architectures and enhanced response time and flexibility in provisioning new channels.

- High-capacity digital wireless technologies such as Time Division Multiple Access (TDMA) and Code Division Multiple Access (CDMA).

These digital wireless technologies can multiply the capacity of existing cellular systems by a factor of from three to 10 and will also be utilized with the new personal communications systems. One implication of the increased capacity is the ability to compete more directly with wireline service.

In a nutshell, the benefits of these technologies are reduced operating costs, reduced capital costs, better service, or, in some cases, new services. The technologies are all well-understood and do not require scientific, engineering, or economic breakthroughs to be deployed. There is widespread agreement about their benefits and cost targets. While there is some controversy about the details and timing, there is consensus that the future of telecommunications is built around these technologies.

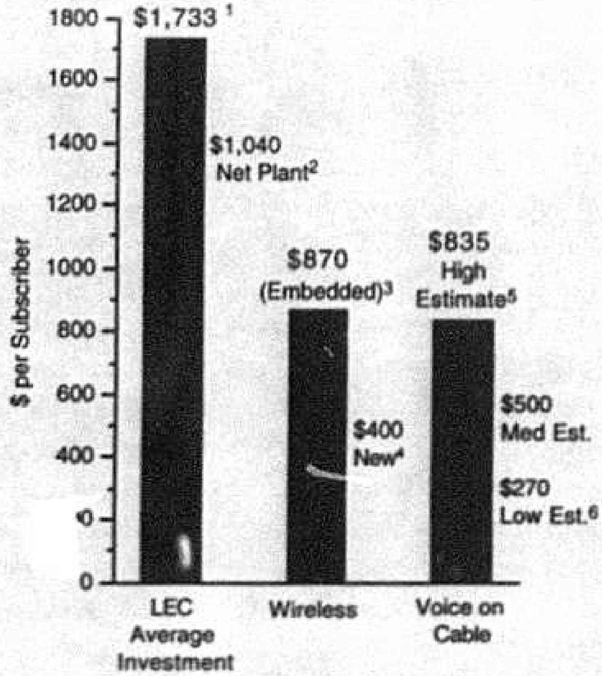
Competition

Competition has entered the local exchange business, and it will increase dramatically over the next few years. So far, most local exchange competition has centered on the large business customer. Competitive access providers (CAPs) are already serving large businesses in concentrated areas, and cable television companies are providing alternative access for high-bandwidth services. CAPs are installing the latest, most efficient technology—fiber optics, SONET, and, in cities/locations where they provide switched services, modern digital switching.

The next competitive arena will be the mass market for voice services. Such competition has already begun in public phones and, in some states, in intra-LATA long distance. Two additional, more pervasive sources of competition are cable television networks and wireless networks, specifically cellular and personal communications services (PCS). Technologies are emerging that will allow voice to be added to state-of-the-art cable systems at a cost that is less than on copper pairs. On a per-subscriber basis, cellular technologies are already less costly than wireline. With the new high-capacity digital wireless technologies, such as TDMA and especially CDMA, wireless technologi[illegible] ill also be less costly on a per-minute of use basis. Exhibit 1 illustrates some c[illegible]se cost comparisons.

Because they are more efficient, the new technologies offer very substantial cost advantages to new entrants in local telecommunications. These new entrants can invest in the most efficient modern equipment without regard to an embedded infrastructure such as the LECs have. This, in turn, will pressure LECs to adopt new technology quickly in order to stay competitive. Thus, competition reinforces the technology drivers and magnifies the obsolescence of the old technology.

Exhibit 1
Investment Per Subscriber



Source: USTA Engineering Subcommittee on Depreciation

[1] Industry investment of $260 billion and 150 million access lines at year-end 1993.
[2] Net plant assumes 40% depreciation reserve (industry average at year-end 1993).
[3] Total wireless industry investment divided by number of customers (source: CTIA, year-end 1993).
[4] Annual wireless industry investment increase divided by customers gained (source: CTIA, year-end 1993).
[5] Estimate by Hatfield Associates, Inc. in a 1994 study for MCI, Alternative Distribution and Access Technologies. Includes land and buildings, switch, network interface unit, backhaul, and customer connection (similar to fee paid by cellular to sales agent, $320).
[6] Estimate by David P. Reed in "The Prospects for Competition in the Subscriber Loop: The Fiber-to-the-Neighborhood Approach," presented at the 21st Annual Telecommunications Research Policy Conference (September 1993). It represents costs allocated to telephony for upgrading a cable system for interactive TV and telephony.

New Services

The third driver is the impending emergence of digital communications services for the mass market. These services will support both television and computer-based applications requiring digitized transmission of text, audio, and still and moving images. The applications for these services include advanced fax, computer-based imaging, LAN interconnection, videoconferencing, interactive multimedia, video on demand, and interactive television. Today, the market for digital communications services for these applications is relatively small; however, the potential for growth is tremendous, especially when these services are extended beyond large business customers.

Ultimately, the telephone network will provide full broadband, multimedia communications services based on three of the technologies we have mentioned: fiber optics, SONET transmission, and ATM switching. Along the way, intermediate steps will include narrowband Integrated Services Digital Network (ISDN) and video on demand services. Since some of the new services blur the traditional distinctions between telephony, television, publishing, information systems, and computing, they foster a new type of competition focused on the convergence of these industries. In this environment, competitive advantages belong to those companies that can deliver a package of diverse services for the least cost. As it happens, the new tec nologies al delivery of multiple services at overall costs that are comparable or less tha e traditional delivery mechanisms for the individual services.

Impacts on Depreciation Lives

Alone, any one of these drivers would cause significant change in the deployment of technology. Together, they are forcing unprecedented change that is rendering most of today's telephone network obsolete. Although satisfactory for voice services, today's network is expensive to operate and offers limited functionality in terms of mobility and digital services. It was optimized and constructed for the age of electromechanical and analog switching and copper cable, an age which for a decade has been giving way to digital switching and fiber optics. Much of the equipment placed in the last decade is becoming obsolete in the face of new technologies such as SONET and ATM. Thus, if LECs are to remain viable, they must rebuild their networks—sooner rather than later. This necessitates continued, massive investment in new technology that requires much shorter lives for existing investment than are currently prescribed by regulators.

Weaknesses in Regulatory Depreciation Methods

The traditional method for estimating depreciation lives is to examine mortality data for older vintages and assume that all vintages will experience the same age-dependent characteristics. For example, if 60% of the units of a particular technology installed in 1983 were still in service in 1989 (six years later), we would assume that 60% of the units installed in 1990 would still be in service in 1996 (again, six years later). (This greatly over-simplifies, but captures the basic idea.) The assumption of age-dependent retirements reflects a situation where wear-out or breakdown drives the replacement process. Under this model, new technology (or perhaps a new unit of old technology) replaces old technology only when the old technology wears out or breaks. This is an accurate model for some situations; for example, it reflects the way most companies replace motor vehicles.

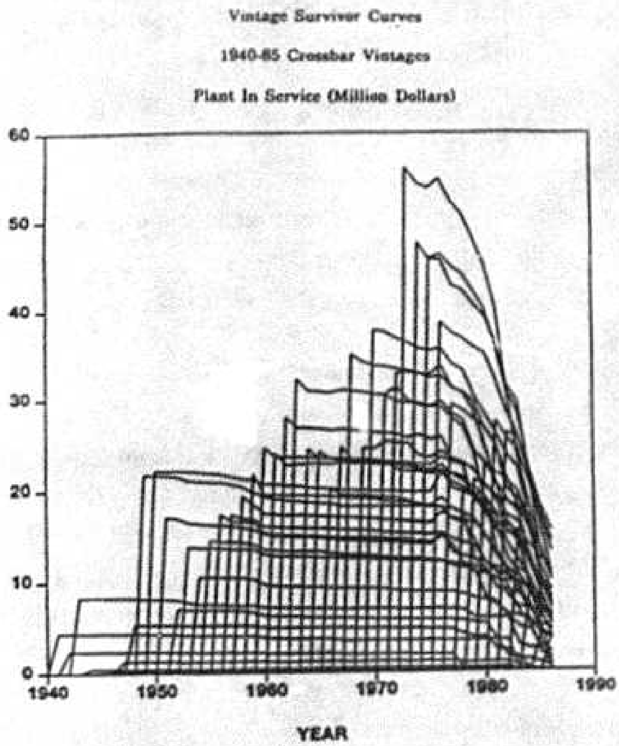
Today, however, technological obsolescence is a major cause of retirements in telecommunications for switching and circuit equipment, and is also expected to be for outside plant in the near future. (Other drivers—competition and new services—are largely reflected in this driver.) Mortality analysis alone is not appropriate in such a situation. This is made clear in Exhibit 2, which plots the vintage survivor curves for crossbar switching. These are similar to normal survivor curves except that a separate investment life cycle is shown for each vintage of equipment. Note the "avalanche effect" between 1975 and 1980. During this period, all vintages experienced sudden and simultaneous retirements, as electronic switching was rapidly adopted.

One can also see from the avalanche curves that, when technological obsolescence is the major driver for retirements, there is no such thing as a constant service life. Equipment purchased late in a technology generation will have a much shorter life than a piece of equipment purchased earlier. Further, the expected service life of equipment purchased late in the cycle is roughly the same as the average remaining life of existing equipment. These observations are contrary to mortality-based depreciation, but they reflect reality.

Most important, until the avalanche begins, life estimates for the old technology using mortality-based analysis will be based on an extension of the pre-avalanche trend and, thus, will be way too long. Not only will the life estimates be wrong, but they will be wrong right up to the moment the avalanche begins. To use a different metaphor, this is like paddling a rowboat without ever looking forward. You are over the falls before you know anything is wrong!

Exhibit 2

Avalanche Curves



Source: Bellcore

The original replacement technology for crossbar switching was analog stored program control (ASPC) switching, first introduced in the mid-to-late 1960s. Note that the avalanche of crossbar retirements begins in about 1975, more than five years after the introduction of the new technology.

Also note that very large amounts of investment were made in the old technology very late in its life cycle, even after the new technology was available. Although this behavior may seem odd, it is typical of many technologies and can often be perfectly rational. (For example, millions of 486 personal computers have been sold since the introduction of the replacement technology, the Pentium.) It can result from several factors:

(1) The need to maintain existing equipment and service levels.

(2) Restrictions on the availability of the new technology.

(3) High relative costs for the new technology early in its life cycle.

(4) An inherent bias toward the existing technology.

However, we must keep in mind that the last purchases of old technology will have especially short lives.

An important implication of this phenomenon is that recent investment patterns in the old technology tell us little about the likely adoption of new technology, even in the near future. Purchase volumes of the new technology may be smaller than those of the old technology almost to the time the avalanche begins.

Using Technology Forecasting to Estimate Depreciation Lives

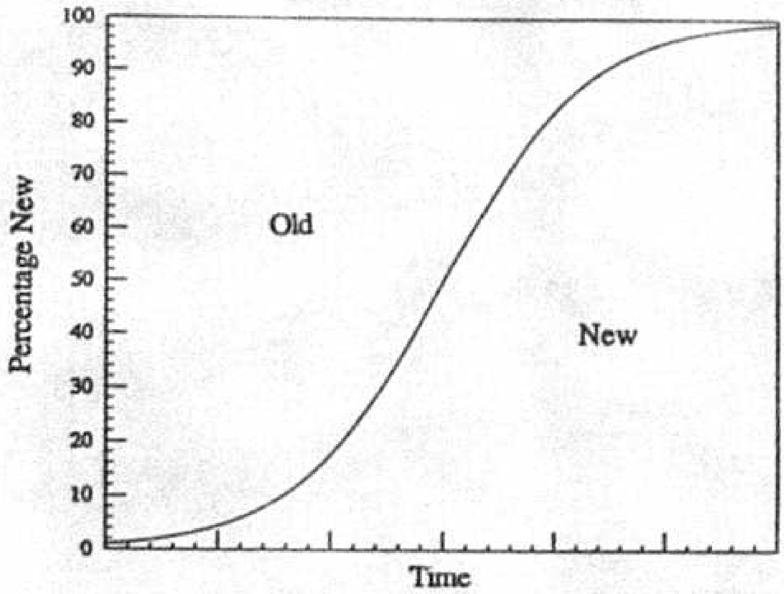
Fortunately, there are reliable methods that allow us to forecast future technology changes and, thus, depreciation lives. Developed and tested over many years in telecommunications and other industries, these methods have proven to be very reliable for forecasting. Their basis lies in an understanding of the process of technology change and the use of available data to produce quantitative forecasts.

