past depreciation reserve imbalances have been largely eliminated and local telephone networks have been modernized.

A recent study performed for MCI shows that "changes in FCC depreciation practices during the 1980's have effectively reduced the reserve deficit. Unrecovered depreciation expenses have fallen from $21 billion in 1983 to $3.3 billion in 1994."[44] This study found that a large portion of the difference between depreciation prescriptions and telephone company requests is in the area of copper loop plant. However, more rapid depreciation of loop plant and replacement with fiber is not necessary for the provision of current monopoly services or the unbundled network elements modeled here.

One explanation for the low depreciation reserve deficiency is that, as Table 6 shows, LECs have been modernizing their networks. Fiber transmission, digital switching and SS7 are widely deployed in local networks. Analog switching accounts for only 28 percent of total RBOC switching investment in 1994.[45] The LECs continue to add digital switches at a rapid rate.

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[44] See, Baseman, Kenneth C. and Harold Van Gieson, Depreciation Policy in the Telecommunications Industry: Implications for Cost Recovery by the Local Exchange Carriers, December, 1995, p.2.

[45] See, Preliminary Statistics of Common Carriers, *supra*, note 13, July 7, 1995, Table 2-10.

Table 6
Modern Technology Deployment

Technology	1989	1990	1991	1992	1993	Percent Change
Fiber Sheath Kilometers	150,512	203,657	245,149	290,498	357,394	237
Digital Stored Program Control Switching	8,469	9,796	11,525	12,739	15,157	78
SS7-317 Switches (Intra-LATA)	908	2,588	4,091	7,479	9,198	1,013

Source: Kraushaar, J.M., "Infrastructure of the Local Operating Companies Aggregated to the Holding Company Level," Industry Analysis Division, Common Carrier Bureau, FCC, April 1995.

C. Overcapacity

As discussed above, modern technology is widely deployed in LEC networks. Therefore, the excess capital investment shown in this analysis is not driven by the use of obsolete plant. Instead, excess capacity appears to be a significant source of the problem. The difference between the Hatfield Model investment and actual LEC investment is $125 billion dollars, resulting in an annual capital carrying cost of $17.7 billion dollars. This is approximately 20 percent of the existing revenue requirement. Several possible sources of this overinvestment are described below.

There has been very little oversight of LEC investment plans by the FCC. Telephone companies have basically been free to upgrade network capacity and capabilities in anticipation of entry into competitive markets, and at the expense of current monopoly ratepayers. This excess capacity can manifest itself in terms of both excess facilities and excess capabilities.[46] An example of the latter is building functionality or capability into today's networks that is needed for future competitive services. This form of cross-subsidy is difficult to detect in the absence of

[46] See, Baseman, Kenneth, "Open Entry and Cross-Subsidization in Regulated Markets," in Gary Fromm, ed., Studies in Public Regulation, 1981.

the economic cost modeling performed here. A benchmark cost for providing unbundled network elements without excess capacity or capability must be established. As discussed above, the FCC has not engaged in this type of modeling. One limited exception has been in the area of video dialtone, which is discussed immediately below.

1. Broadband Service

The FCC did ask for economic support for the investments associated with LEC plans to enter the broadband video business through video dialtone investments. While events have overtaken those Applications, the record demonstrated that many video dialtone investments would have been profitable only if monopoly ratepayers absorbed much of the cost.[47] In the Bell Atlantic Dover Township Video Dialtone Tariff Investigation Designation Order, the FCC set out to investigate these costing issues.[48] This raises a question concerning the degree of overinvestment by LECs in areas where the FCC has devoted less (i.e., virtually no) scrutiny.

2. Official Service Networks

The RBOCs were granted the authority under the MFJ to construct interLATA official services networks. The FCC has never undertaken an investigation of the investment in official service networks, even though the RBOCs had a clear incentive to build excess capacity in those networks in contemplation of entry into the interLATA market.[49] Any expenses associated with

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[47] See, In the Matter of U S WEST Communications, Inc., Trial Services or Arrangements, Basic Video Dialtone Market Trial, Omaha, NE; NCTA Position to Reject, April 24, 1995. Also, In the Matter of SNET Video Dialtone Trial Tariff, NCTA Comments on SNET's Accounting and Cost Allocation Plan, March 29, 1995.

[48] See In the Matter of Bell Atlantic Telephone Companies Revisions to Tariff F.C.C. No. 10, CC Docket No. 95-145, released September 8, 1995.

[49] The potential cross-subsidy associated with RBOC construction of official service networks is discussed in Economics and Technology, Inc. and Hatfield Associates, Inc., The Enduring Local Bottleneck, 1994, pp. 198-200.

excess capacity and capabilities not needed by current monopoly ratepayers would reduce sharing under price caps, leading to higher access charges.

Data concerning the investment in these networks is sparse. However, in a regulatory proceeding in Florida, Joseph Gillan discovered that Southern Bell's official services network contained an enormous amount of excess capacity. He found that the idle capacity in Southern Bell's network exceeded the existing size of the entire toll market by 50 percent. He also found that Southern Bell's interlata network capacity, measure in terms of fiber pairs, is at large as AT&T's and at least twice as large as the second largest carrier.[50]

An indication of the degree to which there is excess capacity in RBOC networks is provided by a comparison of working and equipped channels. FCC data show that only 34 percent of RBOC fiber miles are "lit."[51] As a recent FCC Report notes, ". . . there is a huge amount of fiber capacity presently unused in the *interoffice* transmission plant."[52]

3. Loop Investment

The LECs also may have substantial excess capacity in loops. The model used here employs fill factors between .5 and .7, depending on density. The BCM Model uses a fill factor range of between .25 and .75. Actual fill factors in LEC networks may be lower. Some of this excess loop capacity may be explained by LECs putting capacity in place for Centrex service

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[50] See Testimonyof Joseph Gillan, In re: Comprehensive Review of the Revenue Requirements and Rate Stabilization Plan of Southern Bell Telephone and Telegrph Company, Florida Public Service Commission, Docket No. 920260-TL, November 8, 1993, pp. 20-26.

[51] See, ARMIS Report 43-08 data.

[52] See, Infrastructure of the Local Operating Companies Aggregated to the Holding Company Level, April, 1995, *supra*, note 37, p. 6 emphasis supplied.

demand that has not yet materialized.[53] There may also be significant unused capacity for multiple residential lines.

LECs are not penalized for spare loop capacity because the cost is allocated to services based on working loops and collected from ratepayers. Thus, even though Centrex is an unregulated, or loosely regulated, service in many states, local service ratepayers are paying for the unused capacity. As demand for second lines grows, the LECs are in a position to generate substantial revenues.[54]

D. Corporate Operations

It would not be appropriate to add the corporate operations expenses shown in Table 5 to the TS-LRIC of unbundled network elements. The Hatfield Model already includes a factor to estimate expenses included in the corporate operations categories that may vary with firm size. The model does not estimate pure economic overhead. These are expenses that do not vary with firm size.

Pure economic overhead is likely to be a small percentage of the total revenue requirement. Certainly, less than one percent of total revenue requirement for large firms such as the LECs would be required to pay for the "president's desk." To the extent the remaining corporate operations expenses are larger than this amount, they are likely paying for activities related to entering new markets, or simply represent waste and inefficiency.

LECs argue that the TS-LRIC prices of unbundled network elements should be marked up to recover overheads. However, to the extent the expenses are legitimate, it is more

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[53] See, The Enduring Local Bottleneck, *supra*, note 49, pp. 206-212.

[54] The Hatfield Model includes current second line demand and allows for increased demand to the extent that fill levels on the network are below capacity.

appropriate to recover them fr om retail customers. An arbitrary assignment of these expenses to rates for essential network ele nents purchased by competitors provides an opportunity for LECs to raise their rivals' costs. M(reover, in competitive markets, it is typical that larger customers pay rates close to incremental costs.

E. Customer Operations

The TS-LRIC figures or the unbundled network elements do not include LEC customer operations expenses of $15.3 illion. Customer operations expenses include billing and account maintenance. Therefore, thes expenses are part of the economic cost of existing end-user services.

Customer Operations xpenses will be minimal in the case of selling unbundled network elements. Instead of billing a id managing expenses for millions of retail customer accounts, the LECs will be selling to a sma l group of competing local and long distance carriers. Other categories of cost included in hese accounts, such as marketing and advertising, are not part of the TS-LRIC of unbundled ne work elements.

VIII. MOVING PRICES T(ECONOMIC COSTS

The data provided in Section VII show that the existing LEC revenue requirement is inflated. LECs argue that the are entitled by the so-called "regulatory contract" to recover this revenue requirement. There re several reasons why the alleged "regulatory contract" should not serve as a bar to reducing pric es to cost. First, lower prices will stimulate demand.[55] This additional demand coupled w th the opportunity to enter new markets when public interest

[55] See, Hausman, Jerr , Timothy Tardiff and Alex Belinfante, "The Effects of the Breakup of AT&T on Telephone Penetration in the United States", 83 American Economic Review 178, 1993.

requirements are met, will help offset the revenue and profit impact on LECs of cost-based pricing for network elements.