One technology forecasting method, substitution analysis, has been proven effective in projecting the adoption of new technologies and the obsolescence of old technologies. Substitution refers to the displacement of an established technology by a newer technology when the new technology provides substantially improved capabilities, performance, or economies. With substitution, technological superiority of the new technology—not wear-out—is the driver for replacement.

With substitution analysis, we examine patterns of technology substitution. The pattern is remarkably consistent from one substitution to another, and is characterized by an S-shaped curve when the market share of the new technology is plotted over time. Exhibit 3 shows the S-shaped curve for the Fisher-Pry model. Of the several substitution models available, in general, we have found the Fisher-Pry model—and its extensions, notably, multiple substitution models based on the same principles—to be the most useful for forecasting. The adoption of a new technology starts slowly because, when it is first introduced, a new technology is usually expensive, unfamiliar, and imperfect. The old technology, on the other hand, has economies of scale and is well-known and mature. As the new technology improves, it finds more and more applications, it achieves economies of scale and other economic efficiencies, and it becomes generally recognized as superior. The old technology, because of its inherent limitations and falling market share, cannot keep up. The result is a period of rapid adoption of the new technology, beginning at the 10% to 20% penetration level. This corresponds with a period of rapid abandonment of the old technology, i.e., the avalanche. Toward the end of the substitution, adoption of the new technology slows down again as the last strongholds of the old technology are penetrated.

Since the pattern of how a new technology replaces an old one is consistent, we can apply the pattern to a technology substitution in progress, or one just beginning, to forecast the remainder of the substitution and estimate the end date for the old technology. We can apply substitution analysis even in cases where the substitution has yet to begin by using appropriate analogies, precursor trends, or evaluation of the driving forces. More information on the Fisher-Pry model and its application is provided in Attachment 1.

Exhibit 3
The Fisher-Pry Model



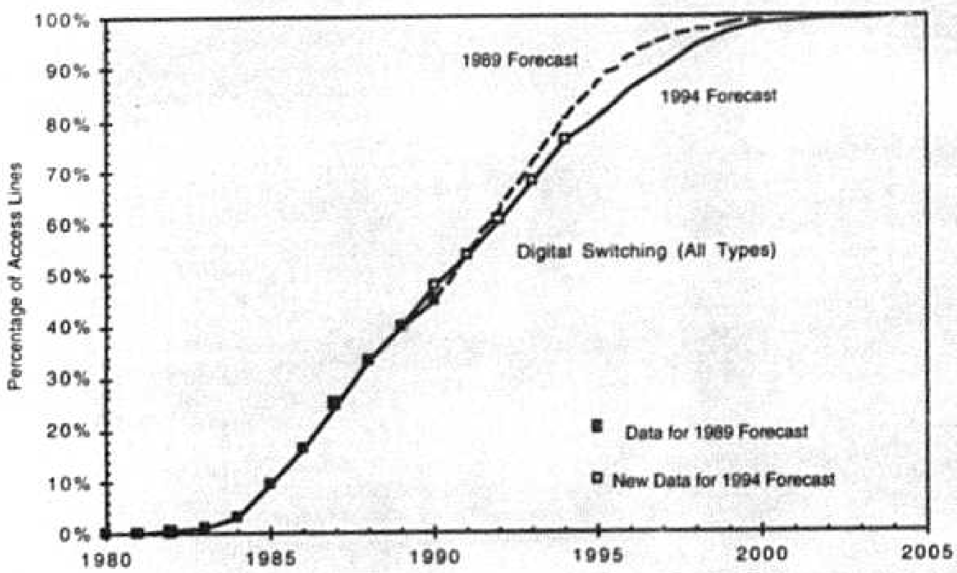
Source: Technology Futures, Inc.

Experience with the Fisher-Pry Model

Although no forecasting method is perfect, our experience with the model has been excellent. Occasionally, we compare prior forecasts with subsequent data and new forecasts. These comparisons demonstrate the accuracy of the model within reasonable tolerances.

An example is a forecast that Technology Futures, Inc. (TFI) prepared in 1989 for the substitution of digital switching for analog switching by major LECs. Exhibit 4 shows the 1989 forecast, and the solid markers show the data available for the forecast. The actual data for subsequent years, shown by the hollow markers, traces the 1989 forecast within about 10%, and almost exactly matches the projected end date. Our earlier forecasts, dating back to the mid-1980s, were less perfect regarding the year-by-year pattern, but accurately forecast the end-date for analog switching to be between 1997 and 2001. This was at a time when many experts thought there would be no retirements at all of analog ESS switches before 2000!

Exhibit 4
Comparison to 1989 Digital Switching Forecast



Source: Technology Futures, Inc.

Comparison of Mortality Analysis and Substitution Analysis

Substitution analysis provides better indicators of lives than mortality-based methods because substitution analysis recognizes that technological obsolescence is the major driver for retirements. As previously noted, analysis of recent retirement and investment data could not have predicted the rapid retirements of electromechanical switches between 1975 and 1980 (the avalanche shown in Exhibit 2). Using historical data, a substitution analysis performed as early as 1970 would have predicted the avalanche. This is because substitution analysis recognizes the early adoptions of the new technology, in this case analog SPC switches, years before significant quantities of the old technology are retired—and even when large investments in the old technology are still being placed. The early adoptions, corresponding to the first, relatively flat part of the S-shaped substitution curve, are often for growth applications that do not cause significant retirements.

However, they are a *precursor* for later replacement programs that do result in retirements. This is one reason why substitution analysis can predict the edge of the waterfall. The steep part of the S-shaped curve, where new technology is placed very rapidly, corresponds to the avalanche of retirements.

The example shown in Exhibit 4 again illustrates the power of technology forecasting. Substitution analyses done in the mid-to-late 1980s predicted the avalanche that is burying the analog ESS accounts of the major LECs today.

Another important point is that substitution analysis measures technology in terms of physical units in use. For example, we forecast access lines in service or equivalent circuits in service. Beside measuring in physical units rather than dollars, substitution analysis reflects whether a unit of investment is useful as opposed to whether it is retired. On fundamental principles, usefulness is the better depreciation measure because it reflects the productive value of an asset. Also, because of the potential lag between the end of an asset's useful life and its retirement, retirements are typically a late indicator of major changes in an account. Following the avalanche curves, obsolescence-based retirements show up only after the story is almost over. Measuring units in use, on the other hand, provides a leading indicator.

Why Using Technology Forecasting for Life Estimation Is So Important Now

Throughout the history of telephony, technology advance has caused the replacement of old technology, as evidenced by previous avalanche curves and S-shaped substitution curves. However, there are several things that make things different now. First, we are in a period where rapid advances in microelectronics and fiber optics technology are reshaping telecommunications economics at an unprecedented pace. Second, these changes are impacting all parts of the network simultaneously, leading rapidly to a broadband network architecture that is fundamentally different than today's. Third, there are two other drivers, competition and new services, that reinforce the already strong technology driver. The result will be simultaneous avalanche curves occurring in all major investment categories during the late 1990s and early 2000s.

Historically, avalanche curves have been recognized by the regulatory depreciation process after the fact since traditional depreciation analysis provides no way to predict them. Since avalanches usually reflect retirements that occur before the end of the equipment's prescribed depreciation life, they create depreciation reserve deficiencies. In the past, these reserve deficiencies have been recovered by amortizations over future years. This approach worked satisfactorily in the days when avalanches were the exception rather than the rule, and when the monopoly structure of the industry allowed reserve deficiencies to be recovered from future ratepayers. However, in the new environment, this approach is less likely to work. Capital must be recovered while the investment is still useful—before it is retired. The competitive environment will not allow LECs to recover investment in both old and new technologies simultaneously. This means that lives must be accurately estimated as early as possible—before the avalanche begins, and even before explicit replacement programs are in place. This is why using technology forecasting to predict depreciation lives is so important.

TFI Telecommunications Technology Forecasting Studies

Technology Futures has been applying technology forecasting to the telecommunications industry since 1984. Much of our telecommunications work has been supported by the Telecommunications Technology Forecasting Group (TTFG), an industry association of major LECs in the United States and Canada which was formed in 1985. The mission of the TTFG is to promote the understanding and use of technology forecasting techniques, economic evaluators, and engineering models to predict and support the continued evolution of the telecommunications network. Under TTFG sponsorship, TFI has produced numerous major studies on telecommunications technology adoption in a span of 10 years, long enough to establish a track record. The list is shown in Attachment 2.

The TFI studies fall into three general categories. First is a series of industry studies on the adoption of new technology in the telephone network. We started doing these studies in 1985 and have issued updates over the years. The most recent report, *Transforming the Local Exchange Network: Analyses and Forecasts of Technology Change*, was issued in 1994 and covers switching equipment, outside plant, and circuit equipment. These studies provide quantitative forecasts of the adoption of new technology—and the replacement of old technology—in future years.

Second is a set of seven studies completed between 1991 and 1993 on the need for and adoption of new digital telecommunications services. In these studies, we assessed the drivers and benefits, as well as the constraints, of new services to provide applications such as advanced fax, electronic imaging, interactive multimedia, local area network interconnection, videoconferencing, and interactive television. We concluded that there is a potential mass market for these applications, and that the widespread availability of digital services is required to serve them. We then developed quantitative forecasts of demand over time for digital services at various data rates. The results of the studies were summarized in our 1993 report *New Telecommunications Services and the Public Telephone Network.*

Third are several studies on the effect of competition on the existing investment in the local exchange network. These studies quantify the revenue losses in voice services that are likely due to competitors using technologies that make obsolescent today's copper network. The most recent is our 1995 report, *Wireless and Cable Voice Services: Forecasts and Competitive Impacts.*

A unifying conclusion from these studies is that regulatory depreciation lives are much too long, especially given the climate of rapid change we are entering.

Life Estimates for Telecom Equipment

The remainder of this report reviews the TFI industry forecasts for the major categories of LEC network equipment: outside plant, circuit, and switching. Since the same basic drivers are present across the nation (technology advance, competition, and the need for new services), the industry perspective is generally applicable to individual companies. The forecasts are detailed in *Transforming the Local Exchange Network.* The estimated average remaining lives (ARLs) reported herein have been updated to January 1, 1995 from the January 1, 1994 values that were reported in the referenced document. Tabular data for the forecasts are provided in Attachment 3.

Metallic Cable

The outside plant is traditionally split into underground, buried, and aerial accounts. From the viewpoint of cable placement and wear-out, this is a logical categorization; but when technological obsolescence is the driver for change, the categorization is less useful. In applying technology forecasting, we have, instead, distinguished between interoffice, feeder, and distribution plant, which are spread among the three traditional accounts.[1] We chose this approach because technology is being adopted differently and at different times in the interoffice, feeder, and distribution parts of the exchange network.[2] Also, some of the driving forces of change are different.

Outside Plant—Interoffice Cable

At year-end 1993, the interoffice plant was 96% digital and 74% fiber, as measured by circuits in use.[3],[4] Thus, there is relatively little metallic investment still being used in the interoffice environment. Almost all new investment is fiber and the metallic carrier share has declined steadily. Exhibit 5 shows the technology shares over time. Our forecasts indicate that, for the industry, the interoffice network will be almost 100% fiber by 2000.