Second, the "regulatory contract" does not guarantee that local telephone companies can recover excess costs. Local telephone companies have known for many years that local competition is coming. In fact, they have been claiming for over a decade that it is already here. They should have been taking steps to mitigate the "problem," if there is one. Instead, as described above, the LECs have taken the opportunity afforded by lax regulation of capital expenditure plans to make strategic investments in capacity designed to help them compete in the future. In any event, the 1996 Act, which the RBOCs supported, is a new regulatory contract. In exchange for meeting a checklist of obligations, which includes unbundling and cost-based pricing of network elements, the RBOCs will be allowed to enter new markets.

Third, the giveaway of cellular licenses to incumbent local telephone companies by the FCC in the 1980s erases whatever residual value the "social contract" contained for telephone companies. The recent FCC spectrum auctions prove that the LECs got the better of the "social contract," even if they are not allowed to recover the cost of overinvestment from monopoly customers.

Finally, the problem of uneconomic costs is common in competitive industries. The solution in these industries is to write off expenses against shareholders. Assume a competitive company builds a $1,000,000 factory in order to diversify into a new line of business. If demand fails to materialize, the competitive firm cannot ask its existing customers to pay for the factory. Shareholders must bear the burden of the uneconomic expenditures.

The FCC cannot rely upon the advent of local competition to drive prices to cost. The 1996 Act makes local competition possible, but legislation cannot create competition.

Competitors must enter and begin providing customers with real choices. If a market is occupied by a monopolist, at most policymakers can allow entry and create conditions under which the entrants have a reasonable opportunity to compete for business along with the incumbent monopolist.

At least initially, the entry is likely to be piecemeal, with competitors continuing to rely on the incumbent LECs for essential facilities (i.e., the unbundled network elements) for many years to come. Moreover, competitors require the LECs to meet the other requirments of the 1996 Act, including number portability, right-of-way access, etc. An earlier analysis by Economics and Technology, Inc. and HAI demonstrated that local competition is possible, but will take many years to develop.[56]

IX. UNIVERSAL SERVICE SUBSIDIES

Universal Service subsidies need not interfere with the movement of prices to cost. The 1994 HAI study demonstrated that subsidy for local service is much lower than commonly believed. At that time, only four billion dollars was needed to maintain local rates at their current levels. The cost study described here shows that the costs of Basic Universal Service are even lower. In any event, the legislation provides a mechanism for dealing with the Universal Service issue. Universal Service costs must be separately identified. The necessary funds must then be collected and distributed through a mechanism by which all competitors contribute on a fair and equitable basis. The FCC has already begun this process.[57]

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[56] The Enduring Local Bottleneck, *supra*, note 49, pp. 206-212.

[57] See, Notice of Proposed Rulemaking and Order Establishing a Joint Board, CC Docket No. 96-45, released March 8, 1996.

X. NEXT STEPS

As part of its effort to implement the 1996 Act, the FCC must undertake to study the economic cost of LEC services. The modeling approach described here can serve as a basis for that investigation. The LECs will criticize the model on various grounds. However, the FCC will likely discover that to the extent the LEC criticisms are valid, they can only be addressed by the application of data that are currently in the exclusive possession of the LECs themselves. As the BCM Model shows, when the LECs have incentives to cooperate, they are able to produce useful data and information to the FCC. The FCC should accept the estimates developed here unless and until the LECs provide additional data that can be used in the model.

Unit Cost by Network Element

Loop elements

	0-10 pop/km2	10-100 pop/km2	100-500 pop/km2	500-1,000 pop/km2	1,000-5,000 pop/km2	>5,000 pop/km2	Totals
Loop Distribution							
Annual Cost	$ 2,423,179,454	$ 6,150,810,401	$ 1,643,963,604	$ 1,275,061,157	$ 3,690,920,048	$ 770,922,988	$ 15,954,857,652
Units	8,969,439	30,420,078	27,516,643	19,807,291	56,445,945	13,066,968	156,226,363
Unit Cost/month	$ 22.51	$ 16.85	$ 4.98	$ 5.36	$ 5.45	$ 4.92	$ 8.51
Loop Concentration							
Annual Cost	$ 1,407,376,597	$ 4,356,341,762	$ 46,557,808	$ 34,169,753	$ 97,158,618	$ 24,034,105	$ 5,965,638,642
Units	8,969,439	30,420,078	27,516,643	19,807,291	56,445,945	13,066,968	156,226,363
Unit Cost/month	$ 13.06	$ 11.95	$ 0.14	$ 0.14	$ 0.14	$ 0.15	$ 3.12
Loop Feeder							
Annual Cost	$ 570,854,034	$ 1,498,576,213	$ 1,245,621,890	$ 264,379,205	$ 414,853,516	$ 35,456,856	$ 4,029,741,714
Units	8,969,439	30,420,078	27,516,643	19,807,291	56,445,945	13,066,968	156,226,363
Unit Cost/month	$ 5.30	$ 4.11	$ 3.77	$ 1.11	$ 0.61	$ 0.23	$ 2.15
Total Loop							
Annual Cost	$ 4,401,410,085	$ 12,005,728,376	$ 2,936,143,301	$ 1,573,610,115	$ 4,202,932,183	$ 830,413,948	$ 25,950,238,009
Units	8,969,439	30,420,078	27,516,643	19,807,291	56,445,945	13,066,968	156,226,363
Unit Cost/month	$ 40.89	$ 32.89	$ 8.89	$ 6.62	$ 6.20	$ 5.30	$ 13.84

	Annual Cost	Units		Unit Cost	
End office switching	$ 5,751,872,548				
1. Port	$ 1,725,561,764	141,126,511	switched lines	$ 1.02	per line/month
2. Usage	$ 4,026,310,783	2,264,200,000,000	minutes	$ 0.0018	per minute
Signaling network elements	253657787.7	n/a			
Transport network elements					
1. Dedicated	$ 1,150,882,311	18,227,755	trunks	$ 5.26	per DS-0 equivalent/month
				$ 126.28	per DS-1 equivalen/month
				$ 3,535.78	per DS-3 equivalent/month
2. Common	$ 664,454,045	1,464,070,959,357	minutes	$ 0.0002	per minute per leg (orig or term)
3. Tandem switch	$ 1,112,005,760	1,464,070,959,357	minutes	$ 0.0008	per minute
Operator systems	$ 116,117,445	n/a			
Public Telephones	$ 1,098,242,547	n/a			
Total	$ 36,097,470,452				

Attachment

HATFIELD ASSOCIATES, INC.
International Telecommunications Consultants
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Boulder, Colorado 80303
(303) 442-5395

Statement of Qualifications

General Qualifications

Hatfield Associates, Inc. (HAI) is an interdisciplinary consulting and research firm serving a wide range of telecommunications industry clients. The firm was founded in February, 1982. In the more than one decade of its existence, the firm has provided consulting and educational services in nearly all aspects of the present and future telecommunications infrastructure, including local exchange networks, cable television systems, competitive access networks, land mobile and personal communications, long haul terrestrial and satellite communications, data communications, and customer premises equipment. Principals of the firm include consultants with graduate degrees and decades of senior level experience in engineering, economics, business, and policy/regulation.

Examples of recent consulting assignments include:

- Estimating the investments and costs associated with the provision of local exchange and exchange access services;

- Analyzing the potential for competitive entry into the local exchange telecommunications business, presented in a paper entitled "The Enduring Local Bottleneck: Monopoly Power and the Local Exchange Carriers";

- Testifying in state proceedings on various aspects of competitive entry into local exchange and exchange access services, and on state mechanisms to fund Universal Service;

- Assessing the technological and economic merits of various telephone companies' plans for offering video dial one services;

- Preparing a report entitled "Cross-Subsidy Concerns Raised by Local Exchange Company Provision of Video Dialtone Services" that was attached to a petition filed with the Federal Communications Commission (FCC) by the National Cable Television Association and the Consumer Federation of America;

- Developing a vision statement dealing with the future of cable television networks in providing telecommunications and enhanced video services;

- Authoring the "Telecommunications Technology" and "Utility Applications of Telecommunications" chapters, describing utility opportunities in telecommunications, of a major telecommunications report for the Electric Power Research Institute;

- Analyzing telecommunications opportunities, costs, and modes of entry for several major electric utilities, leading in one case to a decision by the utility to deploy a backbone fiber optics network and partner with other entities in the provision of Personal Communications Services;

- Developing material on telecommunications technology for inclusion in a report on international telecommunications prepared by the Office of Technology Assessment of the U.S. Congress;

- Analyzing trends in telecommunications architectures and technologies for a major computer company;

- Providing tactical advice and computer network support for a client bidding in the FCC auction of 900 MHZ Specialized Mobile Radio licenses;

- Assessing opportunities for the branches of the U.S. Military to consolidate their use of wireless communications;

- Providing analyses for an investment firm contemplating a major investment in a paging company;

- Providing telecommunications education to countries in Central and Eastern Europe; and

- Assessing the impact of major telecommunications issues on cable television companies.

Qualifications in Telecommunications Education

HAI and its principals have been heavily involved in telecommunications education, both in the U.S. and in Eastern and Central Europe. HAI principals hold adjunct teaching positions in the Telecommunications Programs at the University of Colorado and the University of Denver. Course topics range from the basic terms and concepts of telecommunications to enterprise computer networking, and also include, economic regulation, the telecommunications infrastructure, issues concerning the structure and management of the North American Numbering Plan, and the architecture and technology of wireless communications.