Our forecast for the adoption of fiber, and the displacement of non-fiber facilities, is based on a multiple substitution analysis of historical data through year-end 1993 and planning data through year-end 1995.[5] For interoffice copper, the analysis indicates an ARL of 2.9 years as of 1/1/95.[6]

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[1] *Interoffice* facilities connect telephone company central offices (where the switches are located) with each other. *Feeder* facilities are cables that extend from a central office toward the neighborhoods and business areas served by the central office. A typical feeder cable usually serves a large number of customers. The *distribution* network extends from the termination of the feeder facilities to residences and businesses.

[2] For example, most interoffice facilities today are fiber optic systems, while most feeder facilities are provided on copper cables. However, the use of fiber optics in the feeder network is growing rapidly. In the distribution network, copper cable is by far the most common technology, although fiber optic systems are beginning to be adopted.

[3] To be more precise, our units are "equivalent voice-frequency circuits in use," although we usually just refer to them as "circuits." For example, a voice frequency copper circuit on two or four wires counts as one circuit. Each voice frequency equivalent circuit in use on a carrier system is counted as one circuit. Both switched and dedicated circuits are included. For data services, each 64 Kb/s is considered to be equivalent to one circuit. Thus, a leased DS1 line (1.544 Mb/s) is counted as 24 circuits.

[4] *Source*: Year-end 1993 ARMIS data reported to the FCC.

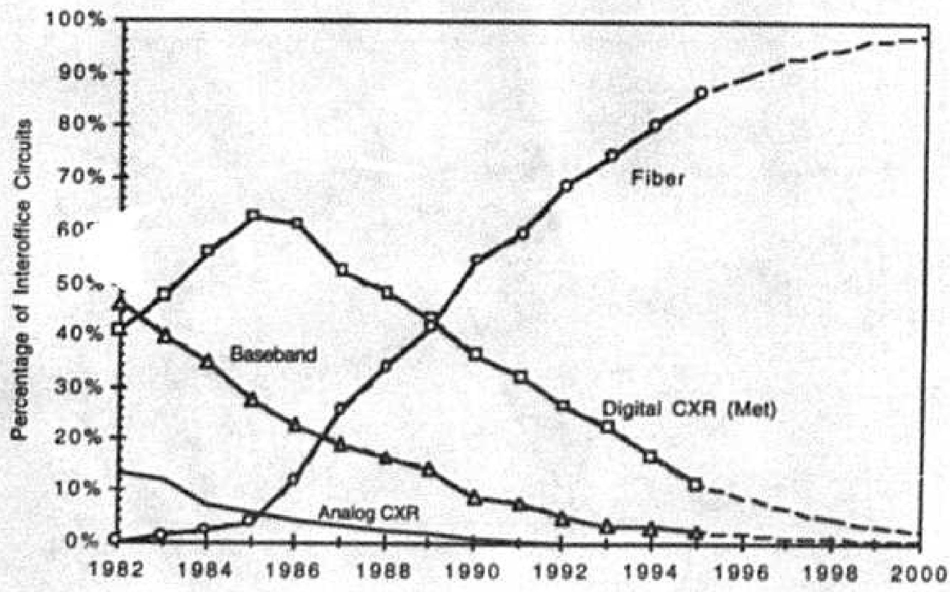
[5] The historical data for 1980-1989 is from TFI files, the historical data for 1990-1993 is from ARMIS reports filed with the FCC, and the planning data for 1994-1995 is the weighted average from the seven LECs (representing over 90 million working access lines in 1993) that provided us planning data. (We used the planning data in our forecast because we have generally found that the first several years of planning data is reliable and improves mid- to long-range forecasts.)

[6] See Table 3.1 in Attachment 3 for ARL computations.

Outside Plant—Feeder Cable

In the feeder plant, Digital Loop Carrier (DLC) systems have been reducing the need for copper pairs for many years. Both metallic-based and fiber-based DLC systems have been adopted, although fiber DLC systems are beginning to dominate in the industry. The replacement of both voice frequency copper cable and metallic-based DLC systems by fiber optic systems characterize future technology change in the feeder plant.

Exhibit 5
Interoffice Technology Shares



Source: Technology Futures, Inc.

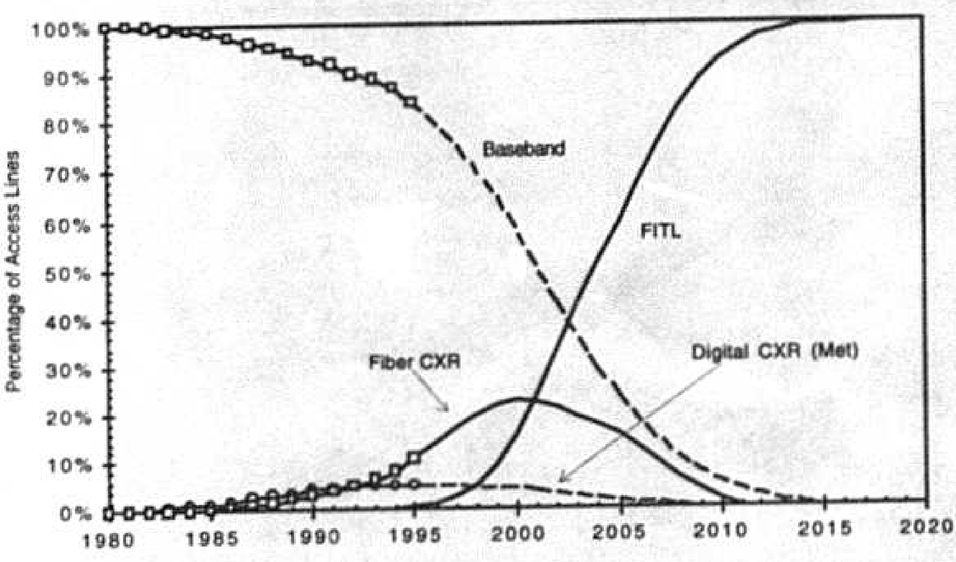
Exhibit 6 shows the percentage of access lines served by each of the major technology types for the industry. The forecast is based on a multiple substitution analysis of historical and planning data, shown by the markers.[7] Between 1995

[7] The historical data for 1980-1989 is from TFI files, the historical data for 1990-1993 is from ARMIS reports filed with the FCC, and the planning data for 1994-1995 is the weighted average from the eight LECs (representing over 100 million working access lines in 1993) that provided us

and 2000, conventional fiber-based DLC will continue to grow, reaching a peak at about 23% of access lines by 2000. This period will also see the rapid growth of fiber in the loop (FITL) systems, which, under the industry middle scenario (discussed in the next section), are forecast to serve 15% of access lines by 2000. After 2000, FITL systems are forecast to rapidly displace all other types of feeder technologies, serving 50% of access lines by 2004, 90% by 2010, and essentially all access lines by 2015. Based on these results, an industry ARL of 7.0 to 7.8 years (as of 1/1/95) is expected for feeder metallic cable, depending on which FITL scenario is chosen.[8]

Exhibit 6

Feeder Technologies—Percentage of Access Lines



Source: Technology Futures, Inc.

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planning data. While DLC will continue to substitute for feeder copper, FITL systems will also impact feeder copper facilities in the same manner it will distribution facilities. With very few exceptions, FITL will require fiber feeder. Thus, we incorporated the FITL adoption into the feeder multiple substitution analysis.

[8] See Table 3.2 in Attachment 3 for ARL computations.

Outside Plant—Distribution Cable

We use the term FITL to refer to any architecture that extends fiber to an area of no more than several hundred customers; the last link to the customer may be on copper pairs, coaxial cable, fiber, or wireless. There are a number of architectures that are under consideration or are being planned. A true consensus has yet to emerge on a single FITL architecture. Continuing changes in technology, costs, regulation, business relationships, market forecasts, and market share assumptions probably mean consensus will be arrived at only gradually. Whatever architecture is chosen, it will displace the vast majority of copper investment.

Our analysis of distribution facilities includes three scenarios for the adoption of FITL. Each of these scenarios is based on composite forecasts of the demand for wideband and broadband digital services. The "early" scenario assumes that fiber is deployed rapidly to meet the emerging demand for new wideband services at 1.5 Mb/s or similar data rates. The "late" scenario assumes that wideband services are deployed on copper pairs using interim copper technologies such as Asymmetrical Digital Subscriber Line (ADSL) and High-speed Digital Subscriber Line (HDSL), and that fiber is not rapidly adopted until the demand for broadband services (45 Mb/s and more) emerges. The "middle" scenario is an average of the two others.

Exhibit 7 shows forecasts for the demand for wideband and broadband services from TFI's recent *New Services Study*.[9] Also shown is the required fiber deployment under the early and late scenarios, respectively. The relationship between deployment (which determines service availability) and demand is derived from a prior TFI analysis of the historical availability and adoption of four TV-based services.[10] Exhibit 8 graphically illustrates the averaging process used to obtain the middle scenario from the other two.

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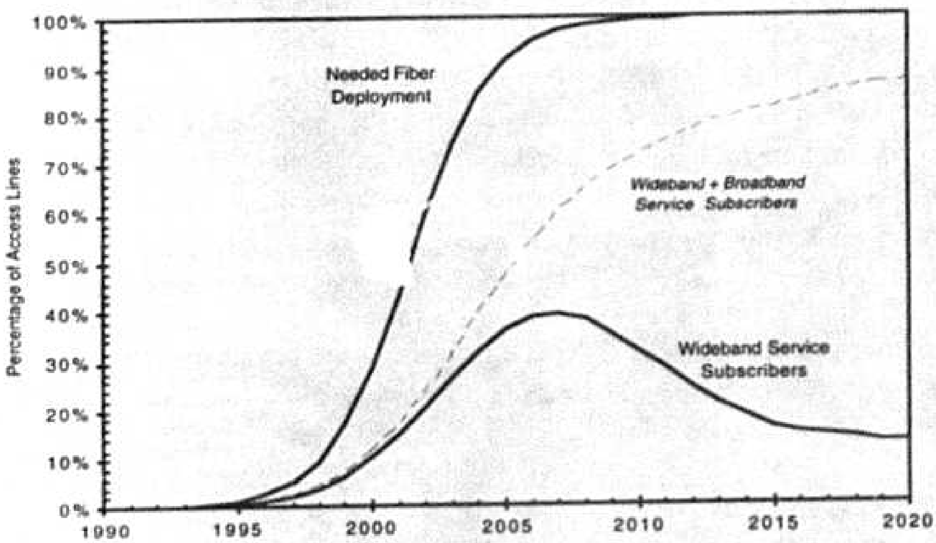
[9] L. K. Vanston, W. J. Kennedy, and S. El-Badry-Nance, *A Facsimile of the Future: Forecasts of Markets and Technologies* (1991); L. K. Vanston, S. El-Badry-Nance, W. J. Kennedy, and N. E. Lux, *Computer-Based Imaging and Telecommunications: Forecasts of Markets and Technologies* (1992); J. A. Marsh and L. K. Vanston, *Interactive Multimedia and Telecommunications: Forecasts of Markets and Technologies* (1992); B. R. Kravitz and L. K. Vanston, *Local Area Network Interconnection and Telecommunications* (1992); L. K. Vanston, J. A. Marsh, and S. M. Hinton, *Video Communications* (1992); L. K. Vanston, J. A. Marsh, and S. M. Hinton, *Telecommunications for Television/Advanced Television* (1992); and L. K. Vanston, *New Telecommunications Services and the Public Telephone Network* (1993) (Austin, TX: Technology Futures, Inc.).

[10] Vanston, Marsh, and Hinton, *Telecommunications for Television/Advanced Television*, pp. 123-144; and Vanston, *New Telecommunications Services and the Public Telephone Network*, pp. 45-52.