ATTACHMENT 2

Pricing of Wholesale Services

by J. Christopher Frentrup

Pricing of Wholesale Services

by J. Christopher Frentrup

Executive Summary

- The Telecommunications Act of 1996 (1996 Act) requires incumbent local exchange carriers (ILECs) to offer for resale any telecommunications services that they provide at retail to subscribers who are not telecommunications carriers. The 1996 Act requires wholesale rates to be determined on the basis of retail rates charged to subscribers, less avoided costs such as marketing, billing, collection, and other costs.

- This study develops a methodology for calculating the appropriate wholesale discount rates for the ILECs' telecommunications services. For the individual Regional Bell Operating companies (RBOCs) and GTE, the 1995 wholesale discount rate ranges from 25.6% for U S West to 33.2% for Ameritech.

- The calculation of these wholesale discount rates using historical data for 1990 through 1995 shows an increasing trend. The additional projected growth in avoided costs for 1996 and 1997 indicates that the wholesale discount rate increases nation-wide by approximately 0.5 percentage points per year, resulting in a range for the RBOCs and GTE in 1996 of 25.4% for U S West to 34.1% for Ameritech.

- Avoided costs are those costs that will not be incurred by the ILEC in providing a telecommunications service for resale, as well as those costs that should not be paid by a reseller because they do not relate to resale products.

- The avoided cost categories are:

  (I) Marketing, billing and collection costs - 100% avoided, as defined by the 1996 Act;
  (ii) Other costs - not related to the provision of telecommunications services for resale; and
  (iii) Allocation of common costs to avoided cost activities - general overhead and support.

- Avoided costs should be defined using reliable and publicly available information. This model utilizes publicly available financial and operational data from the FCC's annual Automated Reporting Management Information System (ARMIS) report 43-

03, which contains data in Uniform System of Accounts (USOA) format, as required by the FCC for all ILECs with operating revenues in excess of $100 million.

- The results of this model should be adopted to ensure consistent and fair wholesale discount rates. Without a standardized model, it is likely that the pricing adopted by the individual states may result in wide variances in the range of wholesale discounts and as a result may be inconsistent with one of the fundamental objectives of the 1996 Act: opening the local telecommunications market to competition. The model developed is intended to provide universal and consistent application and avoid administrative burden for the ILECs.

- A single wholesale discount rate should be applied to all of an ILEC's resale products rather than applying a different rate across products and/or markets. This method is straightforward and minimizes the administrative burden for the ILECs and resellers, including the complications of determining separate wholesale rates for bundled products.

Background

The Telecommunications Act of 1996 imposes a duty upon ILECs to offer certain services for resale at wholesale rates. Specifically, Section 251(c)(4) requires ILECs:

> (A) to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers; and
>
> (B) not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of such telecommunications services, except that a State commission may, consistent with regulations prescribed by the Commission under this section, prohibit a reseller that obtains at wholesale rates a telecommunications service that is available at retail only to a category of subscribers from offering such service to a different category of subscribers.

Further, the Act provides guidance on the determination of wholesale prices for telecommunications services in Section 252(d)(3):

> For the purposes of Section 251(c)(4), a State commission shall determine wholesale rates on the basis of retail rates charged to subscribers for the telecommunications service requested, excluding a portion thereof attributable to

any marketing, billing, collection, and other costs that will be avoided by the local exchange carrier.

Determination of the Wholesale Discount

The framework for determining the wholesale rate presented in this study is based on currently available public information and focuses on the overall regulated operations of ILECs. It is not feasible to analyze the wholesale rate on a product-by-product basis, as the publicly available information is not disaggregated to that degree. Information for each ILEC is obtained from ARMIS Report 43-03, and analysis of the net operating revenues and avoided costs is performed.

Operating revenues are reported in accounts 5000 through 5300 of the USOA -- Local Network Service Revenues, Long Distance Network Service Revenues, Miscellaneous Revenues and Uncollected Revenues. Operating expenses as defined by the USOA include the account numbers 6110 through 6790, and are comprised of four major expense groups--Plant Specific Operations, Plant Nonspecific Operations, Customer Operations and Corporate Operations. Expenses that are recorded in Plant Specific and Plant Nonspecific Operations Expense Groups generally reflect cost associated with the various kinds of equipment identified in the plant asset accounts, while expenses that are recorded in the Customer Operations and Corporate Operations accounts reflect costs less directly tied to the plant accounts.

Once the regulated operating revenues and expenses have been extracted from ARMIS 43-03, the wholesale price discount is calculated in the following manner.

Step 1. Calculate Total Wholesale Expenses. This is total operating expenses less all expenses that are avoided by selling telecommunications services at wholesale.

Total Wholesale
Expenses (TWE):

$$TWE = \text{Total Operating Expenses} - \text{Total Avoided Costs}$$

Step 2. Calculate Wholesale Service Revenue. This is the revenue the ILECs would need to receive from their wholesale customers to maintain the original (retail) base margin, given the level of total wholesale expenses calculated above. Because wholesale operating expenses are lower than total operating expenses, this revenue amount will be lower than the ILECs' current retail revenue.

Pricing of Wholesale Services

Wholesale Service Revenue (WSR):

$$WSR = \frac{TWE}{(1 - \text{Base Margin})}$$

where

$$\text{Base Margin} = \frac{\text{Total Operating Revenue - Total Operating Expenses}}{\text{Total Operating Revenue}}$$

Use of the Base Margin ensures that the ILECs' mark-up above costs is the same for its wholesale services as for its retail services.

Step 3. Calculate the Wholesale Price Discount. This is the discount rate that would reduce the ILECs' retail revenue to the wholesale service revenue calculated in step two.

Wholesale Price Discount (WPD):

$$WPD = 1 - \frac{WSR}{\text{Total Operating Revenue}}$$

The WPD is used to reduce retail rates by the avoided operating expenses, and assumes that non-operating expenses are also reduced by the same proportion. Thus, the WPD is algebraically equivalent to the ratio of Total Avoided Costs to Total Operating Expenses. Individual wholesale rates are determined by reducing retail rates by the amount of the wholesale price discount.

The model has been developed to provide universal application and avoid administrative burden for the ILECs, and is based on currently available public information which focuses on the overall regulated operations of the ILECs. Without a standardized model, it is likely that the pricing discounts adopted by the individual states may result in wide variances in the range of wholesale discounts and as a result may be inconsistent with one of the fundamental objectives of the 1996 Act: opening the local telecommunications market to competition. In addition, variation in the results among the states within a regional company are more an artifact of the ILEC's assignment of costs than a reflection of true cost differences between the states. To ensure consistency and fairness, therefore, the above model should be adopted and applied at the total company level.

Avoided Costs

As noted above, wholesale rates must be based on the retail rates charged to subscribers for the telecommunications service requested, less the portion thereof attributable to any marketing, billing, collection, and other costs that will be avoided by the ILEC. The

avoided costs should be clearly defined and consistent for all ILECs. Therefore it is necessary to establish specific rules and guidelines for the determination of avoided costs, including the source of the cost information utilized. The identification of specific accounts or portions of accounts from the USOA that should be defined as "avoided costs" would be the most reliable source of information, because the ILECs are required to file financial data in accordance with the USOA on a regular basis. In addition, use of data reported under the USOA would minimize the administrative burden for the ILEC, as it is a system to which they are already accustomed.

The avoided costs can be grouped into three categories:

1. Marketing, billing and collection costs
2. Other costs
3. Allocation of common costs to avoided cost activities

Marketing, billing and collection costs

Section 252(d)(3) of the 1996 Act specifically lists marketing, billing and collection costs as avoided. Such items include: product advertising, product management and sales, customer services, external relations and research and development for new products. The following specific accounts as defined by the FCC's USOA in the Code of Federal Regulations, Title 47, Telecommunication, Part 32, are avoided in full as they relate to marketing and customer service operations:

> Account 6611: Product management - This account includes costs incurred in performing administrative activities related to marketing products and services. This includes competitive analysis, product and service identification and specification, test market planning, demand forecasting, product life cycle analysis, pricing analysis, and identification and establishment of distribution channels. This account is one of the ILECs' marketing costs, which are expressly listed as avoided by the 1996 Act. Product management is a function specifically tied to determining the market demand for retail sales, which the ILEC will offer in competition with the purchaser of wholesale services. Purchasers of wholesale service from the ILECs should not be required to fund the ILECs' costs of competing with them.
>
> Account 6612: Sales - This account includes costs incurred in selling products and services. This includes determination of individual customer needs, development and presentation of customer proposals, sales order preparation and handling, and preparation of sales records. In contrast, carriers seeking to resell an ILEC service

will simply order the service on a wholesale basis - no ILEC sales resources are required.

Account 6613: Product advertising - This account includes costs incurred in developing and implementing promotional strategies to stimulate the purchase of products and services, but excludes non-product-related advertising, such as corporate image, stock and bond issue and employment advertisement, which are included in the appropriate functional accounts. This is another of the Marketing expenses specifically excluded by the 1996 Act. As in the case of Sales and Product Management costs, Product Advertising is a function that is required to make retail sales, and is therefore avoided if the ILEC sells a wholesale service.

Account 6621: Call completion services - This account includes costs incurred in helping customers place and complete calls, except directory assistance. This includes handling and recording, intercept, quoting rates, time and charges; and all other activities involved in the manual handling of calls. These expenses are incurred to serve the retail customers of the ILEC. Competing ILECs will either provide this service themselves or contract for it separately with the ILEC or some other service provider. In either case, the costs recorded in this account should not be bundled into the wholesale rate.