The middle scenario represents a balancing act for the LECs. If they over-invest in upgrading copper, they risk entering the next century with an obsolete network after having sunk large amounts of money into equipment to enhance the copper technology. On the other hand, they cannot get fiber to everyone simultaneously, and, even if they could, it might not be the best plan financially. The middle scenario avoids the two extremes, with wideband services being provided on copper in the early years, then migrating to fiber as demand increases and costs continue to fall.

Exhibit 7
Distribution Fiber to Meet New Services Demand



Source: Technology Futures, Inc.

Exhibit 7 (Continued)
Distribution Fiber for Broadband Services

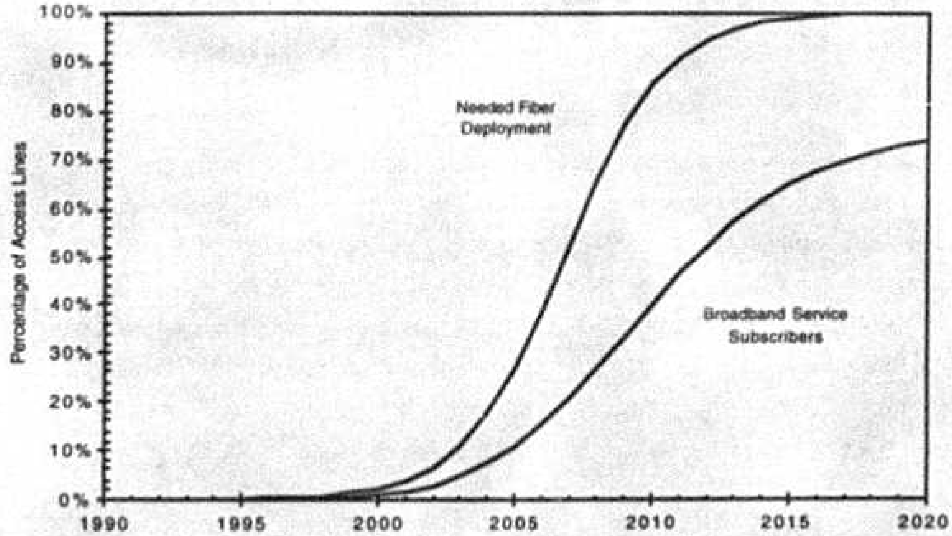
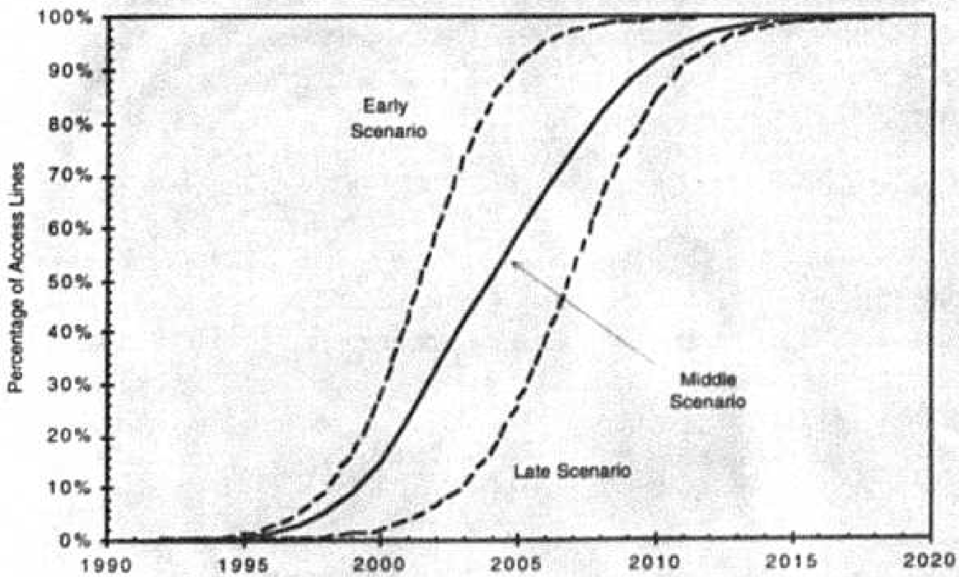


Exhibit 8
The Adoption of Distribution Fiber—Three Scenarios



Source: Technology Futures, Inc.

Adopting fiber more slowly than in the middle scenario would require too large of an investment in ADSL/HDSL and divert excessive resources away from the preferable, long-term technology—FITL. With the competition deploying more efficient technology and offering higher-quality services, this would be a dangerous course. For this reason, we believe that the middle scenario implies the maximum rational deployment of interim technologies and that the late scenario is not a reasonable choice.

However, this does not mean that the middle scenario is necessarily the best choice either. For companies that want to realistically compete in the provision of standard cable television services, as opposed to what has been called VCR-quality interactive services, the early scenario is better. Also, regardless of cable television services, many companies will adopt fiber strategies that will be much closer to the early scenario because, given the increasingly competitive nature of the industry, this is a less risky strategy. For these reasons, we believe that the likely industry FITL adoption pattern will fall between the early and middle scenarios.

The result is an industry ARL of 10.2 years (as of 1/1/95) for copper distribution facilities for the companies that adopt fiber according to the middle scenario. Companies that aggressively adopt fiber optics will experience an ARL of about 7.5 years.[11] We believe that competitive forces in the industry will tend to move the industry as a whole closer to the early scenario. These estimates do not take into account the impact of competition. TFI's 1995 competitive impact study showed that competition from wireless technologies and cable television could reduce remaining economic lives for copper cable to between two and five years, even under the average fiber adoption scenario.[12]

Metallic Cable, Composite Lives

Ignoring competition, we recommend average remaining lives of 2.9 years for interoffice copper, 7.0 to 7.8 years for copper feeder, and 7.5 to 10.2 years for distribution. About 5% of current metallic outside plant investment is in interoffice facilities, with the remainder divided equally between feeder and distribution. Thus, a composite ARL for copper outside plant should be between 7.0 and 8.7

[11] See Table 3.3 in Attachment 3 for ARL computations.

[12] L. K. Vanston and C. Rogers, *Wireless and Cable Voice Services: Forecasts and Competitive Impacts* (Austin, TX: Technology Futures, Inc., 1995).

years.[13] For a typical company, this would correspond to a projection life of between 14 and 16 years for the installed base of equipment. A range of projection lives are provided since a specific projection life corresponding to the industry ARL depends upon age, distribution, and curve selection.

As an example, underground cable is mostly interoffice and feeder, and an ARL of 6.6 to 7.3 years is recommended for that account.[14] For a typical company, this ARL corresponds to a projection life of between 13 and 15 years for the installed base of equipment. It should be noted that the projection life depends on curve assumptions and the average age of plant, which will be unique for each company.

Lives for Fiber Cable

Although there continue to be significant technological improvements in fiber optic cable, it is not yet clear how much of today's single-mode fiber will be replaced when superior technology becomes available. Much of the multimode fiber installed in the early days of fiber has been replaced with single-mode fiber. With such an historical precedent, we cannot rule out technology-driven replacement of fiber cable. However, with the exception of the multimode to single-mode transition, upgrades to existing fiber systems have concentrated on the associated electronics. For this reason, we did not apply the same type of substitution analysis that we did for the other accounts. This is not to say, however, that fiber investment will have especially long lives.

As identified by GTE Labs and Bellcore, there are four major factors impacting fiber lives: technological obsolescence, topological obsolescence, mechanical degradation, and optical degradation. Technological obsolescence is to be expected even if the successor technology is not obvious today. We have already seen one generation of fiber optics be replaced, as multimode fiber made way for single-mode fiber. Also, manufacturers continue to improve the basic properties of fiber such as flexibility, strength, clarity, transmission quality, reflectivity, refractivity, and durability. Topological obsolescence is where the location, routing, sizing, or architecture of a fiber installation later proves wrong. Finally, fibers eventually will

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[13] This is a weighted average. For the lower value: 5% × 2.9 years + 47.5% × 7.0 years + 47.5% × 7.5 years = 7.0 years. For the higher value: 5% × 2.9 years + 47.5% × 7.8 years + 47.5% × 10.2 years = 8.7 years.

[14] This is a weighted average computed from the relative investments in feeder and interoffice facilities. For the lower value: 10% × 2.9 years + 90% × 7.0 years = 6.6 years. For the higher value: 10% × 2.9 years + 90% × 7.8 years = 7.3 years.

crack or "go dark" with age, causing degradation in transmission capability. Although more careful fiber specification and installation has improved fiber lives, eventual wear-out is still a factor.[15] Putting these factors together, the best available technical judgment indicates that the projection life of fiber should be 20 years and that anything more puts the recovery of capital in jeopardy.[16]

Because of competition, any investment in the local exchange network now has an element of risk. The investment and accounting communities must reflect this risk in evaluating assets.[17] Although, from a technological viewpoint, a projection life of 20 years is appropriate, there should be a downward adjustment for the risk factor. Obviously, the appropriate amount involves some judgment that strays from the realm of both mortality analysis and technology forecasting, but five years may be a reasonable adjustment. Thus, a life of 15 to 20 years is recommended, depending on whether the risk factor is considered.

Lives for Digital Circuit Equipment

The digital circuit equipment account includes a variety of different equipment types, some very modern and some quite old and nearing obsolescence. However, virtually *all* circuit equi[illegible]nt will be impacted by SONET technology. Thus, forecasting the adoption of [illegible]NET allows us to calculate an upper bound on the productive life of any type of circuit equipment.

Exhibit 9 shows our forecasts of the percentage of capacity on SONET for the interoffice and loop environments, respectively. These forecasts are based on the Fisher-Pry model applied to estimates and planning data from nine LECs, shown by the hollow boxes. By 2005, essentially all currently-deployed digital circuit equipment will have been replaced by SONET equipment. Combining the interoffice and loop forecasts implies a weighted ARL for digital circuit equipment of

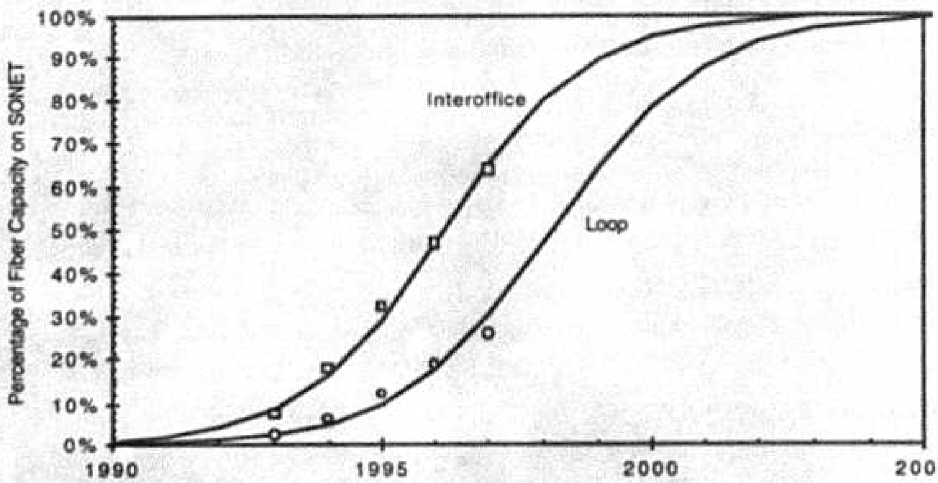
[15] The physical properties of fiber are very different from those of copper, and their physical lives are affected by different factors. Thus, historical copper lives provide no guidance in estimating fiber lives.

[16] C. M. Lemrow, Corning Glass Works, "How Much Stress Can Fiber Take?," *Telephony* (May 23, 1988):82. Also, Bellcore Technical Advisory Committee, *Generic Requirements for Optical Fiber and Optical Fiber Cable*, Issue 8 (TA-NWT-000020, December 1991), p. 2.