Account 6622: Number services - This account includes costs incurred in providing customer number and classified listings. This includes preparing or purchasing, compiling, and disseminating those listings through directory assistance or other means. As with Account 6621, a purchaser of the ILECs' wholesale services will either purchase this separately from the ILEC or some other provider, or provide this service itself. In either case, the costs recorded in this account should not be bundled into the wholesale rate.

Account 6623: Customer services -

(a) This account includes costs incurred in establishing and servicing customer accounts. This includes:
   (1) Initiating customer service orders and records;
   (2) Maintaining and billing customer accounts;
   (3) Collecting and investigating customer accounts, including collecting revenues, reporting receipts, administering collection treatment, and handling contacts with customers regarding adjustments of bills;
   (4) Collecting and reporting pay station receipts; and
   (5) Instructing customers in the use of products and services.

(b) This account also includes amounts paid by interexchange carriers or other exchange carriers to another exchange carrier for billing and collect on services.

This account records the cost of setting up and billing end user accounts. The purchaser of wholesale services will be providing this service to its own end users, and should not be required to fund service to the ILEC's end user customers. Any cost of billing the purchaser of wholesale services, who will be billed for many end user lines, will be minuscule in comparison with the cost of billing each of those individual lines separately. Billing retail customers requires setting up accounts and billing individual customers. Wholesale customers, on the other hand, will be fewer in number, and are more acquainted with billing processes, thus enabling them to be served at much lower cost. Thus, although there may be some minor Customer Services costs for wholesale services, those costs are so small that they can reasonably be completely excluded as avoided costs.

Account 6722: External relations - This account includes costs incurred in maintaining relations with government, regulators, other companies and the general public. This includes:

(a) Reviewing existing or pending legislation (See also Account 7370, Special Charges, for lobbying expenses);
(b) Preparing and presenting information for regulatory purposes, including tariff and service cost filings, and obtaining radio licenses and construction permits;
(c) Performing public relations and non-product-related corporate image advertising activities;
(d) Administering relations, including negotiating contracts (See also Account 6725, Legal), with telecommunications companies and other utilities, businesses, and industries. This excludes sales contracts (See also Account 6612, Sales); and
(e) Administering investor relations

This account records primarily the costs of dealing with regulators. In an environment where purchasers of the ILECs' wholesale services will be attempting to compete with the ILECs, these activities are likely to be primarily either trying to justify a lower wholesale discount, or lowering retail rates to respond to the competition. Purchasers of wholesale services from the ILECs' should not be forced to fund these activities. Since the wholesale rates will simply be discounted retail rates, the regulatory cost of wholesale rates will be negligible.

Account 6727: Research and development -

(a) This account includes costs incurred in making planned search or critical investigation aimed at discovery of new knowledge. It also includes translating research findings into a plan or design for a new product or process or for a significant improvement to an existing product or process, whether intended for sale or use.

(b) This excludes making routine alterations to existing products, processes, and other ongoing operations even though those alterations may represent improvements.

This account records the expenses of "pure research." Little if any of this research and development will be of practical use for the services that purchasers of ILEC wholesale services will use. Therefore it is reasonable to count all expenses in this account as avoided.

Other costs

There are a number of additional expense items defined by the USOA which are not relevant to the provision of telecommunications service that an ILEC currently provides. Expense items that relate to products or services that will not be resold to resellers are clearly avoided with respect to providing services and products that will be resold. For example, public telephone terminal expenses are expenses that are not incurred in providing residential or business services. Similarly, expenses related to a large private branch exchange should be charged directly to specific customers as the service will not be resold. In essence the other cost accounts listed below represent items in the ILEC cost structure that are not related to products that will be resold and therefore are avoided:

Account 6113: Aircraft expense - This account includes such costs as aircraft fuel, flight crews, mechanics and ground crews, licenses and inspection fees, washing, repainting, and minor accessories.

Account 6341: Large private branch exchange expense

Account 6351: Public telephone terminal equipment expense

Account 6511: Property held for future telecommunications use expense

Account 6512: Provisioning expense - This account includes costs incurred in provisioning material and supplies, including office supplies. This includes receiving and stocking, filling requisitions from stock, monitoring and replenishing

stock levels, delivery of material, storage, loading or unloading and administering the reuse or refurbishment of material. Also included are adjustments resulting from the annual or more frequent inventory of material and supplies.

Account 6562: Depreciation expense for property held for future telecommunications use

Account 6564: Amortization expense, intangible

Allocation of common costs to avoided cost activities

Within the USOA there are a number of expense line items which are either common costs or general overhead. By definition, overhead costs support all other functions, including those that are avoided, such as marketing. For example, the Human Resources department incurs expenditures in the staffing of the marketing department. As marketing expenses are avoided, so are the expenses incurred in supporting marketing. Therefore, a portion of these expense items should also be excluded as an avoided cost.