[17] Competitive risk was addressed by Moody's Investors Service (see *Telecommunications Reports* [December 6, 1993]:5) with its warning: "In addition, it says the trend toward telephone companies entering each other's local exchange markets through alliances with cable TV operators and the prospect of new wireless services have increased the competitive risk at the local loop level 'significantly.' Telco's debt ratings 'are likely to be downgraded as a result.'" The same risk to the telco's debt is faced by the telco's assets.

3.7 years.[18,19] For existing digital circuit equipment, this ARL implies a projection life of eight to nine years for a typical company.

Exhibit 9
Adoption of SONET Equipment



Source: Technology Futures, Inc.

Lives for Analog Circuit Equipment

The analog circuit account includes analog carrier equipment and various other equipment for use in an analog environment, notably Metallic Facility Termination (MFT) equipment used for line treatment and conditioning on subscriber private-line loops and Switched Maintenance Access System (SMAS) test equipment used to test individual analog circuits.

18 This is a conservative estimate because, in addition to SONET, there are other drivers that will cause particular types of digital circuit equipment to be retired before 2000. First, D-channel banks have been and will continue to be replaced by Digital Crossconnect Systems, as well as by direct interfaces to digital switches. Second, T-1 terminal equipment and repeaters are retired when fiber optics systems are deployed. Third, central office DLC terminals are being replaced by direct DLC interfaces into switches, which also eliminate the need for line cards on the switch.

19 See Table 3.4 in Attachment 3 for ARL computations.

Analog carrier equipment has no economic value, but, in a few places, it has yet to be officially retired. It simply has no place in a digital network. The appropriate remaining lives of this equipment should be zero or at least very, very low.

The other analog circuit categories are also basically obsolete. Conditioned lines are usually used for private lines that carry data traffic via modems, at faster data rates than can be handled on standard lines. In many cases, digital private lines are replacing conditioned analog lines for these applications; in others, improved modems allow the same data rates over unconditioned lines. SMAS test capability is being replaced by digital circuit equipment such as Digital Access and Cross-connect Systems (DACS).

To keep things simple, we estimate the life of the entire analog circuit account by tying it to the demise of the analog central office environment, in particular the demise of analog switching for the industry. Although some companies have already replaced their analog switching, the industry ARL should be a good surrogate for the end of the analog environment. This is conservative since much of the account, especially analog carrier, will be gone before analog switching. Our forecast for analog switching, shown in Exhibit 10, yields an ARL of 2.8 years as of 1/1/95. Thus, we recommend this as the maximum reasonable life for analog circuit equipment. For a typical range of companies, this ARL corresponds to a projection life of six to nine years.

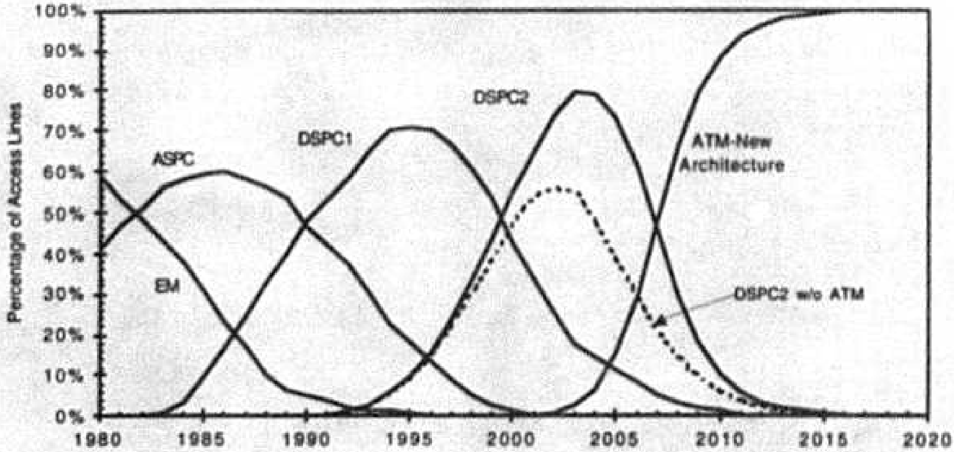
Lives for Analog Switching

Exhibit 10 shows the percentage of access lines on the major switch technology types. At year-end 1993, ASPC switching served 31% of access lines. We expect this figure to fall to 5% by 1998 and 1% by 2001. The forecasts were derived using a multiple substitution analysis of historical and planning data.[20] The forecast implies an ARL of 2.8 years for analog switching.[21]

[20] The historical data through 1989 are from TFI files. The historical data for 1990-1993 are from ARMIS reports filed with the FCC, and the planning data for 1994-1995 are the weighted average from eight LECs (representing over 100 million working channels in 1993) that provided us with planning data.

[21] See Table 3.5 in Attachment 3 for ARL computations.

Exhibit 10
Switching Technology Shares



Source: Technology Futures, Inc.

Lives of Digital Switching

There are two factors to consider in computing digital switching lives. First, digital switches use a modular architecture that allows individual components of the switch to be upgraded independently to increase capacity, improve performance, or add new features and capabilities without having to completely replace the switch. This creates interim retirements of the components that are upgraded. At the end of the life of a switch entity, most of its components will likely have been replaced at least once. Second, today's switch architectures, flexible as they are, will ultimately be replaced by a new switching architecture based on ATM.

Our approach to estimating digital switching lives is to concentrate on interim retirements. We divide the switch into its major components and estimate the life for each component using technology forecasting. Then, a composite life is estimated by weighting the component lives by their percentage of switch investment. Digital switching, being relatively new, has experienced relatively few modular changeouts so far. However, there is evidence that interim retirement rates are increasing, and our forecasts indicate that they will increase dramatically in the future.

The major functional components of a digital switch are the following:

- *Central Processor/Memory*—This is basically computer equipment that provides the "brains" of the switch.
- *Switching Fabric*—This provides the very basic function of a switch: making the connections between incoming and outgoing communications channels.
- *Trunk Interfaces*—These connect the switch to interoffice transmission facilities leading to distant switches.
- *DLC Line Interfaces*—These connect the switch to DLC facilities in the loop plant.
- *Baseband Line Interfaces*[22]—These connect the switch to baseband copper loops dedicated to individual customers. (Traditionally, these provide analog POTS service, but this category includes equipment providing baseband digital services such as narrowband ISDN as well.)
- *Shell*—This is the common equipment, such as some cabling and power equipment, that is not modul[illegible]ad will last the life of the switch entity.[23]

Exhibit 11 illustrates how these components make up a digital switch.

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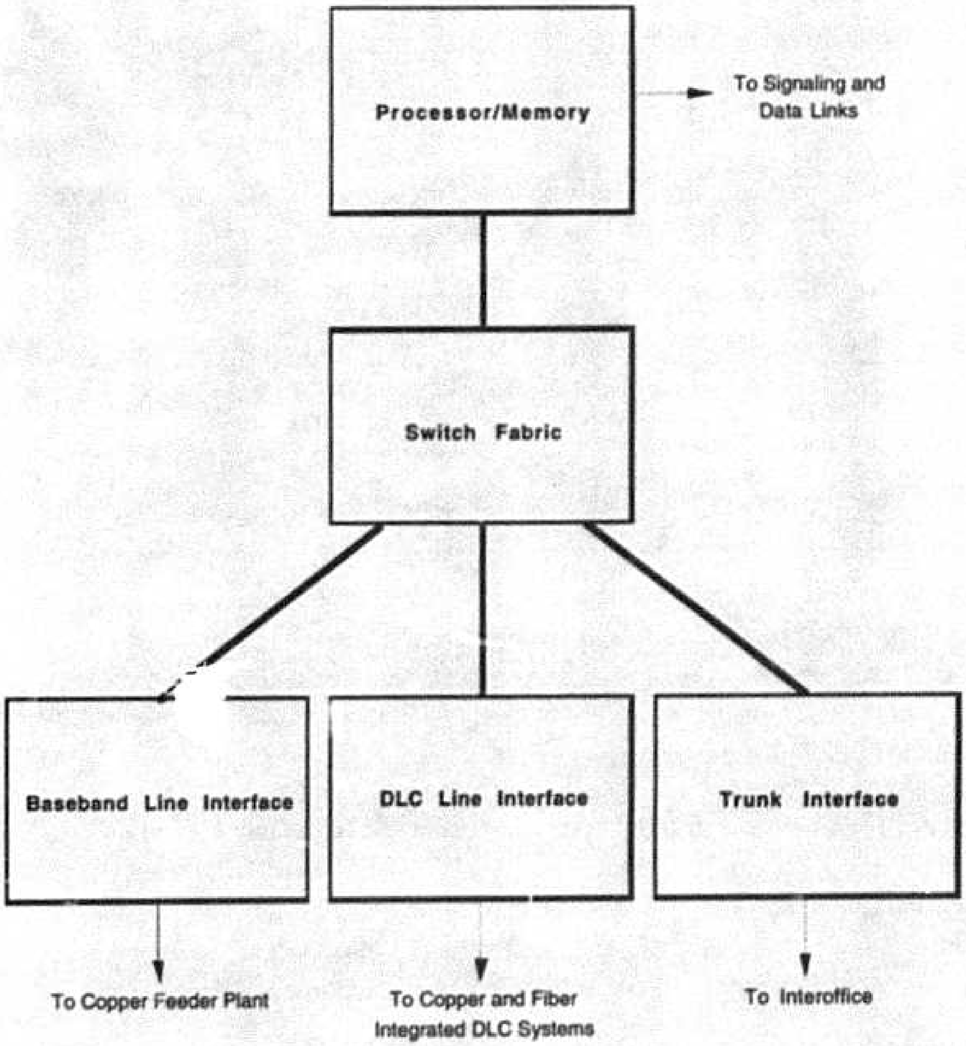
[22] Technically, baseband refers to signals that are not multiplexed or modulated, where the conductors carry the signal for only a single channel. Here, we extend the definition slightly to include services such as narrowband ISDN which involves several channels from the same customer on a single copper pair.

[23] In some cases, it may include the physical housing of switch components, but often these are replaced along with the components.

Exhibit 11
Generic Switching Architecture



Source: Technology Futures, Inc.

As noted, the modularity of the digital switch creates interim retirements of the components that are upgraded. Our analysis, summarized in Exhibit 12, yields a composite ARL of 6.3 years as of 1/1/95. For *existing* equipment, this corresponds to a projection life of nine to 11 years, depending on the average age of existing equipment.

Exhibit 12

Digital Switching—Modular Retirement Analysis

Component	% of Investment	Key Drivers	ARL (years)	Composite Contribution (years)
Processor/Memory	29%	Life cycle	5.0	1.47
Switching Fabric	5%	Life cycle & ATM	8.0	0.43
Trunk Interface	12%	IO SONET + 2 yrs	4.5	0.54
DLC Line Interface	4%	Feeder SONET + 2 yrs	6.3	0.25
Baseband Line Interface	40%	DLC, FITL, & Dig Services	6.3	2.52
Shell	8%	ATM Architecture	13.3	1.06
Composite	100%	Composite ARL = (as of 1/1/95)		6.3

Source: Technology Futures, Inc.

The investment proportions shown in the exhibit are a composite of studies by several LECs. Note that the processor/memory and line interfaces represent, by far, the greatest portion of switch investment, comprising 73% of the investment in the switch, and that the shell represents less than 10%.

The component lives shown in Exhibit 12 were estimated by a combination of methods. The processor/memory life was based on a 1992 analysis of first-generation purchases and retirements for Northern Telecom switches.[24] The switch fabric life was based on our forecast for the integration of ATM into existing switches, as well as near-term changeouts. The trunk interface and DLC line interface lives were based on the SONET adoption forecasts presented earlier, with a two-year lag added to account for the delayed impact on switching. The life for the largest component, analog line interfaces, was based on forecasts of the adoption of integrated DLC and FITL, as well as the impact of new digital services, including narrowband ISDN on non-DLC access lines.

[24] L. K. Vanston, B. R. Kravitz, and R. C. Lenz, *Average Projection Lives of Digital Switching and Circuit Equipment* (Austin, TX: Technology Futures, Inc., 1992). Prepared for the United States Telephone Association (USTA).

The shell, which comprises less than 10% of the investment in a switch, is the part that is not modular and will last the life of the switch entity. The shell will be retired when ATM switches dominate the public network. Exhibit 13 shows our forecast for the percentage of access lines served by ATM switching, along with the ATM implementation method.[25] The first ATM switches in the public network are separate switches that are overlaid on the existing network. Next will come ATM as a separate switching fabric in existing switch architectures. Neither of these developments will have much impact on existing narrowband switch lives. Once certain conditions are met, voice traffic will begin to migrate to ATM. First, an ATM fabric will become the primary fabric in existing digital switches, replacing the narrowband fabric.[26] Eventually, however the entire switch entity will likely be retired. After all, today's digital switch architectures were not optimized for ATM, and they will eventually run out of steam like electromechanical and analog electronic switches have.[27] The percentage of access lines served by ATM as a new architecture is used to estimate the life of the shell. The replacement by a new architecture is not forecast to occur until after 2000, and its exact timing is subject to significant uncertainty. However, this uncertainty is not problematic in estimating digital switching lives, because the shell's percentage of the switch investment is so small.

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[25] This forecast assumes that ATM's initial application is limited to data services and ATM does not reach 1% of access lines until the end of 1996, but that, thereafter, ATM is adopted at the same average pace as digital switching was. The implementation estimates were derived from the results of a 1993 survey of network planners at nine LECs.

[26] ATM switches are incredibly fast, have tremendous capacity, and have a low cost per unit of bandwidth. As the cost gets even lower and certain other requirements are met, it will become more economical to switch voice on ATM than on traditional switching fabrics.

[27] There are several alternative scenarios for how ATM switching may be adopted. For example, narrowband services may migrate directly to new ATM switches, rather than first being implemented as primary fabrics on existing switches. Alternatively, it is possible that today's digital architectures, upgraded to ATM could prove more resilient than expected, postponing the adoption of a new architecture. Also, it is possible that narrowband services could stay on narrowband fabrics longer than expected. Finally, LECs might delay upgrades to existing digital switches in anticipation of ATM. As discussed in *Transforming the Local Exchange Network*, none of these scenarios is likely to significantly affect our estimate of composite lives for digital switching.

Exhibit 13

ATM Switching—Percentage of Access Lines

Year	Digital Switching (All Types)	FITL	ATM Switching
1993	68.0%	0.2%	0.0%
1994	76.1%	0.4%	0.1%
1995	80.6%	0.8%	0.6%
1996	86.1%	1.5%	1.0%
1997	90.2%	2.8%	1.7%
1998	94.8%	5.2%	2.7%
1999	97.3%	9.1%	4.5%
2000	98.6%	15.3%	7.2%
2001	99.3%	23.6%	11.5%
2002	99.6%	33.1%	17.8%
2003	99.8%	42.4%	26.5%
2004	99.9%	51.0%	37.5%
2005	99.9%	59.0%	50.0%
2006	100.0%	67.1%	62.5%
2007	100.0%	75.0%	73.5%
[illegible]	100.0%	82.2%	82.2%
[illegible]	100.0%	88.2%	88.5%
[illegible]	100.0%	92.5%	92.8%
2011	100.0%	95.4%	95.5%
2012	100.0%	97.3%	97.3%
2013	100.0%	98.4%	98.3%
2014	100.0%	99.1%	99.0%
2015	100.0%	99.5%	99.4%

Source: Technology Futures, Inc.

Summary

The forecasts imply rapid obsolescence of the existing local telecommunications infrastructure and accelerated adoption of new technology. These changes, driven by technology advance, competition, and new services, are occurring across all major categories of network equipment. The recommended lives implied by our forecasts are summarized in the table below. These are industry averages, although they should generally apply to individual companies with modest variation. These lives are significantly shorter than those used in regulatory accounting. They reflect the realities of technological change and the need to provide advanced communications services. They do not, however, fully reflect the impact of competition on the economic life of equipment and, therefore, may still be too long.

Exhibit 14
TFI Equipment Life Recommendations

Technology	Recommended Industry Average Remaining Life (1/1/95)	Corresponding Projection Life*
Outside Plant		
Interoffice Cable, Metallic	2.9	
Feeder Cable, Metallic	7.0 to 7.8	
Distribution Cable, Metallic	7.5 to 10.2**	
Metallic Cable, Averaged	7.0 to 8.7**	14 to 16
Cable, Non-Metallic, All Types	-	15 to 20‡
Circuit Equipment		
Analog	2.8	6 to 9
Digital	3.7	8 to 9
Switching Equipment		
Analog	2.8	-
Digital	6.3	9 to 11§

* These are estimates for the industry average; some companies may have lower or higher projection lives. Note: The projection life is for the installed base not newly-installed equipment, and depends on the particular distribution of plant a company has.

** Ignoring competition for voice services.

‡ The 15-year projection life reflects risk due to competition.

§ This is a reasonable range of projection lives for existing equipment that corresponds to the recommended industry ARL of 6.3 years. Companies with a shorter ARL may have a shorter projection life.

Attachment 1

Substitution Analysis and the Fisher-Pry Model

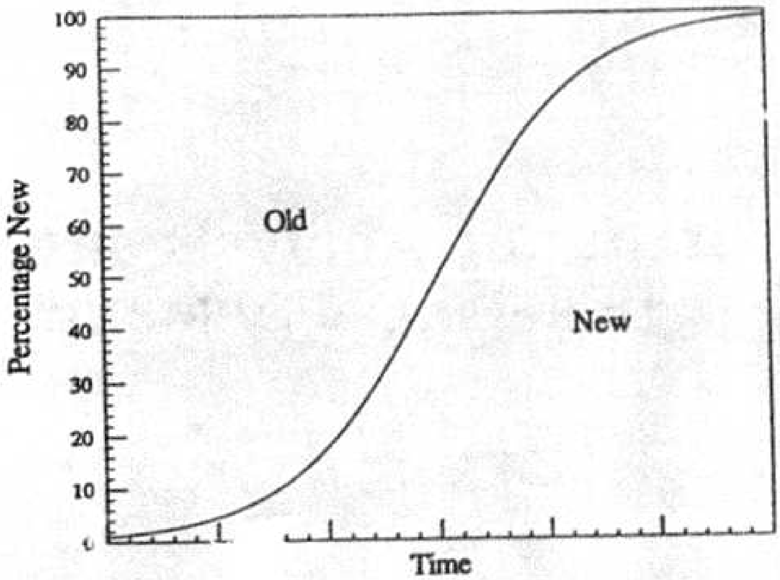
Substitution analysis examines patterns of technology substitution—a pattern which is remarkably consistent from one substitution to another. The adoption of a new technology starts slowly. As the new technology improves, it becomes generally recognized as superior. The old technology, because of inherent limitations, experiences falling market share.

If the percentage of the total market captured by a new technology is plotted over time, an S-shaped curve results. Experience shows that a particular set of models, namely the Fisher-Pry model and its extensions, is most useful for forecasting. The model was first described by Fisher and Pry in 1971.[1] It has been shown to be appropriate for substitutions in both telecommunications and other industries. More than 200 substitutions, in industries ranging from chemicals to

[1] J. C. Fisher and R. H. Pry, "A Simple Substitution Model of Technological Change," *Technological Forecasting and Social Change* 3 (1971), pp. 75-88.

aviation, have been identified that fit the Fisher-Pry pattern.[2] The S-shaped curve defined by the Fisher-Pry model is shown in Exhibit 1.1.

Exhibit 1.1
The Fisher-Pry Model



Source: Technology Futures, Inc.

Mathematically, the model can be written:

$$y(t) = 1 / (1 + e^{-b(t-a)})$$

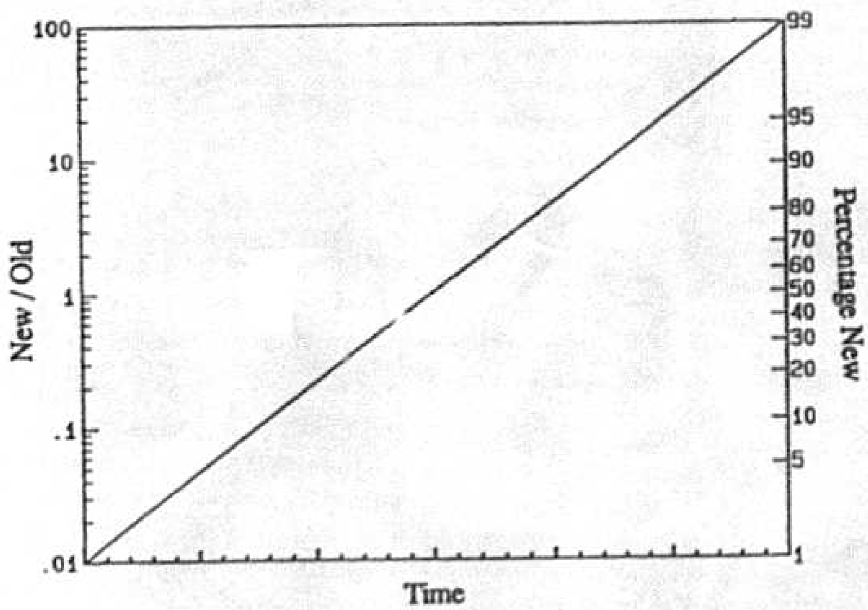
where **y(t)** is the fraction of the new technology at time **t**. The parameter **a** is the time the new technology reaches 50% of the total universe of the old and new technology. The parameter **b** measures how fast the substitution proceeds. Another commonly-used measure for the rate of substitution is the Fisher-Pry annual substitution rate, defined as $\mathbf{r = (e^{b}-1) \times 100\%}$.

[2] R. C. Lenz and L. K. Vanston, *Comparisons of Technology Substitutions in Telecommunications and Other Industries* (Austin, TX: Technology Futures, Inc., 1986).

The shape of the curve is remarkably constant from substitution to substitution. However, the time period over which the substitution takes place varies greatly from one substitution to another. In electronics, complete substitution may occur in less than 10 years, while, in the past, complete substitution may have taken over 20 years for some telecommunications substitutions. Today, telecommunications substitutions are becoming somewhat more like those in electronics. The time period is related to the substitution rate for a particular substitution.

The ratio of the new technology to the old technology is called the Fisher-Pry ratio. Against time, the Fisher-Pry ratio plots as a straight line on a semilogarithmic graph, as shown in Exhibit 1.2.

Exhibit 1.2
Linearized Fisher-Pry Model



Source: Technology Futures, Inc.

The right-hand scale on the graph shows the market penetration of the new technology. The semilogarithmic graph is commonly used when analyzing data because it is easier to visualize than an S-shaped curve. The S-shaped curve is more often used for the presentation of results because it is easier to explain and interpret.

Forecasting with Fisher-Pry

With the Fisher-Pry model, the future course of a partially-complete substitution can be forecast. Using linear or non-linear regression analysis, historical data can be used to obtain estimates for the parameters **a** and **b**. These estimates can then be entered into the Fisher-Pry equation to obtain projections for future years.

In some cases, it is necessary to forecast the adoption of a new technology before it has begun to penetrate the market. Lacking historical data, forecasters can turn to analogies. For example, if similar historical substitutions occurred at substitution rates from 50% to 100%, one can posit that the new substitution may occur at the rate of about 75% (or 50%, to be conservative). Also, expert opinion and other forecasting techniques can be used to aid in estimating the appropriate rate.

Extensions of Fisher-Pry

In practice, not all te.. ology substitutions exactly follow the Fisher-Pry model. For example, in some telecommunications substitutions, an early rapid rate of substitution has been observed to prevail up to the 10% level of substitution, followed thereafter by a somewhat slower rate. Beyond the 90% substitution point, the rate tends to increase again. Forecasts can be adjusted to account for this deviation by referring to historical substitutions as analogies.[3] In the case of multiple substitution (described below) and in other situations, such as capital constrained substitution, a more rigorous approach can be taken.

Multiple substitution occurs when the substitution of one technology for another is in progress and a third technology enters the market. For example, digital switching was introduced before analog electronic switches had completely replaced electromechanical switches, so both analog and digital switches were substituting for electromechanical. Research over the past nine years has

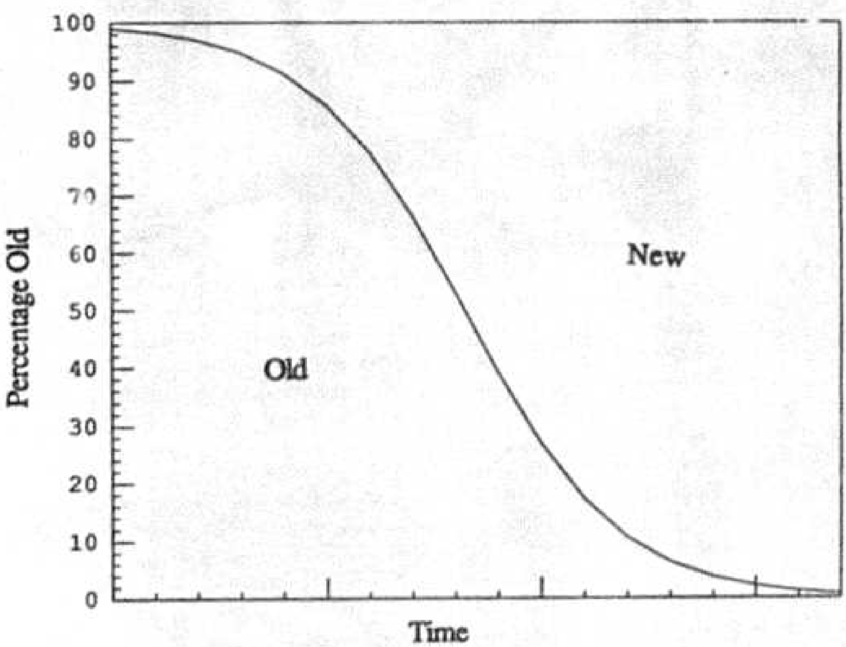
[3] For example, see Lenz and Vanston, *Comparisons*.

provided an improved understanding of multiple substitution, and practical techniques have been developed for dealing with it.[4]

Projecting the Market Share of the Old Technology

The market remaining for the old technology is derived by simply subtracting from 100% the percentage of new technology determined by the Fisher-Pry model. As shown in Exhibit 1.3, this is the same as reversing the S-shaped curve.

Exhibit 1.3
Market Share of the Old Technology



Source: Technology Futures, Inc.

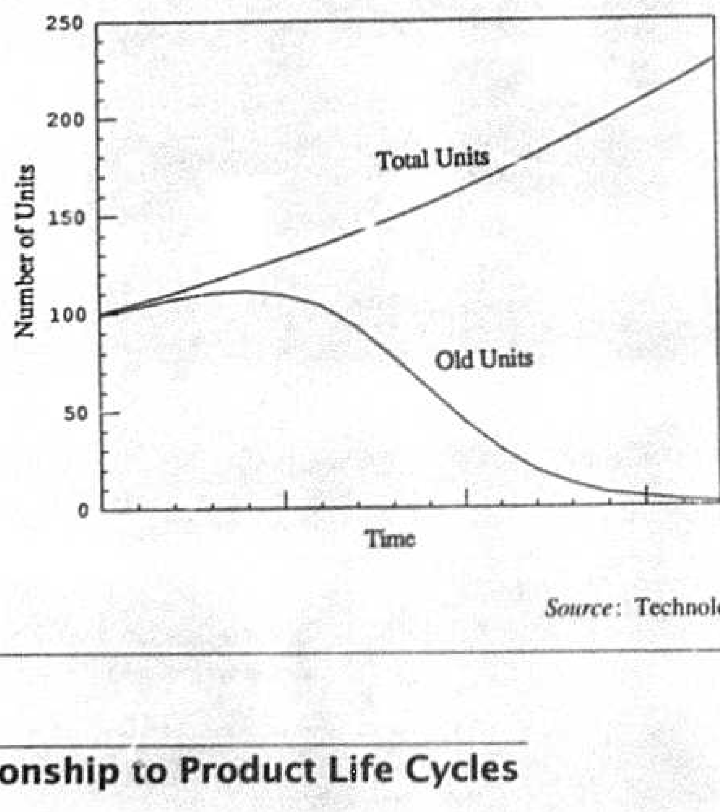
[4] See John W. Keith, *Applications of the Fisher-Pry Model to Non-Homogeneous Technological Populations*, NYNEX Service Company (1987) included as Appendix H in L. K. Vanston and R. C. Lenz, *Technological Substitution in Transmission Facilities for Local Telecommunications* (Austin, TX: Technology Futures, Inc., 1988). Also, see L. K. Vanston and R. C. Lenz, *Technological Substitution in Switching Equipment for Local Telecommunications* (Austin, TX: Technology Futures, Inc., 1988), pp. 11-16.

Projecting the Number of Units

The Fisher-Pry model predicts the *percentage* of new and old technology. To calculate the *number* of units of each, an independent forecast of the total market must be made. Multiplying the total by the percentages yields the number of units of the old and new technology. Exhibit 1.4 illustrates how growth (in this case, a 5% per year growth rate) affects the number of units of the old technology. Although the old technology is losing market share, it can continue to grow for several years after the introduction of the new technology. The faster the growth relative to the substitution rate, the larger the effect.

Exhibit 1.4

Projecting the Number of Units



Source: Technology Futures, Inc.

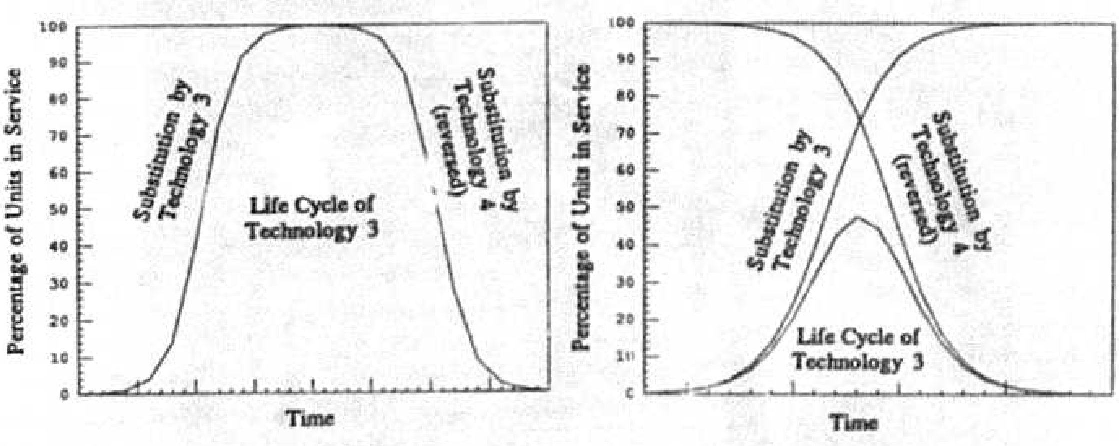
Relationship to Product Life Cycles

The product life cycle shows the units of a technology in service over time. Fisher-Pry can be used to forecast the product life cycle on a percentage basis, which can then be used to state the forecast in terms of the number of units. Basically, when a technology is new, its S-shaped substitution curve forms the up side of the product life cycle. When a newer technology comes along, the reverse of its S-shaped substitution curve forms the down side of the product life cycle for the earlier technology. This process is illustrated in Exhibit 1.5a. This simple explanation applies only when the substitutions do not overlap, i.e., the first substitution is complete before the second begins. This situation is now rare in the electronics, computer, and telephone industries, where new technologies come on the heels of one another. For overlapping substitutions, the connection between the S-shaped substitution curves and the life cycles is more complicated, as indicated in Exhibit 1.5b.[5]

Exhibit 1.5
Fisher-Pry and Life Cycles

(a)
Non-Overlapping
Substitutions

(b)
Overlapping
Substitutions



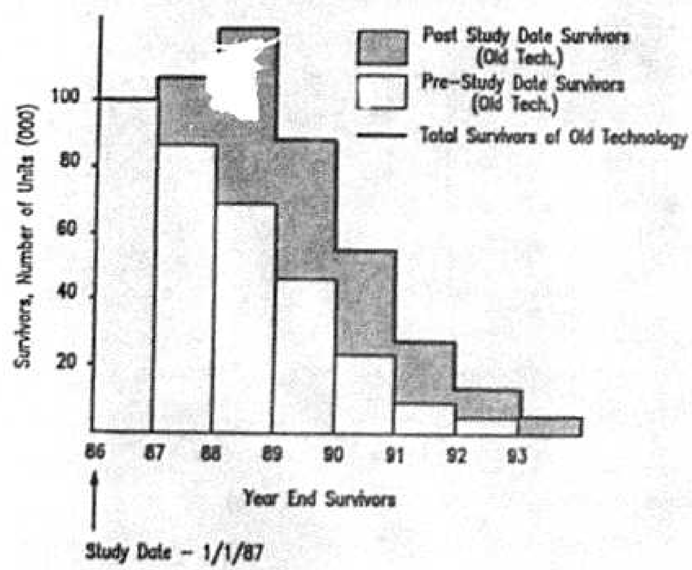
Source: Technology Futures, Inc.

[5] A more detailed explanation is given in Appendix A of L. K. Vanston, B. R. Kravitz, and R. C. Lenz, ***Average Projection Lives of Digital Switching and Circuit Equipment*** (Austin, TX: Technology Futures, Inc., 1992).

Forecasting Depreciation Lives

Fisher-Pry substitution analysis can be used to forecast end dates for an old technology, which can then be incorporated into a standard depreciation analysis. Fisher-Pry can also be used to help derive the survivor curve from which the average remaining life (ARL) of the old technology can be calculated. This process involves several steps. First, the forecast must be stated in terms of the units of old technology, as discussed above. This curve includes all survivors of the old technology, while the survivor curve applies only to equipment in place as of the study date. Thus, to obtain the survivor curve, we must subtract the additions of the old technology that are added after the study date, as well as equipment retired due to normal mortality as illustrated in Exhibit 1.6.[6]

Exhibit 1.6
Computing the Survivor Curve

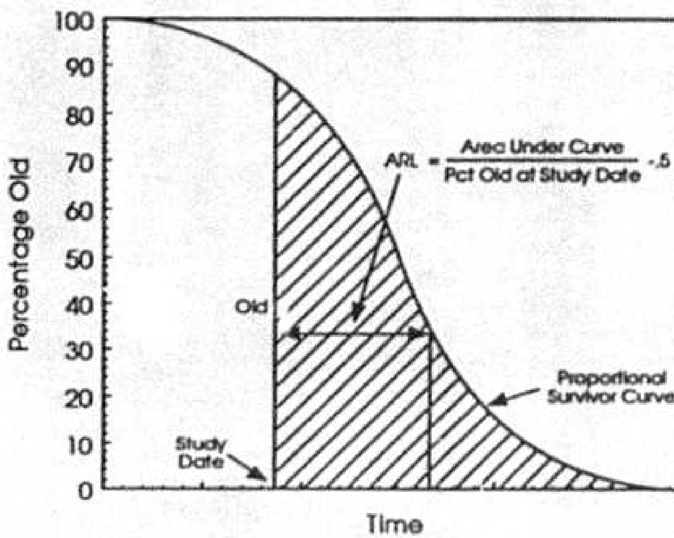


Source: Technology Futures, Inc.

[6] For more details, see TechOver™ manual (Austin, TX: Technology Futures, Inc., 1987), pp. 8.1-8.10.

For general studies, a reasonable estimate of ARL can be obtained by using the proportional curve directly, as illustrated in Exhibit 1.7. Neglecting growth may cause the ARL to be underestimated by about a year, while neglecting retirements due to normal retirements can cause the ARL to be overestimated by about as much. These factors tend to balance each other and, thus, forecasters get a good estimate unless the growth rate is extremely high or normal retirements are especially low.

Exhibit 1.7
Estimating the Average Remaining Life from the Old Technology Market Share



Source: Technology Futures, Inc.

Company Forecasts

Substitution analysis can be applied to both an individual company's data or to industry data. Naturally, industry data, spread over a larger population, tends to produce smoother curves. Also, individual companies may lag the industry substitution, but toward the end of the substitution, they tend to increase their rate of substitution and catch up with the industry. This has the effect of causing the entire industry to have essentially the same end-date and keeps the industry on the Fisher-Pry curve.[7] This observation is not surprising, since a company cannot stay competitive (or in business) if it fails to keep up with its competitors in the adoption of more efficient technology.

[7] R. C. Lenz and L. K. Vanston, *The Effects of Various Levels of Aggregation in Technology Substitutions* (Austin, TX: Technology Futures, Inc., 1987).

Attachment 2

List of TFI Publications

Technology's Impact on Lives of Telecommunications Equipment at New York Telephone, Technology Futures, Inc. (1985).

Comparisons of Technology Substitutions in Telecommunications and Other Industries, Ralph C. Lenz and Lawrence K. Vanston (1986).

The Effects of Various Levels of Aggregation in Technology Substitutions, Ralph C. Lenz and Lawrence K. Vanston (1987).

Technological Substitution in Transmission Facilities for Local Telecommunications, Lawrence K. Vanston and Ralph C. Lenz (1988).

Technological Substitution in Switching Equipment for Local Telecommunications, Lawrence K. Vanston and Ralph C. Lenz (1989).

Technological Substitution in Circuit Equipment for Local Telecommunications, Lawrence K. Vanston (1989).

Future Technology in the Local Telecommunications Network, An Expert Opinion Survey, Lawrence K. Vanston and William J. Kennedy (1989).

"How Fast is New Technology Coming?" *Telephony*, Lawrence K. Vanston, Ralph C. Lenz, and Richard Wolff (September 18, 1989).

A Facsimile of the Future: Forecasts of Markets and Technologies, Lawrence K. Vanston, William J. Kennedy, and Samia El-Badry-Nance (1991).

Average Projection Lives of Digital Switching and Circuit Equipment, Lawrence K. Vanston, Bruce R. Kravitz, and Ralph C. Lenz (1992) for the United States Telephone Association (USTA).

Computer-Based Imaging and Telecommunications: Forecasts of Markets and Technologies, Lawrence K. Vanston, Samia El-Badry-Nance, William J. Kennedy, and Nancy E. Lux (1992).

Interactive Multimedia and Telecommunications: Forecasts of Markets and Technologies, Julia A. Marsh and Lawrence K. Vanston (1992).

Local Area Network Interconnection and Telecommunications, Bruce R. Kravitz and Lawrence K. Vanston (1992).

Video Communications, Lawrence K. Vanston, Julia A. Marsh, and Susan M. Hinton (1992).

Telecommunications for Television/Advanced Television, Lawrence K. Vanston, Julia A. Marsh, and Susan M. Hinton (1992).

New Telecommunications Services and the Public Telephone Network, Lawrence K. Vanston (1993).

Personal Communications: Perspectives, Forecasts, and Impacts, Ralph C. Lenz and Lawrence K. Vanston (1993).

Transforming the Local Exchange Network: Analyses and Forecasts of Technology Change, Lawrence K. Vanston (1994).

Wireless and Cable Voice Services: Forecasts and Competitive Impacts, Lawrence K. Vanston and Curt Rogers (1995).

Attachment 3

Tabular Data

Table 3.1

Interoffice Copper Cable Survivors

Year	% of Circuits on Copper Cable	% of 1994 Investment Surviving
1994	19.5%	100.0%
1995	13.6%	69.9%
1996	10.1%	51.8%
1997	7.2%	37.0%
1998	5.1%	26.2%
1999	3.6%	18.3%
2000	2.5%	12.8%
2001	1.7%	8.9%
2002	1.2%	6.1%
2003	0.8%	4.2%
2004	0.6%	2.9%
2005	0.4%	2.0%

Average Remaining Life (as of 1/1/95) = 2.9 years

Source: Technology Futures, Inc.

Table 3.2
Metallic Feeder Survivors

	Middle Scenario		Early Scenario	
Year	Metallic Pct of Feeder Access Lines	Pct of 1994 Investment Surviving	Metallic Pct of Feeder Access Lines	Pct of 1994 Investment Surviving
1994	83%	100%	83%	100%
1995	80%	96%	80%	96%
1996	75%	90%	75%	90%
1997	70%	84%	70%	84%
1998	64%	77%	64%	77%
1999	58%	70%	58%	70%
2000	51%	61%	51%	61%
2001	44%	53%	44%	53%
2002	37%	44%	37%	44%
2003	30%	36%	26%	31%
2004	24%	29%	15%	18%
2005	19%	23%	9%	10%
2006	15%	18%	5%	6%
2007	11%	14%	2%	3%
2008		10%	1%	2%
2009		8%	1%	1%
2010	5%	6%	0%	0%
2011	4%	4%	0%	0%
2012	3%	3%	0%	0%
2013	2%	2%	0%	0%
2014	1%	1%	0%	0%
2015	1%	1%	0%	0%
Average Remaining Life = (as of 1/1/95)		7.8 years		7.0 years

Source: Technology Futures, Inc.

Table 3.3

Distribution Copper Survivors

Year	Early Scenario			Late Scenario			Middle Scenario		
	Pct of Access Lines		Pct of Copper Lines	Pct of Access Lines		Pct of Copper Lines	Pct of Access Lines		Pct of Copper Lines
	Fiber	Copper	Surviving	Fiber	Copper	Surviving	Fiber	Copper	Surviving
1994	0.8%	99.2%	100.0%	0.1%	99.9%	100.0%	0.4%	99.6%	100.0%
1995	1.4%	98.6%	99.3%	0.1%	99.9%	99.9%	0.8%	99.2%	99.6%
1996	2.8%	97.2%	98.0%	0.2%	99.8%	99.8%	1.5%	98.5%	98.9%
1997	5.2%	94.8%	95.5%	0.4%	99.6%	99.7%	2.8%	97.2%	97.6%
1998	9.6%	90.4%	91.1%	0.7%	99.3%	99.3%	5.2%	94.8%	95.2%
1999	17.0%	83.0%	83.6%	1.3%	98.7%	98.8%	9.1%	90.9%	91.2%
2000	28.4%	71.6%	72.1%	2.2%	97.8%	97.9%	15.3%	84.7%	85.1%
2001	43.4%	56.6%	57.0%	3.8%	96.2%	96.3%	23.6%	76.4%	76.7%
2002	59.8%	40.2%	40.5%	6.4%	93.6%	93.7%	33.1%	66.9%	67.2%
2003	74.2%	25.8%	26.0%	10.7%	69.3%	89.4%	42.4%	57.6%	57.8%
2004	84.8%	15.2%	15.4%	17.2%	82.8%	82.9%	51.0%	49.0%	49.2%
2005	91.5%	8.5%	8.6%	26.6%	73.4%	73.5%	59.0%	41.0%	41.1%
2006	95.4%	4.6%	4.6%	38.7%	61.3%	61.3%	67.1%	32.9%	33.1%
2007	97.6%	2.4%	2.4%	52.4%	47.6%	47.7%	75.0%	25.0%	25.1%
2008	98.7%	1.3%	1.3%	65.7%	34.3%	34.3%	82.2%	17.8%	17.8%
2009	99.3%	0.7%	0.7%	77.0%	23.0%	23.1%	88.2%	11.8%	11.9%
2010	99.7%	0.3%	0.3%	85.3%	14.7%	14.7%	92.5%	7.5%	7.5%
2011			0.2%	91.0%	9.0%	9.0%	95.4%	4.6%	4.6%
2012			0.1%	94.6%	5.4%	5.4%	97.3%	2.7%	2.7%
2013			0.0%	96.9%	3.1%	3.1%	98.4%	1.6%	1.6%
2014			0.0%	98.2%	1.8%	1.8%	99.1%	0.9%	0.9%
2015			0.0%	98.9%	1.1%	1.1%	99.5%	0.5%	0.5%
2016			0.0%	99.4%	0.6%	0.6%			
	Avg Remaining Life (as of 1/1/95)		7.5	Avg Remaining Life (as of 1/1/95)		12.8	Avg Remaining Life (as of 1/1/95)		10.2

Source: Technology Futures, Inc.

Table 3.4
Non-SONET Circuit Equipment Survivors

Year	% of Equipment Not on SONET	% of 1994 Investment Surviving
1994	88%	100%
1995	79%	89%
1996	68%	76%
1997	53%	60%
1998	36%	41%
1999	23%	26%
2000	13%	15%
2001	7%	8%
2002	4%	4%
2003	2%	2%
2004	1%	1%
2005	0%	1%

Average Remaining Life (as of 1/1/95) = 3.7

Source: Technology Futures, Inc.

Table 3.5
Analog SPC Survivors

Year	% of Access Line on Analog SPC	% of 1994 Investment Surviving
1994	22.8%	100.0%
1995	18.7%	82.1%
1996	13.4%	58.9%
1997	9.5%	41.9%
1998	5.0%	22.1%
1999	2.6%	11.2%
2000	1.3%	5.6%
2001	0.6%	2.7%
2002	0.3%	1.3%
2003	0.1%	0.6%
2004	0.1%	0.3%
2005	0.0%	0.2%

Average Remaining Life (as of 1/1/95) = 2.8 years

Source: Technology Futures, Inc.

Table 3.6
Percentage Survivor Curves for Modular Categories of Digital Switching

1	*2*	*3*	*4*	*5*	*6*	*7*
Year	Processor/ Memory	Switching Fabric	Trunk Interface	DLC Line Interface	Baseband Line Interface	Shell
1993	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1994	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
1995	90.0%	93.8%	100.0%	100.0%	96.3%	100.0%
1996	80.0%	87.5%	88.5%	96.0%	91.5%	100.0%
1997	70.0%	81.3%	73.0%	89.8%	84.0%	100.0%
1998	60.0%	75.0%	57.4%	82.7%	74.4%	100.0%
1999	50.0%	68.8%	39.3%	75.2%	65.1%	100.0%
2000	40.0%	62.5%	21.5%	53.8%	51.8%	99.9%
2001	30.0%	56.3%	11.3%	36.2%	39.1%	99.8%
2002	20.0%	50.0%	5.6%	21.8%	28.3%	99.2%
2003	10.0%	43.8%	2.7%	12.0%	19.6%	97.7%
2004	0.0%	37.5%	1.3%	6.3%	12.7%	93.6%
2005	0.0%	31.3%	0.6%	3.2%	7.9%	84.8%
2006	0.0%	25.0%	0.3%	1.6%	4.5%	69.9%
2007	0.0%	18.8%	0.1%	0.8%	2.5%	51.2%
2008	0.0%	12.5%	0.1%	0.4%	1.3%	33.6%
2009	0.[illegible]	6.3%	0.0%	0.2%	0.7%	20.4%
2010	0.[illegible]	0.0%	0.0%	0.1%	0.4%	11.9%
2011	0.0%	0.0%	0.0%	0.0%	0.2%	6.8%
2012	0.0%	0.0%	0.0%	0.0%	0.1%	3.8%
2013	0.0%	0.0%	0.0%	0.0%	0.1%	2.2%
2014	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%
2015	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
Pct of Investment	29%	5%	12%	4%	40%	8%
ARL = (1/1/95)	5.0	8.0	4.5	6.3	6.3	13.3

Source: Technology Futures, Inc.