In order to obtain a clear simple and fair result, the portion of general overhead and general support expenses that are avoided is based on the relative ratio of avoided costs to total operating expenses This approach is reasonable because expense line items and general overhead and support expenses are related. The following USOA accounts include common costs or general overhead which support marketing and customer service operations:

General overhead expenses include the following account line items; 6711 - Executive, 6712 - Planning, 6721 - Accounting and finance, 6723 - Human resources, 6724 - Information management, 6725 - Legal, 6726 - Procurement, 6728 - Other general and administrative, and 6790 - Provision for uncollectible notes receivable.

General support expenses include the following account line items; 6121 - Land and building expense, 6722 - Furniture and artwork, 6123 - Office equipment expense, and 6124 General purpose computers expense.

The total avoided costs, as a percentage of the total operating expenses less depreciation and amortization reported by the ILEC, are then applied against the general overhead expenses. This results in the determination of the portion of the general overhead expenses which are avoided. Depreciation and amortization are excluded from total expenses as this type of expenditure does not require general overhead support. For example, if total avoided costs were $10 million from marketing, billing, collection costs,

and other avoided general support expenses, and the total operating expenses less depreciation and amortization were $40 million, then 25% ($10/$40) of general overhead expenses would be avoided.

The total avoided costs, as a percentage of the total operating expenses less the general support expenses as reported by the ILEC are applied against the general support expenses. This results in the determination of the portion of the general support expenses which are avoided. For example, if total avoided costs were $10 million from marketing, billing, collection costs, and other avoided general overhead expenses, and the total operating expenses were $50 million, then 20% ($10/$50) of general support expenses would be avoided.

Since the amount of general support costs that are avoided is in part dependent on the amount of general overhead costs that are avoided and vice-versa, the calculated percentage to determine the allocation of common costs to avoided cost activities is based on an iterative process whereby the avoided portion of the general overhead calculation and the general support calculation are performed repeatedly until the point where the calculations converge to an avoided percentage for each cost.[1]

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[1] To illustrate in the examples above, the portion of general overhead that is avoided is calculated first. Since the portion of general support that is avoided has not been calculated yet, one starts with $10 million as the total avoided cost, and arrives at 25% of general overhead as avoided. If general overhead expenses amounted to $4 million, then $1 million of that is avoided. The total avoided amount is now $11 million. The portion of general support that is avoided is $11 million / $50 million, or 22.0%. If general support is $1 million, then $ 0.22 million is the avoided portion. The total avoided is now $11.22 million, meaning the $10 million used to calculate the portion of general overhead avoided is too low. This percentage is recalculated to be $11.22 million / $40 million, or 28.05%. This means that 0.2805 times $4 million, or $1.122 million of general overhead is avoided, not $1.0 million, and the total avoided is $11.342 ($10+$0.22+$1.122). The portion of general support that is avoided is then $11.342 million / $50 million, or 22.68%. Each additional repetition will add less and less to the total avoided amount, converging to $11.364 million. The final percentages in this example are $11.364 million / $40 million, or 28.41% for general overhead, and $11.3636 million / $50 million, or 22.73% for general support. Although this calculation appears complicated and burdensome, the iteration function can be performed by any major spreadsheet software.

Pricing of Wholesale Services

Application of Wholesale Discount

The wholesale discount as calculated in this study for each ILEC should be applied to each of the telecommunications services offered at wholesale rates. The use of published information available in ARMIS Report 43-03 provides consistent information for each ILEC in a format that is familiar. Even if more detailed information were publicly available on a product-by-product basis, the consistency of the information would be questionable due to the numerous allocations and assumptions the ILEC would have to make to develop the product-specific information. To require the ILEC to provide such detailed information on a product-by-product basis would be a very large administrative burden for the ILECs and the responsible federal and state regulatory agencies.

The application of the wholesale discount at the regional company level, including the allocation of avoided costs, satisfies the goals of clarity and simplicity. In addition, it ensures that the discounts adopted will be consistent with the fundamental objectives of the 1996 Act. It also avoids any complications in determining separate wholesale rates for bundled products, which due to "loss-leader" product strategies may be operating below cost, and may yield negative or meaningless wholesale discount rates.

Results

The results of the wholesale pricing discount model are presented by ILEC using total company calculations. Since the model is standardized, it ensures a consistent and equitable wholesale discount calculation that is consistent across companies.

A comparison of the wholesale discount rate by RBOC and GTE illustrates that different rates are calculated as a result of the different operating performances and cost structures of the companies. However, the wholesale discount rates for the seven RBOCs and GTE fall in a fairly narrow range. For the years 1995 through 1997, the range of wholesale discount rates is: