

**Behind the Telephone Debates — 4
A Conceptual Framework
for Pre- and Post-Divestiture
Telecommunications Industry
Revenue Requirements**

Samuel M. Epstein

Program on Information Resources Policy

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Center for Information
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BEHIND THE TELEPHONE DEBATES - 4

A CONCEPTUAL FRAMEWORK FOR PRE- AND POST-DIVESTITURE TELECOMMUNICATIONS
INDUSTRY REVENUE REQUIREMENTS

Samuel M. Epstein

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Project Director: Anthony G. Oettinger

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Chairman: Anthony G. Oettinger

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Executive Director: Benjamin M. Compaine

Executive Director: Oswald H. Canley

Samuel M. Epstein is a district manager in the Marketing Department at
AT&T-Communications. He wrote this volume while he was a research
associate with the Program.

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Executive Summary

This volume proposes a conceptual framework, detailed in four extensive charts, for representing pre- and post-divestiture handling of telecommunications industry revenue requirements. The analytical structure developed here provides an integrated view of a sequence of industry processes often dealt with in a fragmented fashion. These processes include jurisdictional revenue requirement allocations, pricing of major state and interstate services, revenue requirement recovery, revenue pooling and distribution of pooled revenues among carriers.

The conceptual framework serves as a tool for identifying options, for evaluating contingencies and for assessing change, clarifying how established practices are changing to accommodate access charges and Computer Inquiry II in a divested operating environment. This effort suggests insights into fundamental telecommunications policy areas including assessment of winners and losers as additional markets are deregulated or opened to competition; appropriateness, in a competitive environment, of existing conventions for handling telecommunications industry revenue requirements; sustainability of broad averaging in cost allocations and ratemaking; development of strategies for the transition to a competitive industry structure; and a host of pending legislative and regulatory proceedings.

Chart 1 is a pre-divestiture view of the handling of telecommunications industry revenue requirements. The second chart shows the changes, occasioned by divestiture, in the definitions of industry revenue requirements dealt with in Chart 1, as well as the linkages

among Bell Operating Company (BOC)/Independent Operating Company (IOC) and interexchange carrier revenue requirements. Charts 3 and 4 deal with options for handling AT&T/IOC and BOC/IOC revenue requirements as defined in Chart 2, enabling comparisons between pre- and post-divestiture modes of operation, between BOC and AT&T revenue requirements, and between pre-divestiture revenue requirements and the sum of BOC, AT&T and IOC revenue requirements post-divestiture.

None of the graphics is based on reported data; rather, we emphasize structure, process and concepts as a basis for further study and for organizing the numerous complex details associated with the handling of telecommunications industry revenue requirements.

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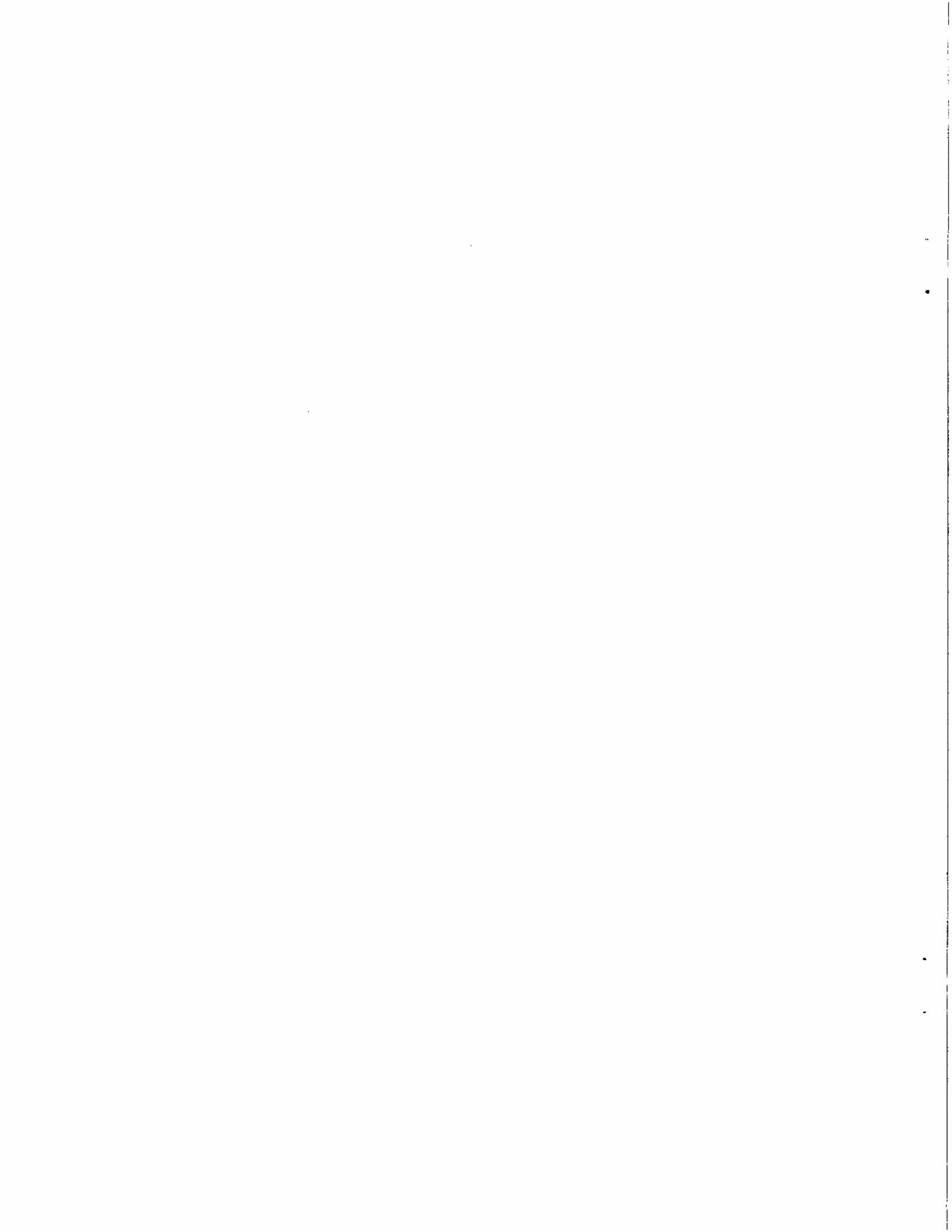
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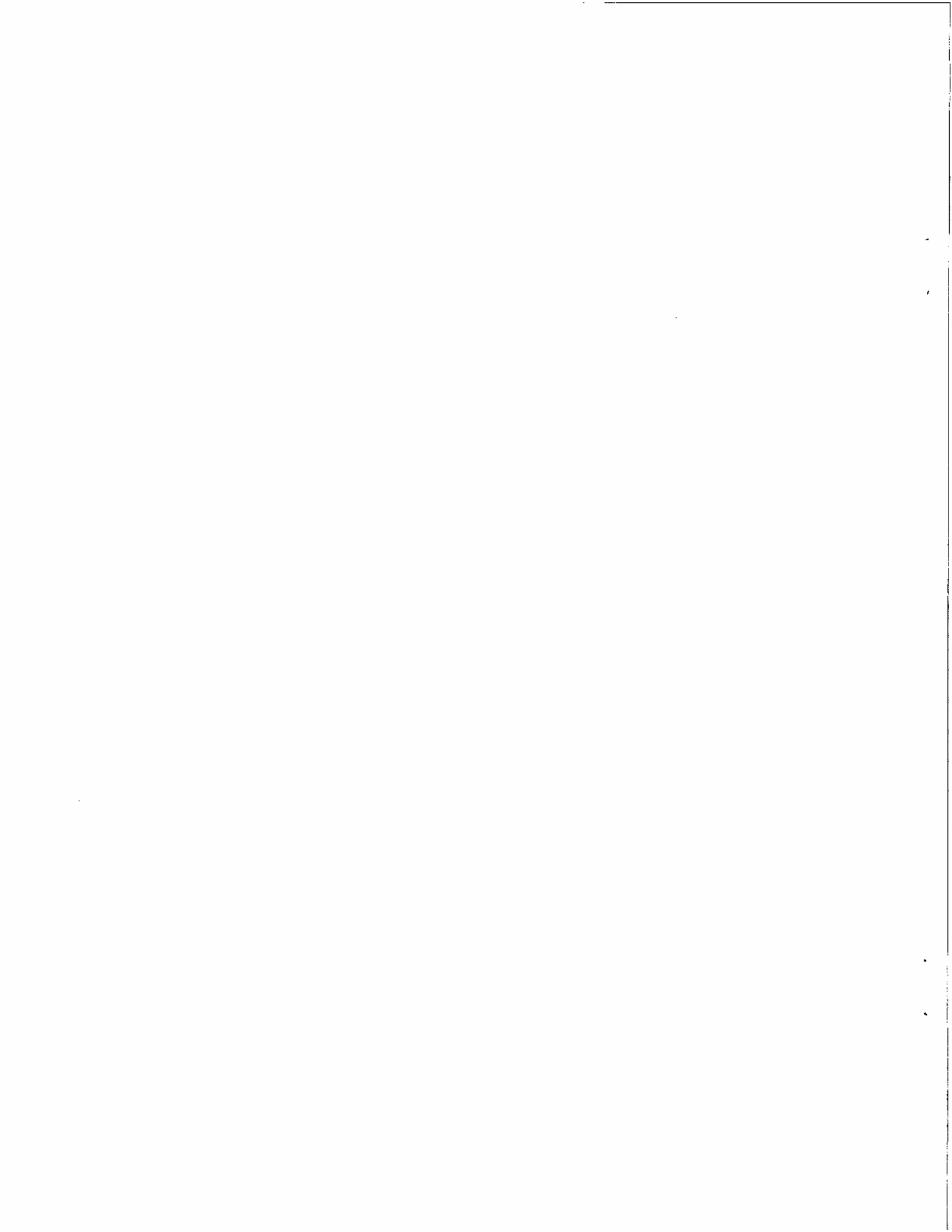
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Chapter 1

1.0 Introduction

This volume proposes a conceptual framework for defining telecommunications industry revenue requirements and for representing major industry processes from pre- as well as post-divestiture perspectives. Processes dealt with include jurisdictional revenue requirement allocation, pricing of major state and interstate services, revenue requirement recovery, revenue pooling and distribution of pooled revenues among carriers.

The conceptual framework describes major attributes of industry practices and linkages between them, and provides an integrated view of a sequence of industry processes that are often dealt with in a fragmented fashion both within the industry and in the regulatory arena. The analytical structure developed here serves as a tool for identifying options, for evaluating contingencies, and for assessing the extent to which changes in a given process imply changes in related processes. It therefore provides a basis for detailed analyses of issues confronting the industry, regulators, legislators and other stakeholders.

The broad examination, in this volume, of industry processes clarifies how established practices are changing to accommodate access charges and Computer Inquiry II (CI-2) in a divested operating environment. Perspective is provided for understanding the relative importance of access charges in the context of total industry revenue requirements, and for evaluating the impacts, on industry operation, of changed methods of recovering access and other revenue requirements.

In addition to providing insights regarding divestiture, access charges and CI-2, this volume is relevant to a range of other fundamental telecommunications policy areas. These include assessment of winners and losers as additional markets are deregulated or opened to competition; appropriateness, in a competitive environment, of existing conventions for defining and handling telecommunications industry revenue requirements; sustainability of broad averaging in cost allocations and ratemaking; development of strategies for achieving a transition from a monopolistic to a competitive industry structure; and a host of pending legislative and regulatory proceedings.

Divestiture, rapid technological innovation, the evolution of competition and the vastly increased number of players in the telecommunications arena can be expected to be accompanied by a lesser degree of stability and decreased centralization in the traditional telecommunications industry as well as by increasingly intense debates of controversial issues. The alternatives under scrutiny are complex, and the politics of the stakeholder process further heighten the challenge of dealing with multibillion dollar, widely debated issues. In the context of a changing telecommunications environment, this volume seeks to contribute toward the satisfaction of an increasing need for improved understanding of industry processes, and to provide a tool for monitoring their evolution.

1.1 Format and Use of This Volume

Four charts describing the conceptual framework are provided with this volume and are explained in detail in Chapters 2 through 5. The first of these charts is a pre-divestiture view of the handling of

telecommunications industry revenue requirements. The second chart shows the changes, occasioned by divestiture, in the definitions of industry revenue requirements dealt with in Chart 1. In Chart 2, the representation of revenue requirements for a unified Bell System and the independents is separated into distinct representations for interLATA AT&T/Independent Operating Company (IOC) and intraLATA Bell Operating Company (BOC)/IOC revenue requirements. Linkages between these sets of revenue requirements are shown as well. The portions of BOC/IOC revenue requirements to be recovered by access charges assessed interexchange carriers, and by shared facilities rental charges to be assessed AT&T, are represented. BOC expenses incurred by the payment of shared facilities rental fees to AT&T are also shown. Similarly, Chart 2 reflects the portion of AT&T expenses incurred by the payment of access charges and rental fees as well as the portion of AT&T revenue requirements to be recovered by shared facilities rental charges assessed BOCs.

Charts 3 and 4 deal with options for handling the separately defined AT&T/IOC and BOC/IOC revenue requirements as derived in Chart 2. Their format parallels that of Chart 1 to enable comparisons between the pre- and post-divestiture modes of operation, comparisons and linkages between BOC and AT&T revenue requirements, and comparisons of pre-divestiture revenue requirements with the sum of BOC, AT&T, and IOC revenue requirements post-divestiture.

The discussions of Charts 1 through 4 provide overviews of their layouts along with detailed descriptions of industry practices depicted by component graphics. These graphics are interspersed with text for

the reader's convenience. Discussions of Charts 3 and 4 will refer to Chart 1 to clarify differences between pre- and post-divestiture modes of industry operation.

The reader is encouraged to view the charts in their entirety for perspective on how individual graphics interrelate and for an integrated view of the sequence of complex processes that largely govern the telecommunications industry. The charts serve as a "visual index" for the accompanying text; the text can be treated as a reference source and read selectively. Material has been organized so that readers can scan the charts, identify areas of particular interest and locate portions of the text providing details. Accordingly, subsections of each chapter correspond to columns or frames of the charts, and text and graphics can be readily cross-referenced.

The analysis of public policy alternatives associated with processes and options depicted in the charts and described in the text is beyond the scope of this volume. Rather than presenting a thorough policy or stakeholder analysis, this volume presents a conceptual framework that provides a context or foundation for such analyses. The relevance of the proposed conceptual framework to current telecommunications policy debates is exemplified in brief discussions of issues for which insights are provided by the processes represented on the charts.

1.2 Assumptions

None of the graphics in this volume is based on reported data. In addition, we have not taken account of demand dynamics, and we assume that there are no errors in planning assumptions. For example, we assume that there are no forecasting errors and no mismatch between the authorized and achieved rates of return. The rate of return used for planning purposes is assumed to be the achieved rate of return. We make these assumptions to emphasize structure, process and concepts for handling revenue requirements. A fundamental understanding of processes and basic concepts provides the foundation for gathering and analyzing data, and for further study to understand better the implications of demand dynamics and of errors in planning assumptions. These charts provide the basis for organizing, unifying and assimilating the numerous details associated with the handling of telecommunications industry revenue requirements.

For specificity, the graphics used in the charts and the accompanying text that deal with access charges assume the access structure and rules established in FCC orders issued in 1983. However, these graphics were designed in a sufficiently general fashion to allow their treatment of access options to remain valid as the implementation of access charges evolves.

Chapter 2Chart 1: Pre-Divestiture Traditional Telecommunications IndustryRevenue Requirements2.0 Overview

Chart 1 provides a graphic representation of the definition and treatment of pre-divestiture Bell System and IOC revenue requirements. Each column of the chart corresponds to a major industry process and will be discussed in detail. A sample of the policy issues on which each column can provide insights will also be reviewed.

Column 1 defines Bell System and IOC revenue requirements. Column 2 shows the allocation of revenue requirements defined in Column 1 between the state and interstate jurisdictions. Columns 3a and 3b describe how the jurisdictionally allocated revenue requirements were handled within jurisdictions to provide a basis for pricing decisions. Pricing is dealt with in Columns 4a and 4b. 4a deals with pricing for state services; 4b deals with pricing for federal or interstate services. Column 5 deals with demand both for state and interstate services. Billed revenues in Column 6 result from demand, shown in Column 5, for services at the prices shown in Column 4. Column 7 defines the state and interstate revenue pools for those services where independent company and Bell System Company revenues were pooled. Column 8 provides an overview of the State Settlements, Independent Settlements, and Division-of-Revenues processes. Finally, Column 9 defines booked revenue and demonstrates that industry practices assured the satisfaction of the revenue requirements that were established in Column 1.

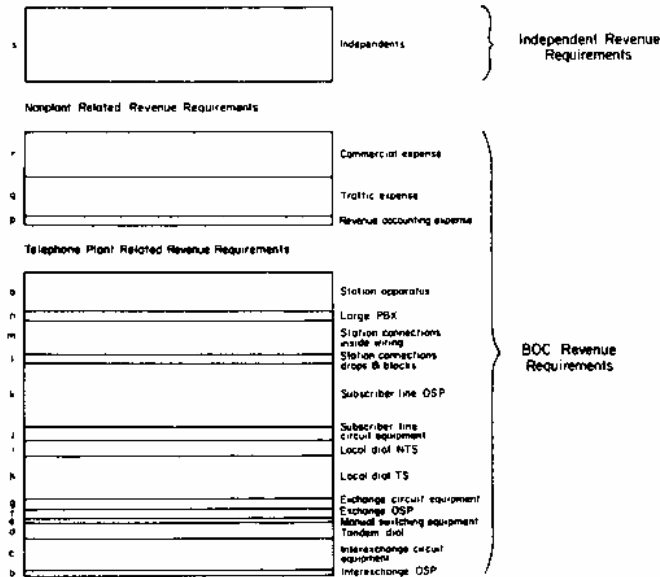
The rows of the chart show several illustrative states, Long Lines (LL) and various summaries. States where explicit processes were defined for identifying intrastate toll revenue requirements are represented by the graphics for State 3. New York is an example of such a state. The row marked "Federal" includes Long Lines revenue requirements as well as the sum of revenue requirements allocated to the Federal jurisdiction in each state. The summary row marked "Total" reflects the sum, across all states, of state-allocated revenue requirements as well as total interstate-allocated revenue requirements shown in the Federal row.

2.1 Column 1: Revenue Requirements

Revenue requirements for each entity shown in the rows (State 1, State 2, ..., Long Lines, etc.) of Chart 1 are represented by the areas of rectangles in Column 1. These rectangles reflect annual expenses and other annual revenue requirements rather than book values of investments. Annual revenue requirements are based on FCC-prescribed capital recovery and other accounting practices.

The rectangle from the State 1 row of Column 1 is reproduced in Figure 2-1 below. The total area of Figure 2-1 is divided into segments for Independent Operating Company (IOC) revenue requirements, Bell Operating Company (BOC) non-plant-related revenue requirements and BOC telephone plant-related revenue requirements in State 1. IOCs are grouped because data disaggregated to the same level of detail as the BOC data classifications shown are not readily available. Additionally, the inclusion of separate representations for each company providing service in each state would introduce a level of complexity masking the basic attributes of the industry practices under discussion. The three rows of BOC non-telephone-plant-related revenue

requirements reflect commercial expense, traffic expense and revenue accounting expense. The remaining rows reflect telephone-plant-related revenue requirements, including maintenance, for station apparatus, large PBX, station connections-inside wiring, station connections drops & blocks, subscriber line OSP, subscriber line circuit equipment, local dial NTS, local dial TS, exchange circuit equipment, exchange OSP, manual switching equipment, tandem dial, interexchange circuit equipment, interexchange OSP.



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**Figure 2-1: Chart 1, State 1 Row, Column 1
State 1 Pre-Divestiture Annual Revenue Requirements**

The labels for the various categories of non-plant-related and telephone-plant-related revenue requirements define "analytical account categories."* These categories represent groupings of items in one or

*The derivation of the analytical account categories is discussed in Behind The Telephone Debates - 1, At the Heart of the Debates: Costs, Control, and Ownership of the Existing Network by Carol L. Weinhaus and Anthony G. Oettinger, Cambridge, Ma: Program on Information Resources Policy, Harvard University, 1985. See The Telephone Debates-Index: Costs, derivation of analytical cost categories. We also note that analytical account d, labeled "Tandem dial" throughout this volume, is more appropriately titled Toll dial.

more USOA accounts into a manageable number of classifications and facilitate examination of issues. Since analytical accounts are based on USOA accounts, they can be disaggregated, as required, to support analysis of issues requiring further account detail.

The representation of telephone industry revenue requirements described above is a basic element of the framework for analyzing pre- and post-divestiture modes of industry operation. Variations of Figure 2-1 and the "analytical account categories" introduced above will be employed throughout this volume.

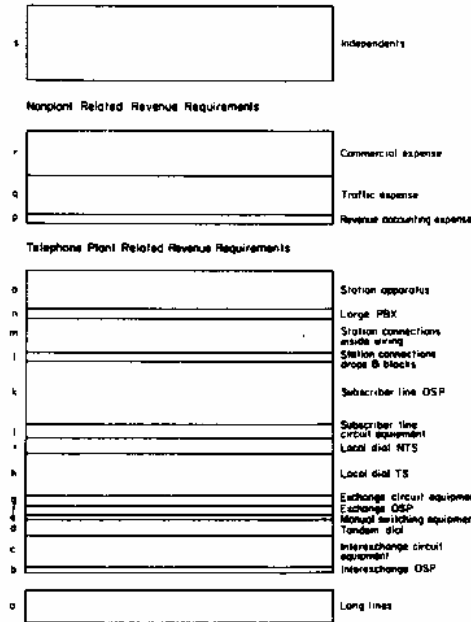
The value of a graphic such as Figure 2-1 is that it puts the variety of types of revenue requirements in perspective. For example, to sense the importance of non-traffic-sensitive (NTS) revenue requirements, we can examine the figure and see that the NTS accounts include: station apparatus, large PBX, station connections-inside wiring, station connections-drops and blocks, subscriber line outside plant, subscriber line circuit equipment, and local dial NTS. If this particular figure were drawn to scale, we could see the proportion of total BOC revenue requirements represented by NTS plant. Similar statements can be made about other types of accounts or subcategories of accounts. Such perspective enables judgments regarding the relative importance of issues, and potential impacts of certain options.

For convenience the same rectangle appears in Column 1 for each state. In practice, of course, gathering reported data would bring out the relative importance and relative differences between states as measured by annual revenue requirements.

The revenue requirement rectangles include joint expenses for multi-state companies as well as state-specific revenue requirements.

Note that these joint expenses are distinct from jointly used telephone plant. Jointly used telephone plant is, for example, non-traffic-sensitive plant shared by a variety of federal and state services. Joint expenses are administrative expenses and other revenue requirements (for example, plant without a state identity) associated with multi-state companies. State-specific revenue requirements reflect expenses or investment revenue requirements for plant items located in a particular state. The rectangles in Column 1 reflect an allocation of the joint expenses for multi-state companies among the states served by a given company plus the state-specific revenue requirements for each state.

The row labeled Long Lines shows total Long Lines revenue requirements. Note that Long Lines revenue requirements are not shown on a state-by-state basis. Finally, the Total row shows total revenue requirements for all the states and for Long Lines by analytical account category. The graphic for total Column 1 revenue requirements is provided in Figure 2-2.



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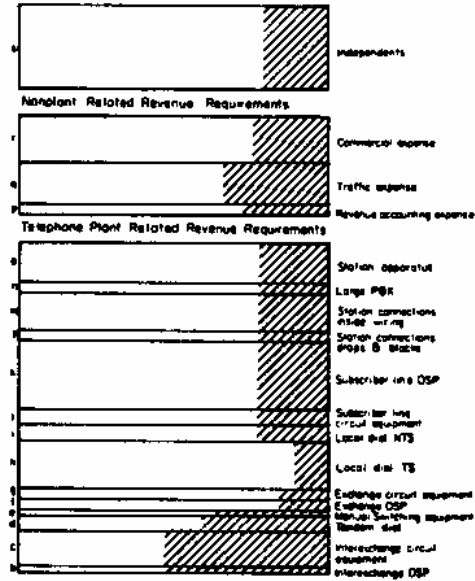
**Figure 2-2: Chart 1, Total Row, Column 1
Total Pre-Divestiture Annual Revenue Requirements**

2.2 Column 2: Jurisdictional Revenue Requirement Allocation

Column 2 shows the allocation of revenue requirements between the state and interstate jurisdictions as prescribed by the Separations Manual.^{*} The jurisdictional allocation of revenue requirements for State 1 is illustrated in Figure 2-3. The shaded portion of each analytical account has been allocated to interstate in each state. All Long Lines revenue requirements have been allocated to interstate since those revenue requirements deal exclusively with provisioning of

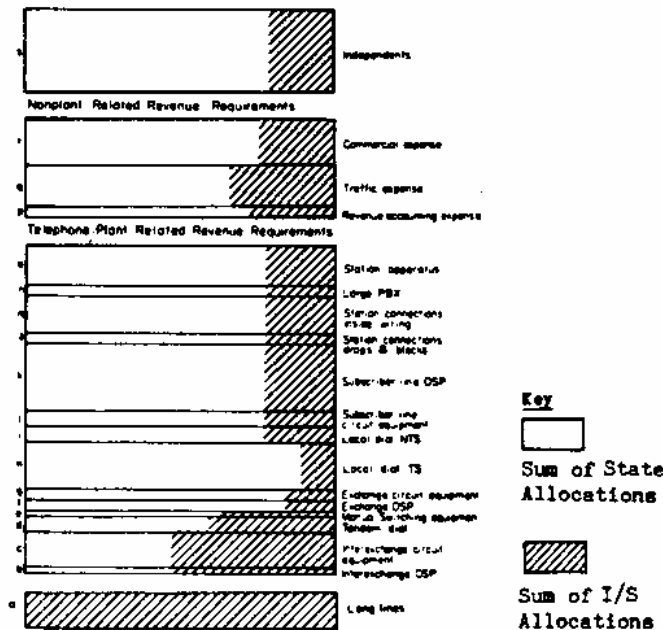
^{*}NARUC-FCC Cooperative Committee on Communications. Separations Manual. Standard Procedures for Separating Telephone Property Costs, Revenues, Expenses, Taxes and Reserves. Washington: National Association of Regulatory Utility Commissioners, 1971. See also Amendments to FCC-NARUC Jurisdictional Separations Manual 49 Fed. Reg. 7934 (1984) (to be codified at 47 C.F.R. Pt. 67.)

interstate services. The Federal row shows the sum of the allocations to the federal jurisdiction in each of the states plus the Long Lines revenue requirements. Finally, the Total row, shown in Figure 2-4, provides the total of the state revenue requirements in each state and total federal revenue requirements.



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**Figure 2-3: Chart 1, State 1 Row, Column 2
Jurisdictional Allocation of State 1 Pre-Divestiture
Annual Revenue Requirements**



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**Figure 2-4: Chart 1, Total Row, Column 2
Jurisdictional Allocation of Pre-Divestiture
Total Annual Revenue Requirements**

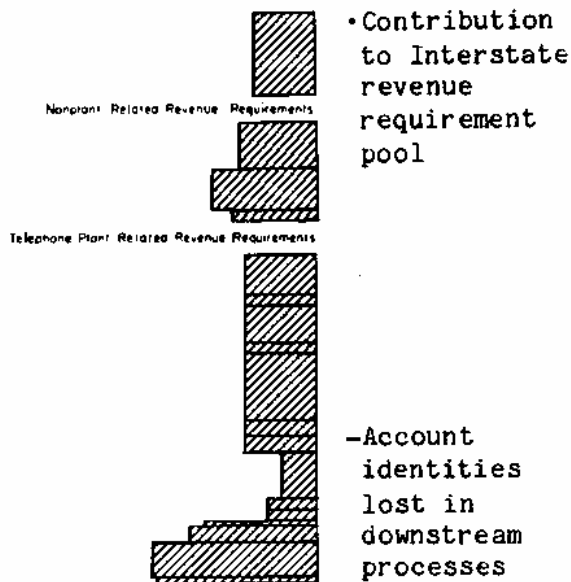
As indicated in the discussion for Column 1, the same graphic representation appears for each state and for the total. In practice, since the allocations vary by state, drawing these charts with reported data would illustrate differences in allocations on a state-by-state basis.

2.3 Column 3: Intra-jurisdictional Revenue Requirement Handling

Columns 3a and 3b deal with the way jurisdictionally allocated revenue requirements were handled in each jurisdiction prior to establishing prices for the various service offerings in each state and in the federal jurisdiction.

2.3.1 Interstate Revenue Requirement Handling

As indicated in Column 3b and in Figure 2-5, each state and Long Lines contributed revenue requirements that had been allocated to



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Figure 2-5: Chart 1, State 1 Row, Column 3b
State 1 Contribution to Pre-Divestiture Interstate
Revenue Requirement Pool

the interstate jurisdiction in Column 2 to an interstate revenue requirement pool. This pool is contained in the Federal row and in Figure 2-6. The Interim Cost Allocation Manual, known as the ICAM (FCC Docket No. 79-245), dictated how this pool of revenue requirements should be divided among the various service categories. Revenue requirements assigned to a given service category were recovered through the rate structures for that service category. As indicated in the Federal row, the service categories were MTS, WATS, Private Line, and ENFIA.

MTS
WATS
PL
ENFIA

Notes:

- account identities lost
- service category cost allocations determined by ICAM

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**Figure 2-6: Chart 1, Federal Row, Column 3b
Pre-Divestiture Interstate Revenue Requirement Pool**

It is important to note that account identities were lost in downstream processes; there was no direct association between revenue

requirements originating in given USOA accounts and prices. Rather, revenue requirements were divided among service categories by the ICAM, and rate structures were designed (Column 4) to recover aggregate revenue requirements allocated to each category. For this reason account identities are not shown in the graphic in Figure 2-6.

2.3.2 Intrastate Revenue Requirement Handling

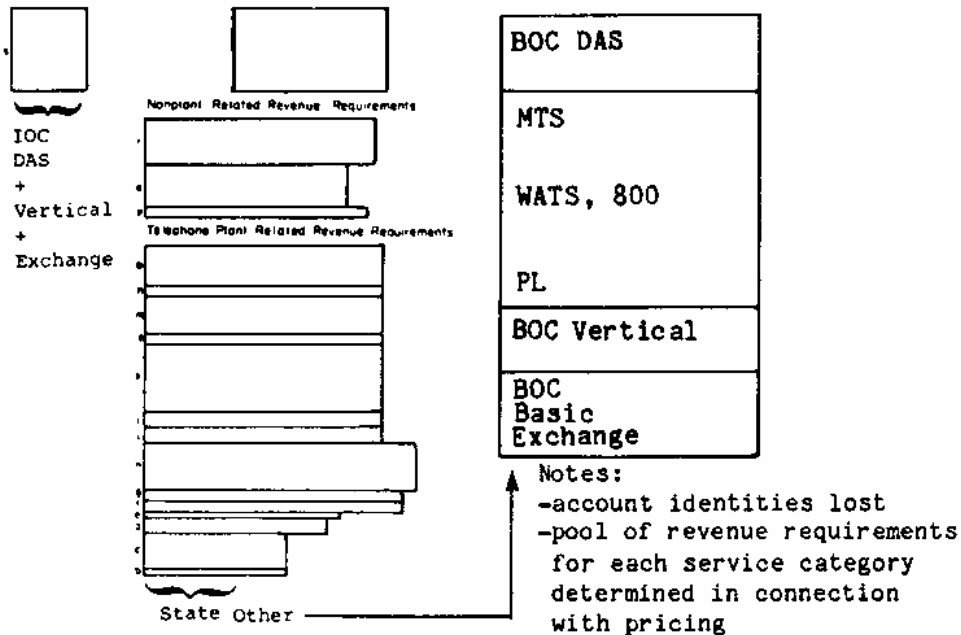
Processes analogous to the interstate process described in Section 2.3.1 were carried out in each state to determine the revenue requirement to be recovered from each intrastate service category. These state processes were, however, less formal than the ICAM-specified procedures. ICAM procedures were prescribed in response to the evolution of competition in the interstate arena. The FCC sought to establish specific Bell System revenue requirements by service category to ensure that the Bell System was not underpricing a competitive service offering (for example, Private Line) and cross-subsidizing that service with revenues from monopoly services to the competitive disadvantage of other carriers (i.e. predatory pricing). The evolution of an intrastate competitive environment may bring with it the institution of formal processes for allocating dominant carrier intrastate revenue requirements among service categories.

Column 3a illustrates the process that took place in the states. As indicated beneath the heading for Column 3a, there were two major patterns for handling revenue requirements within states. In the first pattern, which applied in most states, IOC revenue requirements for directory advertising and sales, exchange services and vertical services were peeled off first. Revenue requirements were then defined for BOC directory advertising and sales, BOC and IOC state toll

services (which include MTS, WATS, 800 Service and Private Line), BOC vertical services and BOC basic exchange services. States such as New York followed a slightly different procedure. In these states, interexchange revenue requirements rather than non-toll IOC revenue requirements were peeled off first. Hence, revenue requirements for MTS, WATS, 800 Service and Private Line were identified and separated from other state revenue requirements in the initial step of the process. The next step separated independent operating company directory advertising and sales, exchange service and vertical services revenue requirements. Finally, of what remained, directory advertising and sales revenue requirements, vertical services revenue requirements, and basic exchange service revenue requirements were identified for the BOC serving the given state.

The difference between the pattern for states exemplified by New York and the pattern for other states is the use of an explicit process for identifying BOC revenue requirements for interexchange services. With that exception, however, the procedures followed in all states were conceptually similar. Revenue requirements for major service categories (except interexchange services in states exemplified by New York) were identified in conjunction with pricing. The goal was to recover as much contribution as possible from services other than basic exchange service. Revenue requirements that could not be recovered in the marketplace through pricing schemes for services other than basic exchange services were recovered through basic exchange service rates. This process is referred to as residual pricing. Parity of state and interstate toll rates was another consideration in the attribution of state revenue requirements among service categories.

The graphic representation of the handling of intrastate revenue requirements for State 1 provides more detail, and is reproduced in Figure 2-7. First, a portion of the independent operating company revenue requirements were peeled off; those are marked IOC DAS plus Vertical plus Exchange. The revenue requirements for those services were peeled off for each independent serving the states. Remaining revenue requirements were grouped into several major categories: BOC directory advertising and sales, BOC and IOC toll services, BOC vertical services and BOC basic exchange service. Note that toll service revenue requirements included the independent operating company toll service revenue requirements.



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Figure 2-7: Chart 1, State 1 Row, Column 3a
 State 1 Handling of Pre-Divestiture Intrastate
 Revenue Requirements

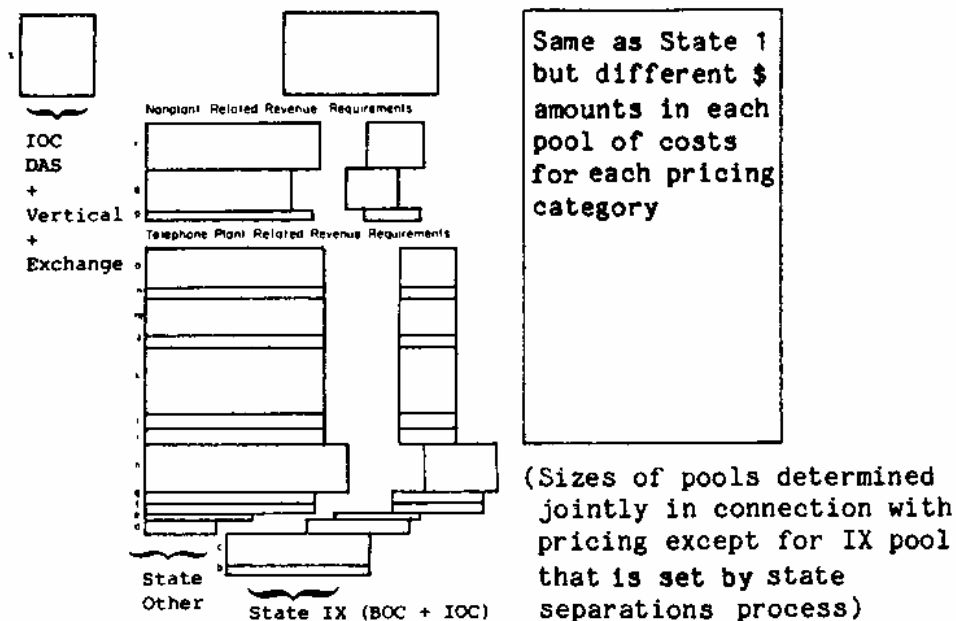
All account identities were lost in downstream processes. Revenue requirements were recovered in aggregate for each service rather than on an account-by-account basis. For this reason account identities are not shown in the right-hand side of Figure 2-7. The goal was to implement, subject to toll parity and market constraints, residual pricing objectives, recovering as much contribution as possible from services other than basic exchange and minimizing revenue requirements that remained to be recovered from basic exchange services. Accomplished in conjunction with the pricing process, this approach employed estimates of expected market response to given price schedules.

The procedure for State 3, which in this chart is New York, resembled that of other states except that in the first step of the New York process, the state SPF* and other allocators were employed to separate explicitly the portion of the revenue requirements attributable to state interexchange services.

The graphic illustrating the procedure for handling revenue requirements in New York is reproduced in Figure 2-8. Although, in contrast to the other states, a formal process existed in New York for

*The Subscriber Plant Factor (SPF) used for jurisdictional allocation of NTS revenue requirements, and other allocators used for jurisdictional allocation of traffic sensitive (TS) revenue requirements, are described in detail in Behind The Telephone Debates - 3, Federal/State Costing Methods: Who Controls the Dollars, by Carol L. Weinhaus and Anthony G. Oettinger, Cambridge, Ma: Program on Information Resources Policy, Harvard University, August 1984, Draft.

separating interexchange revenue requirements, New York revenue requirements were grouped into the same service categories as revenue requirements for other states. Hence the right-hand side of the graphic for New York takes the same form as the right-hand side of the graphics for other states. Again, as for State 1, revenue requirements for interexchange services refer to IOC as well as BOC toll service revenue requirements.



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Figure 2-8: Chart 1, State 3 Row, Column 3a
New York State Handling of Pre-Divestiture
Intrastate Revenue Requirements

Thus far in the discussion of Chart 1, we have seen how revenue requirements were defined, we have seen how revenue requirements were jurisdictionally allocated, and we have seen how the allocated revenue requirements were attributed in each jurisdiction to major service categories. We also have seen that a formal process existed for

allocating revenue requirements by major service category within the interstate jurisdiction. The definition of revenue requirements for each service category provides the foundation for a discussion of pricing to recover those revenue requirements.

2.4 Column 4: Pricing

2.4.1 Pricing of State Services

Column 4a deals with pricing for state services. The graphic for State 1 in Column 4a is shown in Figure 2-9. BOCs and IOCs had separately determined schedules for all services except toll and extended-area service (EAS).

- DAS: lines, scope,...
- State Toll: Statewide Average Schedule

Customer	MTS WATS OCP(?)	PL OCP(?) WATS access lines
	usage	flat

- Vertical Services
- Exchange

Customer	· addn'l msg units	· flat svc. rate · initial msg/meas svc. rate
	usage	flat

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Figure 2-9: Chart 1, State 1 Row, Column 4a
Pre-Divestiture Pricing of State Services

Rate schedules recovered revenue requirements for directory advertising and sales in each state, taking into account lines of print

in the directory, the scope of the directory and other rate elements.

Statewide average schedules existed for state toll. The same schedule applied for calls from a customer served by a Bell office to another customer served by a Bell office, for calls from a customer served by an independent office to another customer served by an independent office, and for calls from a customer served by a Bell office to a customer served by an independent office. The chart shows that toll services were paid for directly by end-user customers either on a usage basis or on a flat basis depending on the service. If resale were permitted and/or OCCs leased facilities from BOCs or IOCs, certain toll services would be paid for directly by interexchange carriers. MTS and WATS, and possibly optional calling plan (OCP) services, were priced on a usage basis. On the other hand, Private Line services, certain kinds of optional calling plans, and WATS access lines were priced on a flat basis. Next, we depict pricing to recover revenue requirements for vertical and exchange services.

As the chart indicates, end-user customers paid directly for exchange services, either on a usage basis or on a flat basis. If resale of local exchange services were permitted, BOCs and IOCs would receive payment for those services directly from carriers rather than from end-user customers. Usage-based charges entailed customer payments for each message over a given allowance, or, if message units were measured, customer payments for additional message units were based on the length of the additional conversation beyond some initial usage level. Customer payments for exchange service on a flat basis included flat rate service (i.e. unlimited calling) payments as well as the initial period or basic allowance payments for message rate or measured rate service.

A similar figure to that indicated for State 1 obtains for each of the states since each state had essentially the same kinds of service offerings. The price levels varied by state depending on the revenue requirements that had been defined to exist for each state and the way telephone companies and regulators had chosen to group revenue requirements by major service category in Column 3a.

2.4.2 Pricing of Interstate Services

Column 4b deals with the pricing of federal services. Since federal services were priced on a nationwide basis, rate schedules appear only in the Long Lines and Federal rows. The graphics in those rows are reproduced in Figures 2-10 and 2-11 respectively.

IX Carrier		PL
Customer		PL
	usage	flat

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Figure 2-10: Chart 1, Long Lines Row, Column 4b
Pre-Divestiture Pricing of Long lines Services

Interstate Toll: Nationwide
 Average schedule for all states
 for BOC & IOC customers (Bell -
 Bell, Bell - IOC, IOC - IOC)

IX Carrier	MTS WATS ENFIA*	PL Leased Facilities WATS access lines
Customer	MTS WATS OCP(?)	PL OCP(?) WATS access lines
	usage	flat

*negotiated usage

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Figure 2-11: Chart 1, Federal Row, Column 4b
 Pre-Divestiture Pricing of Federal Services

Long Lines established prices and billed directly for most interstate Private Line services; as indicated on the chart, those services were priced on a flat basis and were generally paid for directly by end-user customers. Payments to Long Lines for facilities leased by OCCs for resale were made directly by interexchange carriers.

As indicated in the Federal row, in addition to direct payments to Long Lines for Private Line services, end-user customers also paid BOCs and IOCs directly for most other services in the federal arena. BOCs and IOCs received payments for resold services and ENFIA directly from interexchange carriers. As in the case of state toll, interstate toll services were paid for either on a usage basis or on a flat rate basis. MTS, WATS, perhaps certain optional calling plans, and Exchange Network

Facilities for Interstate Access (ENFIA) were paid for on a usage-sensitive basis. ENFIA payments, although ostensibly based on usage, were in fact established on a negotiated usage basis, and usage was not defined in the same way as Bell/IOC usage. OCC minutes were discounted and conversation time versus holding time minutes of use were employed.* Toll services in the federal arena that were priced on a flat basis were Private Line and WATS access lines and perhaps optional calling plans for which experiments were underway on a limited basis at the end of 1983.

Federal toll services were priced on nationwide average schedules for all BOC and IOC customers. Whether the call employed only Bell facilities, a combination of Bell and independent facilities, or only independent facilities, the same nationwide average toll schedule applied. As Charts 3 and 4 indicate, the post-divestiture environment implies deviation from nationwide average schedules.

2.5 Column 5: Demand

Column 5 deals with the demand for state and interstate services in each state as well as with demand for Long Lines services. It also summarizes total demand for federal services and total demand (across all states) for state services.

For each state, the chart and Figure 2-12 indicate demand for directory advertising and sales; demand for state toll services recorded in minutes, messages, access lines, or circuits for MTS, WATS,

*The conventions for calculating OCC usage are the subject of continuing debate between OCCs and the traditional telephone industry. Background regarding these controversies may be found in Behind The Telephone Debates - 3, Federal/State Costing Methods: Who Controls the Dollars, by Carol L. Weinhaus and Anthony G. Oettinger, Cambridge, Ma: Program on Information Resources Policy, Harvard University, August 1984, Draft.

and Private Line; demand for vertical services; and demand for exchange services by lines, minutes or messages. In the interstate arena, the chart shows demand by customers in each state for interstate toll services as measured in minutes, messages, access lines or circuits. In the Long Lines row, demand is shown for certain interstate Private Line services measured in lines or circuits, and is classified by PL option.

The Federal row contains a summary of total demand for interstate services. This summary represents the sum of demand for interstate services in each state, and demand for Private Line services provided

• DAS

• State Toll
-minutes
-access lines

• Interstate Toll
-minutes
-access lines

• Vertical

• Exchange
-lines
-minutes
-messages

¹⁰ 1985 Program on Information Resources Policy, Harvard University.

Figure 2-12: Chart 1, State 1 Row, Column 5
Pre-Divestiture Demand in a Given State

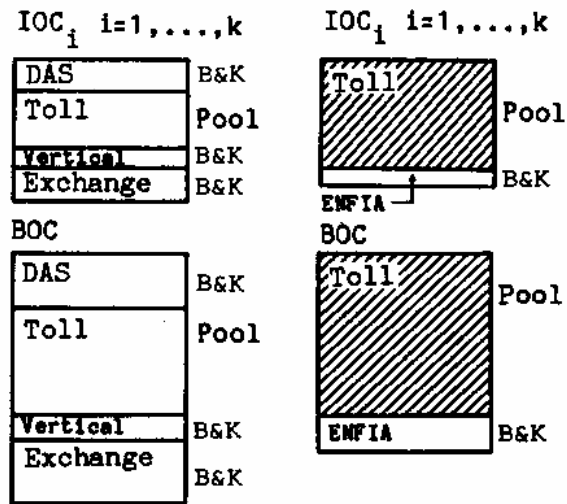
directly by Long Lines. Finally, the Total row provides a summary of total demand for state services, which is the sum of the state services demanded in each state, and total demand for interstate services that was previously shown in the Federal row.

2.6 Column 6: Billed Revenues

Column 6 provides representations of billed revenue. It deals with customer payments in each state to BOCs and IOCs and to Long Lines. Customer payments are classified by billing entity (i.e. BOC, IOC, LL). For example, as seen in the graphic for State 1, and in Figure 2-13, each of the independent companies as well as the Bell Operating Company serving a state billed for state services. There was billing for each service offering in each state; there was billing for directory advertising and sales, for toll services, for vertical services, and for exchange services. The chart also notes that billing for all state services, except for toll services, was on a bill and keep (B&K) basis. That is, an IOC or BOC that billed for a given service kept the revenues associated with that billing. In the case of toll services, the Bell and independent company billed revenues in a given state were pooled. The discussion of the next column will further treat the establishment of those pools.

Billing for interstate services also took place in each state. Again, independent operating companies and Bell Operating Companies each billed their customers for interstate services.

The chart reflects billing for interstate MTS, WATS and various categories of Private Line, as well as ENFIA. ENFIA billing was generally on a bill-and-keep basis, whereas the billing for all other interstate toll services was on a pooled basis. Billed revenues for

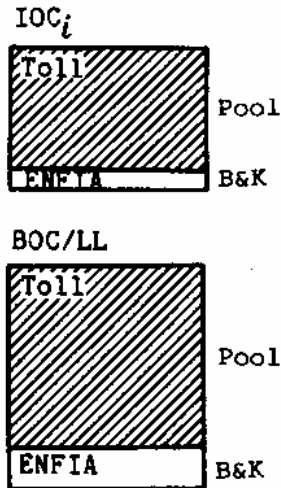


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Figure 2-13: Chart 1, State 1 Row, Column 6
State 1 Pre-Divestiture Billed Revenues

non-ENFIA toll services in each state constituted contributions to an interstate pool of revenues and are shaded. Graphics similar to that shown in State 1 obtain for each state.

The Long Lines row shows billing for Private Line services billed directly by Long Lines. The Federal row and Figure 2-14 show the sum of the interstate toll billing by each of the independent operating companies, the Bell Operating Companies, and Long Lines. The areas labelled "toll" with diagonal shading represent the sum of contributions by IOCs, BOCs and LL to total billing for interstate toll services, and define the interstate toll pool. Totals for ENFIA in the Federal row appear only as a summary of the total size of the ENFIA billing rather than as a basis for a process to be described in Column 8. ENFIA was not generally subject to Division of Revenues, and ENFIA



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Figure 2-14: Chart 1, Federal Row, Column 6
 Total Pre-Divestiture Federal Billed Revenues

billing was on a bill-and-keep basis.

The Total row summarizes BOC and IOC total billing for all state and interstate services. Total billing for interstate services shown in this row is identical to the content of the Federal row.

2.7 Column 7: Revenue Pools

Column 7 defines the revenue pools established in each state and in the interstate arena. The State 1 row shows the revenue pool formed by the sum of intrastate toll revenues billed by IOCs and the BOC serving State 1. A similar graphic representation obtains for each state. The scale of these graphics would differ from the graphic shown for State 1 depending on the magnitude of the toll billing in each of the states.

The Federal row shows the definition of the interstate revenue pool. It represents total billed revenues for non-ENFIA interstate services in each state by BOCs, IOCs, and Long Lines. These revenues were diagonally shaded in Column 6.

2.8 Column 8: Distribution of Revenues by Ownership

Having defined revenue pools in Column 7, we have the foundation for discussing the Division of Revenues and Settlements processes. As indicated below the heading for Column 8, the State Settlements process was the vehicle whereby the BOC and each IOC providing service within a state recovered, from the revenue pools defined in Column 7, expenses, capital, taxes, and return on investment. The basis for calculating the level of recovery by each carrier was specified in contractual agreements and varied by carrier and by state. The possible options for calculation of return on investment included state toll rate of return; combined state toll and local rate of return; combined state toll, local and interstate rate of return; and shared rate of return. When a shared rate of return applied, as was the case in New York, the carriers providing service agreed to withdraw from the revenue pool expenses and taxes, as well as revenues to satisfy capital recovery requirements. Residual revenues were shared in proportion to investments. Hence, a partner providing for use by the partnership 80 percent of the state toll investments would withdraw 80 percent of the residual revenues. Such a process insured that each participating carrier earned at the same rate of return. State Settlements were administered in each state by the BOC serving that state.

The Division of Revenues and Independent Settlements Processes were the vehicles whereby each BOC, each IOC, and Long Lines, the carriers

that as "partners" provided service between states, recovered expenses, taxes, capital based on established capital recovery practices and return on investments. The BOCs, Long Lines and some IOCs shared the same rate of return in the distribution of interstate revenues by ownership. IOCs that did not earn at this shared rate of return level were compensated, generally by the BOCs and in several cases by Long Lines, in accordance with explicit agreements that varied by carrier and by state. Interstate earnings at the shared rate of return were the revenues, from the interstate revenue pool defined in Column 7, that remained following withdrawal of a) revenue requirements, determined by contractual agreements, for IOCs that did not agree to earn at the shared rate of return, and b) expenses, taxes, and capital recovery revenue requirements for carriers that agreed to earn at the shared rate of return. Remaining revenues were divided among carriers in proportion to their investments in the interstate enterprise as defined in the Separations Manual. The Division of Revenues and Independent Settlements processes were administered by AT&T.

Although state and interstate processes for distribution of revenues by ownership have been described conceptually as distributions of revenue pools, the practical implementation of these practices entailed a shift between carriers of only the difference between a given carrier's billed revenues and the total revenues which the carrier was entitled to keep or "book" under the applicable State Settlements, Division of Revenues or Independent Settlements process. Chart 1 illustrates in greater detail the nature of these processes.

The row for State 1 and Figure 2-15, for example, show the change from billed revenue that was determined by the State Settlements process.

Δ from billed revenue

	State Toll	I/S Toll
BOC	-50m	+100m
IOC ₁	+30m	+20m
IOC ₂	+10m	+10m
IOC ₃	+10m	+20m
Total	0	+150m

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Figure 2-15: Chart 1, State 1 Row, Column 8
New Effect of Settlements and Division of Revenues in State 1

For example, the minus \$50 million entry in the "State Toll" column means that billing by the given Bell Operating Company exceeded the amount it was entitled to keep under the State Settlements process. This BOC therefore paid \$50 million to IOCs in State 1. We have assumed, for illustrative purposes, that this state has three independent companies. The \$50 million that the BOC paid was distributed among the three independent companies. The first independent company received \$30 million, the second company received \$10 million, and the third received \$10 million. The net change for the state was zero. There was, however, an exchange of revenues between the carriers providing service in that state so that each carrier could recover expenses, taxes, capital and return on investment

as defined in contractual arrangements. A similar State Settlements process took place in each state. The graphic for State 3 provides another illustration: The Bell Operating Company in that state paid out \$70 million of its billed revenues. In this example, that state is served by two independent companies. The first independent received \$35 million and the second independent received \$35 million. The total change in this state is seen to be zero.

The Total row of the chart, also shown in Figure 2-16, summarizes the effect of State Settlements across all the states. The net effect of State Settlements in each state was always zero since State Settlements referred to a redistribution of billed revenues within each of the states. There was no exchange of funds between states.

Total State and Interstate
D of R and Settlements
 Δ from billed revenue

	State Toll	I/S Toll
State 1	0	+150m
State 2	0	
State 3	0	-400m
		
Long Lines	N/A	+Ym
Total Δ	0	0

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Figure 2-16: Chart 1, Total Row, Column 8
Summary of Net Effect of Settlements and Division of Revenues

Conceptually a very similar process took place for interstate toll billed revenues. The process is illustrated by the graphic for State 1

or Figure 2-15. The BOC in State 1 received \$100 million over its billed interstate toll revenues; the first independent company received \$20 million, the second independent company received \$10 million and the third independent company received \$20 million. In total the "partners" in State 1 received \$150 million in addition to their own billed interstate toll revenues. The graphic for State 3 illustrates differences between that state and State 1. The BOC serving State 3 paid \$350 million to other members of the partnership. The first independent company paid \$30 million and the second independent company paid \$20 million. In total, members of the partnership in State 3 paid \$400 million of revenues that were billed to customers in their state to other members of the partnership in other states to enable them to stay whole.

The interstate column of the Federal row and of Figure 2-16 summarizes the effects of the Division of Revenues and Independent Settlements processes. The carriers in State 1 received \$150 million. The carriers in State 3 paid \$400 million. Long Lines received \$Y million. Since Long Lines generated revenue requirements for provisioning of interstate services and did little of its own billing, it received revenues through the Division of Revenues process to satisfy its revenue requirements. The total change from interstate toll billed revenue was zero, because the Division of Revenues and Independent Settlements Processes reflected a redistribution of billed revenues among the members of the "partnership." Carriers in certain states paid to carriers in other states a portion of the revenues that they billed while carriers in other states received these payments, but the total change was zero. The interstate portion of the Total row

reproduces the content of the Federal row beside the summary of the net effect of the State Settlements process.

The flows of funds between states that were dictated by the Division of Revenues and Independent Settlements processes were designed to ensure that revenue requirements allocated to the interstate enterprise in each state in Column 2 were satisfied. To the extent that a higher percentage of the revenue requirements in a given state (from Column 1) were allocated to the interstate jurisdiction than for some other state, the interstate enterprise financed a higher percentage of the total revenue requirements for the given state than for the other state. However, a high interstate allocation in a given state did not necessarily imply a large inflow of funds to that state via the Division of Revenues or Independent Settlements processes. If interstate toll billing in a state with a high interstate allocation exceeded its interstate revenue requirement, even that state would be a net "payer" in the distribution of revenues by ownership.

Examples of reasons for billing in excess of revenue requirements in a given jurisdiction are a high level of billing for long-haul toll and perhaps a concentration of third-number-billed and credit-card calls. In these examples, revenue requirements were incurred by the provider(s) of interexchange facilities and by local carriers at each end of third-number-billed, credit-card and other toll calls. Flows of funds from the billing carrier, in these examples, to providers of interexchange or local distribution facilities, were intended to compensate these carriers for the use of their facilities.

The levels of revenue requirements at which carriers were compensated were established by jurisdictional allocation conventions specified in the Separations Manual.* Hence, net payer may not have implied "net subsidizer." Payments by a given jurisdiction of revenues that exceeded revenue requirements simply implied that, under the conventions for determining costs or revenue requirements, costs in some other jurisdictions were incurred in excess of billing in those jurisdictions. Furthermore, it was impossible to associate account identities (i.e. NTS accounts, interexchange plant accounts, etc.) with those costs at this stage of the process since account identities were lost in Columns 3a and 3b. Carriers were, therefore, compensated in aggregate for expenses, TS revenue requirements and NTS revenue requirements generated by the services they provided.

A detailed discussion of the factors motivating the establishment of conventions for revenue requirement determination, including the widespread use of broad averaging and allocation of joint and common costs that are intrinsically nonallocable by engineering or accounting principles, is beyond the scope of this volume. We note, however, that definitional conventions were historically established and historically revised in response to social-political-economic forces. The realization that revenue requirements are established by convention is central to the interpretation of the flows of funds dictated by the

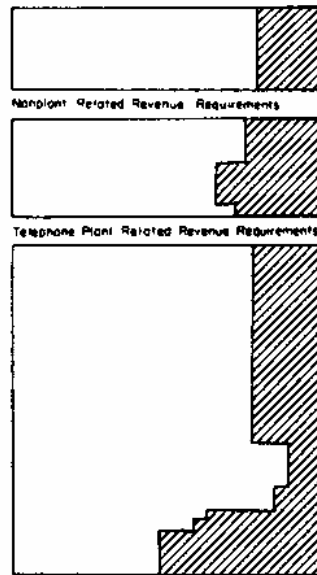
*NARUC-FCC Cooperative Committee on Communications. Separations Manual. Standard Procedures for Separating Telephone Property Costs, Revenues, Expenses, Taxes and Reserves. Washington: National Association of Regulatory Utility Commissioners, 1971. See also Amendments to FCC-NARUC Jurisdictional Separations Manual 49 Fed. Reg. 7934 (1984) (to be codified at 47 C.F.R. Pt. 67.)

Division of Revenues and Settlements processes. Although this discussion has focused on flows of funds between states, similar observations can be made regarding the flows of funds within states that were governed by the State Settlements process.

2.9 Column 9: Booked Revenues

"Booked Revenues," depicted in Column 9, resulted after the flows of funds dictated by the State Settlements, Division of Revenues, and Independent Settlements Processes had taken place. The graphic illustrating booked revenues for State 1 is provided in Figure 2-17. Since, by construction, booked revenues equaled the revenue requirements defined in Column 1, the areas of the graphics for State 1 in Columns 1, 2 and 9 are equal. Also, since each state recovered from the interstate enterprise those revenue requirements that had been allocated to the interstate jurisdiction, the areas of the shaded portions of the State 1 graphics in Columns 2 and 9 are equal.

Long Lines and each IOC and BOC in each state recovered booked revenues equal to revenue requirements defined in Column 1. This closure was assured by the conventions for distribution of revenues by ownership. All carriers recovered their revenue requirements and stayed whole. Where rates of return were shared, carriers enjoyed the same level of profitability regardless of local economic conditions and uncertainty of planning processes. Such sharing arrangements reflected an averaging of risk.



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Figure 2-17: Chart 1, State 1 Row, Column 9
State 1 Pre-Divestiture Booked Revenues

Since revenues were booked by service category account (such as MTS, WATS, local private line, toll private line, other toll, rent revenues, etc.) rather than by analytical or USOA account, horizontal lines segmenting graphics by analytical account category do not appear in Column 9. The same earnings level was achieved for the interstate portion of all BOC analytical accounts because booked revenues by service category account reflected aggregate recovery of analytical account revenue requirements. Aggregate recovery refers to the loss of account identities following the processes described in Column 3, and hence the inability at this stage to associate revenues with revenue

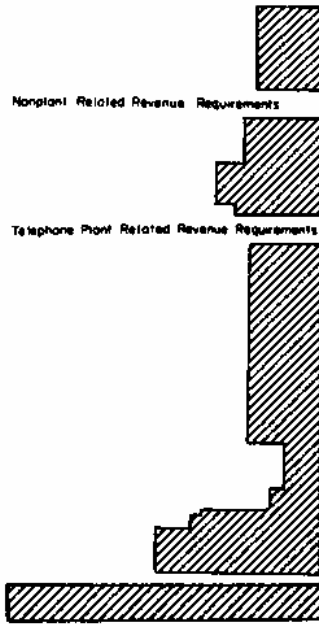
requirements for specific analytical accounts. Therefore, in Column 9, there is no distinction between, for example, the achieved rate of return for investment account k versus investment account g. Similarly, one could not distinguish between the earnings levels of portions of investment accounts allocated to the state jurisdiction in each state.

The Federal and Total rows of the chart are duplicated in Figures 2-18 and 2-19. They provide summaries of booked interstate and total industry revenues. Note that the graphics in the Federal row of Columns 2 and 9 have the same area and represent the total of the revenue requirement allocations to the interstate jurisdiction in each state plus Long Lines revenue requirements. Similarly, the areas of the graphics in the Total row of Columns 1, 2, and 9 are equal.

2.10 Potential Inferences from Chart 1

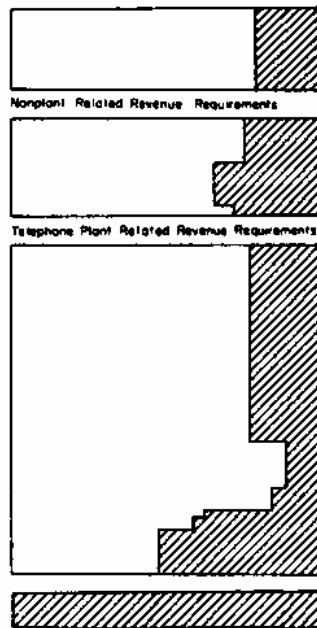
The last row on this chart reviews a sample of the issues we could analyze and inferences we could make from the process described by each column, and from the details that would be available if such a chart were completed with reported data.

The first column, which deals with the definition of revenue requirements for each state, Long Lines and the total Bell System, indicates the relative importance of different accounts, and the state-by-state variation in their relative importance. Such information would help answer the following questions: What is the relationship between total revenue requirements in State 1 versus State 6? What is the relative importance of groups of accounts in State 1 versus State 6? For example, how important are NTS accounts in those two states? As a percentage of total revenue requirements, how does



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**Figure 2-18: Chart 1, Federal Row, Column 9
Federal Pre-Divestiture Booked Revenues**



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**Figure 2-19: Chart 1, Total Row, Column 9
Total Pre-Divestiture Booked Revenues**

the relative importance of NTS accounts in State 1 compare with the relative importance of NTS accounts in State 6? What is the importance of the independent operating company revenue requirements in each state? Where are independent operating companies a major consideration, and where are there either no IOCs or IOCs with only minimal revenue requirements?

Column 1 can also offer insights on issues such as the impacts of new capital recovery practices per FCC Dockets 20188 and 79-105, and proposed changes in USOA accounts in FCC Docket 78-196. Relevant questions to be answered include: What is the impact by state? How do new depreciation practices affect different accounts? How are revenue requirements regrouped by USOA changes? How does this regrouping impact downstream processes? The clear account-by-account delineation of revenue requirements in Column 1, along with a description in other columns of how these revenue requirements are treated, can help assess the impacts of certain regulatory changes--for example, the detariffing of CPE in FCC Docket 20828, and the possible detariffing of inside wire in FCC Docket 79-105.

Analysis of Column 1 in conjunction with Columns 5 and 6 can provide various additional insights. These include the relationship between revenue requirements and billed revenues in states with varying demand patterns. We could, for example, address the relationship between interstate revenue requirements and billed interstate revenues in states with primarily short-haul interstate toll demand, concentrations of credit card calls or calls with a given time-of-day distribution. Such analyses might suggest causes for flows of funds between carriers (Column 8).

Analyses of the relationship between NIS and TS local distribution revenue requirements and demand for exchange and toll services (state and interstate) would provide insights on access revenue requirements per unit of demand (lines, total exchange and toll minutes) by customers in a given state relative to access revenue requirements per unit of demand in other states. Access revenue requirements per unit of demand for given customer market segments (business, residence, etc.) could be compared with access payments by those market segments to ascertain any revenue requirement-price mismatches. To the extent that prices exceed revenue requirements for given market segments, opportunities for uneconomic market entry are created. Such mismatches may be inconsistent with pro-competitive public policies. Possible causes of mismatches are usage-sensitive recovery of fixed costs and broad averaging of disparate revenue requirements, demand and other data employed in ratemaking.

Column 2 provides insights on the allocation of revenue requirements among the state and interstate jurisdictions. If we had reported data, we would see different levels of allocations of revenue requirements to interstate by account and by state. In late 1983 the FCC adopted* the Federal-State Joint Board-recommended** 25 percent gross

*CC Docket 80-286. Amendment of Part 67 of the Commission's Rules and Establishment of a Joint Board. Decision and Order. FCC 83-564, December 1, 1983.

**CC Docket 80-286. Amendment of Part 67 of the Commission's Rules and Establishment of a Joint Board. Second Recommended Decision and Order. Adopted: April 15, 1983; Released: September 26, 1983. 48 F.R. 46556, October 13, 1983.

allocation of NTS revenue requirements to the interstate jurisdiction plus additional interstate allocations in areas deemed to be "high cost." By being able to visually observe the existing allocations in each state, we could better sense the implications of shifting to the new allocations. Some states may experience increased interstate allocations whereas other states may experience reduced interstate allocations. We might also be able to examine the meaning of a change from business day to calendar day measurements. In what states and for which accounts are allocations increased and where are they decreased? How much are they changed? We could also begin to address questions regarding the impact on access charges of these changed allocation procedures. We could infer what happens with access charges based on understanding how divestiture redefines some of the accounts and how access charges relate to those accounts. The discussion for Chart 2 will deal with the relationships between accounts and access charges.

Column 3a can provide insights as to how decisions in each state impact the price of service in each state. Since decisions on the handling of state revenue requirements are made independently in each state, there are likely to be disparities between states in the distribution among service categories of state revenue requirements. Hence, in one state x% of the revenue requirements will be destined for recovery from state toll services while in another state y% of the revenue requirements will be destined for recovery from state toll services. Similarly, the revenue requirement per unit of service demanded (minutes, access lines, etc.) will vary by state. These disparities will impact prices for the services offered in each state. To the extent, for example, that a larger percentage of the revenue

requirements in a given state is recovered from directory advertising and sales, state toll services and vertical services than in another state, a lower revenue requirement will remain to be recovered from exchange services in the given state, and, hence, lower exchange service rates may result. This is a possible explanation for why exchange services may be cheaper in some states than in others. Examination of intra-jurisdiction revenue requirement handling practices may help us understand the reasons for rate disparities between states and how customers are affected by such practices.

This column illustrates that account identities are lost and that revenue requirements in each state are recovered in aggregate. To the extent that services other than basic exchange services are available from which to recover these aggregate revenue requirements, it is possible to pursue residual pricing methodologies and to maximize contribution provided by other services. However, to the extent that competition in the markets for these other services is introduced, or that these other services are deregulated and are no longer available to pick up a portion of the fixed revenue requirements in a given state, these revenue requirements will have to be picked up by basic exchange services and by whatever monopoly or regulated services remain. So, for example, to the extent that BOCs offer CPE or yellow page services on a deregulated basis, and regulatory policies are instituted that do not require an imputing of profits from CPE or directory offerings to help recover some of these aggregate state revenue requirements, more of the burden will fall on basic exchange services. Indeed, some Regional Holding Companies (RHCs) are organizing their CPE and yellow pages offerings in separate

subsidiaries. It remains to be seen whether modifications to the MFJ allowing BOCs to be in the yellow pages and CPE businesses will help keep exchange rates down.

Another illustration of the potential effect of telecommunications policy on local exchange rates relates to the evolution of competition in intrastate toll markets. To the extent that there is no competition in intrastate toll and the revenue requirement contribution from intrastate toll can be maximized by loading more revenue requirements in the box labeled toll, lower revenue requirements remain to be recovered from exchange services. To the extent that the marketplace becomes highly competitive for intrastate toll, it may no longer be possible to recover from intrastate toll a level of revenue requirements equal to the current level of recovery in the state jurisdiction. Basic exchange services would have to recover whatever revenue requirements could not be recovered elsewhere.

Column 3b indicates the relative importance of service categories to which interstate revenue requirements are allocated. It could also show how the relative importance of service categories changes over time if we were to assemble such a picture for different points in time. For example: Is ENFIA growing? Is WATS growing? What is the impact on ratemaking as the relative importance of MTS and WATS changes? Column 3b illustrates the loss in downstream processes of analytical account identities for revenue requirements allocated to the interstate jurisdiction. 3b is also a vehicle for understanding how changes in the ICAM (CC Docket 79-245) impact downstream processes.

This column and Column 7 put the role of ICAM in perspective. ICAM is a pricing device, not a device for Division of Revenues and

Settlements. Although the ICAM establishes the level of revenue requirements to be recovered from each interstate service category, revenues for all interstate services from all states enter a single pool (Column 7). Hence, a BOC, for example, without any Private Line can benefit from Private Line profitability via the Division of Revenues process although that BOC may incur none of the revenue requirements associated with Private Line. Similarly, the risk associated with a service not achieving the authorized rate of return is spread over the entire partnership.

Columns 4a and 4b can lend insights on rate variation by state. How different are local exchange rates in different states? How different are state toll rates in different states? What is the nature of disparities between state versus federal toll rates?

If local exchange rates were unbundled, we could study in greater detail disparities among states in the access line revenue requirement recovery currently buried in local exchange rates. This analysis may lend insights as to why customers in some states may experience higher access charges than customers may find in other states. For example, suppose two states have roughly the same NTS access line revenue requirements. However, in one state a greater proportion of that revenue requirement is recovered in local exchange rates. Implementation of access charges may imply lower rate increases for customers in that state than for customers in the other state where local exchange rates pick up only a very small percentage of the access revenue requirements.

Unbundling local exchange rates can also lend insights on the impact of FCC Docket 20828. Suppose that we break out of the local

exchange rates the amount of CPE revenue requirement that has traditionally been recovered through local exchange rates. When CPE is detariffed or customers buy their CPE, the revenue stream associated with the rental of CPE that in the past flowed to BOCs will be lost. The question arises as to whether the BOCs lose more revenue requirement than revenue with the advent of the detariffing of CPE.

Column 5 provides a descriptor of the marketplace. It provides the weights on the elements of the rate schedules in Columns 4a and 4b that determine revenues. The revenue, of course, is obtained by multiplying price by units demanded.

A complete description of demand for Bell System and Independent services would indicate concentrations of demand by origination and termination as well as the concentration of point-to-point demand. These kinds of concentrations are to a large extent determining factors of how competition will evolve and may impact the nature of future AT&T regulation. A complete market descriptor may also tell us something about the geographic distribution of services. For example, how is interstate Private Line demand distributed among the states? Note that Private Line revenues are pooled together with revenues for other toll services. To the extent that Private Line is, as a whole, profitable, even states with no Private Line customers are benefitting from this pooling.

Availability of demand data provides a device for relating revenue requirements to the amount of service rendered. For example, given demand quantities at the same level of detail as revenue requirements, one could calculate revenue requirement per minute or per line and perhaps make gross comparisons of differential costs of service between jurisdictions.

Column 6 shows billed revenues by state and interstate for each BOC and for each IOC in each state. Billed revenues could be compared with BOC and IOC contributions to state and interstate revenue requirements. We could distinguish net payers and net payees by determining which states or which BOCs or which IOCs have billing in excess of revenue requirements, and who has billing that is less than or equal to revenue requirements. We could also compare the percent contribution of individual entities to revenue requirements with their percent contribution to the billed revenue pool. "Entities" refers to IOCs and BOCs in each state.

Column 6, in addition, enables assessment of the importance of pooling relative to total billed revenues in each state. For example, what percentage of the revenues in each state is subject to pooling versus a bill-and-keep arrangement?

Column 7 indicates the relative sizes of pools in each state. Graphics drawn to scale for this column in Chart 1 and analogous columns in Charts 3 and 4 can be expected to provide insights on how the size of the pre-divestiture interstate revenue pool compares with the sizes of pools that exist in a post-Division of Revenues world. Again we emphasize that, as shown by the graphics in this column, there are no service category identities associated with revenues in the pools.

Column 8 shows which states, BOCs, and IOCs are net payers versus net payees. This is, of course, a critical issue since it may influence the votes of legislators and also may have implications on the costs of doing business in certain geographic areas. An area may be a more desirable place in which to do business if telecommunications

costs are low and if, in fact, pricing policies enable those who do business there to benefit from those low costs and from the efficiencies that are feasible in that area. The interpretation of payers and payees (Column 8) in the context of the process that generated those results (Columns 1-7) was discussed in Section 2.8.

2.11 Extension of Chart 1 to Explicitly Treat Nondomestic Market

Although this document emphasizes the definition and treatment of U.S. telecommunications industry revenue requirements and flows of funds between U.S. carriers, flows of funds between AT&T and foreign correspondents play an important role in the satisfaction of those revenue requirements. Revenue requirements for U.S.-based carriers arise from the provisioning of domestic as well as nondomestic telecommunications services. Pre-divestiture Long Lines and BOC/IOC revenue requirements therefore included expenses, taxes and return for facilities employed in the provisioning of domestic and nondomestic services, and a portion of these revenue requirements were satisfied by foreign correspondents with whom AT&T had agreements. These agreements dictated flows of funds from the U.S.* (AT&T) to foreign correspondents and to AT&T from foreign correspondents. The financial arrangements dictated by such agreements are distinct from the domestic settlements processes discussed in Section 2.8 and are referred to as international settlements**

*Agreements between OCCs and foreign telecommunications businesses pertained to only a small amount of the nondomestic traffic and are not treated here.

**This complex subject is dealt with in an upcoming research publication of the Program on Information Resources Policy, Harvard University, by J. Aulik.

The conceptual framework depicted in Chart 1 can be readily extended to explicitly show interrelationships between U.S. and foreign carriers. In addition to entries for the balance of the states of the United States, the Other States row would contain entries for each foreign correspondent with whom AT&T had agreements. Columns corresponding to rows representing foreign correspondents would contain the following kinds of information.

- Column 1: The areas of graphics in Column 1 would reflect the net value of the flow of funds (i.e., international settlements) between AT&T and each foreign correspondent. Positive flows reflect payments by AT&T to foreign correspondents and a revenue requirement to be satisfied by the interstate enterprise. Negative flows reflect payments by foreign correspondents to AT&T and offset other revenue requirements of the interstate enterprise.
- Column 2: Each graphic shown in Column 1 would be replicated in Column 2 and diagonally shaded since these revenue requirements are entirely interstate.
- Column 3a: Since international settlements are interstate revenue requirements, Column 3a would be blank.
- Column 3b: Column 3b would repeat Column 2 graphics. Anticipated revenue flows from (to) the United States are positive (negative) contributions to the interstate revenue requirement pool shown in the Federal row.
- Column 4a: Since nondomestic services are interstate, Column 4a would be blank.
- Column 4b: Column 4b would reflect rates for services between the United States and a given foreign correspondent.

- Column 5: Column 5 would reflect demand for services between the United States and a given foreign correspondent.
- Column 6: The rows for each of the states of the United States reflect billing by BOCs and IOCs for domestic as well as nondomestic services. The foreign correspondents portion of the Other States row would reflect billing by foreign correspondents, in their currencies, for sent paid nondomestic calls originated in their territory or nondomestic calls received collect in their territory. The area of the graphic representing this billing could be partitioned to show the portion of billing by the foreign correspondent reflecting gross payments to AT&T (at some agreed upon exchange rate) dictated by the international settlements process. The area of this portion of the graphic is a contribution to the interstate revenue pool in the Federal row of Column 7. (This contribution may be offset by payments to the foreign correspondent per Column 8.)
- Column 7: No entries would be present in the rows for foreign correspondents in Column 7. The graphic in the Federal row would reflect all U.S. billed revenues for interstate telecommunications services and a portion of non-U.S. billed nondomestic revenues (i.e., gross inflow to the U.S. depicted in Column 6). Note that the difference between non-U.S. billed revenues and the amount paid to AT&T by a given foreign correspondent never enters a U.S. interstate pool and is kept by the foreign telephone business. These monies are never an offset to revenue requirements of the U.S. telecommunications industry. Also, note that the revenue pool shown in the Federal row of Column 7 does not, in general, equal

the revenue requirement pool in the Federal row of Column 3b. In addition to Column 3b revenue requirements, Column 7 revenues include monies owed to foreign partners in accordance with the international settlements process.

- Column 8: Entries in the rows for foreign correspondents in Column 8 would reflect gross outflows of funds from the U.S. to foreign correspondents per the international settlements process. Recall that gross inflows of funds to the U.S. from foreign correspondents were depicted in Column 6. In the nondomestic arena, AT&T and its foreign correspondents are generally compensated based on agreed upon "accounting rates"* rather than settlement processes that distribute billed revenues among carriers such that each carrier providing facilities for use by the interstate or state toll enterprises recovers its defined revenue requirements. A portion of the U.S. billed revenues for traffic between the U.S. and a foreign country belongs to the foreign correspondent per the agreed upon accounting rate. Similarly, a portion of the non-U.S. billed revenues for traffic between the U.S. and a foreign country belongs to AT&T per the agreed upon accounting rate. The net value of gross inflows to the U.S. from a given foreign correspondent (from Column 6), and gross outflows from the U.S. to that correspondent (from this Column) would equal the net settlement shown in Columns 1, 2 and 3.

*An accounting rate is a negotiated value for a unit of calling between the U.S. and a foreign country which is, in general, not equal to the tariffed or collection rate. This matter is dealt with in greater detail in an upcoming research report of the Program on Information Resources Policy, Harvard University, by J. Aulik.

- Column 9: The areas of graphics in Column 9 for each foreign correspondent would reflect the net of payments by AT&T to foreign correspondents (Column 8) and payments by foreign correspondents to AT&T (Column 6). The areas of these graphics must by construction equal the areas of the graphics that would appear in Columns 1, 2 and 3 if the conceptual framework proposed herein were extended to deal explicitly with the nondomestic market.

Chapter 3

Chart 2: Pre-Divestiture vs. Post-Divestiture Revenue Requirements

3.0 Overview

The discussion of the pre-divestiture mode of operation of the traditional telecommunications industry was based on a representation of revenue requirements for a unified Bell System and the IOCs. The discussion of the post-divestiture mode of industry operation to be provided in Charts 3 and 4 requires separate representations of AT&T/IOC and BOC/IOC revenue requirements that reflect a divested operating environment. Chart 2 graphics are presented to illustrate how pre-divestiture revenue requirements are pulled apart, redefined and rearranged to obtain the needed AT&T/IOC and BOC/IOC representations. This chapter also introduces the notion of access charges, identifies access revenue requirements in the representations of BOC/IOC and AT&T/IOC revenue requirements, and provides a conceptual framework for viewing the broad range of access charge options. A solid foundation for the treatment of Charts 3 and 4 in Chapters 4 and 5 is provided by an overview of the differences between pre- and post-divestiture processes for recovering revenue requirements traditionally recovered from toll services.

3.1 Frame 1: Pre-Divestiture Industry Revenue Requirements

The first frame on Chart 2 reviews pre-divestiture industry revenue requirements and provides the same graphic as Column 1 of Chart 1 and Figure 2-2. Revenue requirements are shown for IOCs, for BOCs and for Long Lines and are disaggregated by major categories. The Bell Operating Company revenue requirements are split by non-plant-related revenue requirements and telephone-plant-related revenue requirements.

The distinctions between those categories are critical in Chart 2 because of the way revenue requirements are rearranged as a result of divestiture. After divestiture, some of the telephone-plant-related revenue requirements for the BOCs became non-plant-related expenses for AT&T and for the other interexchange carriers. Future frames on this chart will address the effects of that development in greater detail.

3.2 Frame 2: Pre-Divestiture Jurisdictional Allocation of Industry Revenue Requirements

The second frame of Chart 2 reviews the pre-divestiture jurisdictional allocation of industry revenue requirements. The frame provides the same graphic as Chart 1 Column 2 and Figure 2-4.

The first and second frames provide a basis for considering some of the changes that divestiture introduced. These changes are depicted in the third frame.

3.3 Frame 3: Post-Divestiture Industry Revenue Requirements - Initial Cut

The AT&T Plan of Reorganization* assigned intraLATA Bell System plant** to BOCs and interLATA Bell System plant to AT&T. IntraLATA plant includes local distribution and switching facilities as well as interexchange plant for toll services within LATAs. Local distribution

*U.S. v. Western Electric Company, Inc., and AT&T. Plan of Reorganization. Submitted for Review and Approval by AT&T. U.S. District Court, D.C., Civil Action No. 82-0192, December 16, 1982.

**A detailed discussion of Bell System plant appears in Behind The Telephone Debates - 1, At the Heart of the Debates: Costs, Control, and Ownership of the Existing Network by Carol L. Weinhaus and Anthony G. Oettinger, Cambridge, Ma: Program on Information Resources Policy, Harvard University, 1985. See Behind The Telephone Debates - Index: Plant, ownership, AT&T.

consists of jointly used facilities employed by local exchange, intrastate toll and interstate toll services. This plant provides the link between end-users and other customers of interexchange services (resellers, OCCs, etc.) with points-of-presence of interexchange carriers in each LATA. A portion of these jointly used facilities are referred to as NTS since their costs are fixed and do not vary with use. Other jointly used facilities are TS since additional costs are incurred for each unit of service demanded. In addition to all intraLATA plant, BOC plant includes facilities to serve corridor traffic. "Corridor" traffic is interstate interLATA short-haul high volume calling between certain designated geographic areas. An example of corridor traffic is calling between northern New Jersey and New York City. AT&T interLATA plant includes interexchange and toll-switching facilities for providing service between LATAs.

The division of Bell System plant and service offerings between BOCs and AT&T dictates post-divestiture BOC and AT&T revenue requirements. In Frame 3 and Figure 3-1, we take an informed first guess as to how each category of Bell System revenue requirements is split between AT&T and the BOCs. AT&T revenue requirements are for interLATA plant and non-telephone-plant expenses, whereas BOC revenue requirements are for intraLATA plant and non-telephone-plant expenses. IOC revenue requirements are also identified as intraLATA or interLATA. The interLATA IOC revenue requirements are the bottom segment in the row labeled "Independents." InterLATA revenue requirements are shaded, and intraLATA revenue requirements are clear. Revenue requirements for corridor traffic are included with BOC intraLATA revenue requirements.

The AT&T/BOC split of the revenue requirements does not, of course, equal the federal/state jurisdictional revenue requirement allocation.

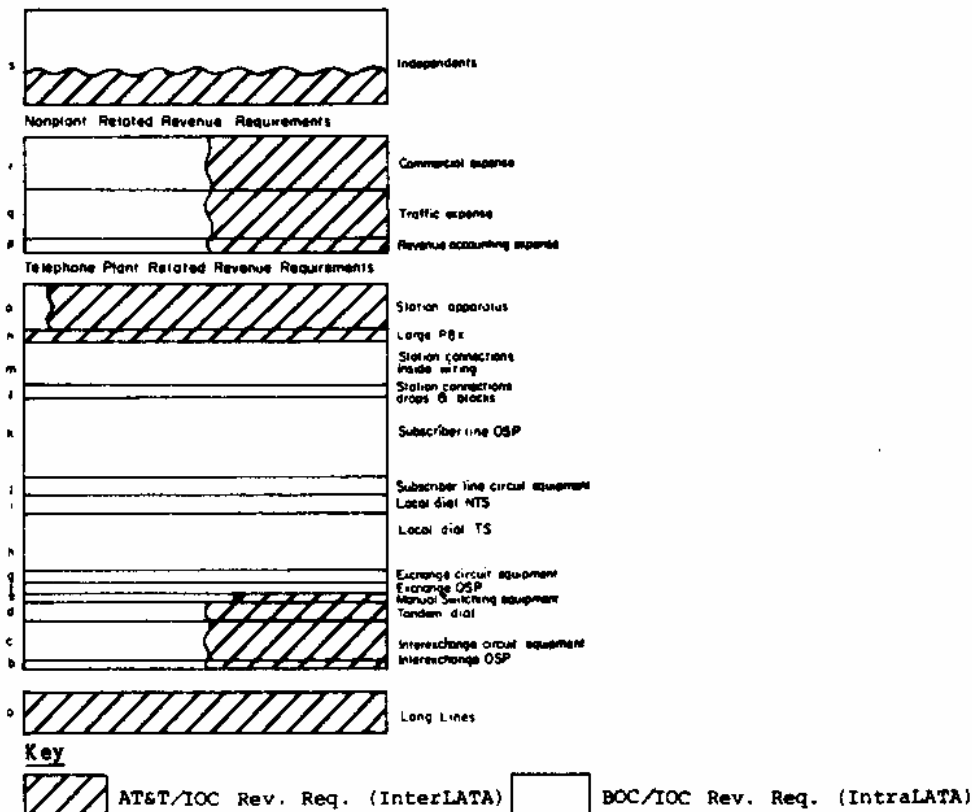
Each of AT&T and the BOCs will have revenue requirements that are subject to regulation by the state and interstate jurisdictions.

Reflection on the nature of the revenue requirements represented by Frame 3, in the context of how the industry is expected to operate post-divestiture, highlights the fact that pulling apart the existing revenue requirement rectangle is not sufficient to depict post-divestiture revenue requirements. First, a portion of the revenue requirements for BOC/IOC telephone plant becomes post-divestiture access expenses for AT&T and the OCCs. Second, explicit expenses arise from the sharing of facilities between AT&T and the BOCs over a transition period following the initial implementation of the MFJ. Therefore, AT&T pays BOCs rental fees for facilities that are shared and owned by BOCs, and BOCs pay AT&T rental fees for facilities that are shared and owned by AT&T.

Pre-divestiture, revenue requirements for facilities shared by several carriers (for example, by BOCs and Long Lines, by BOCs and IOCs, by IOCs and Long Lines) were recovered by each carrier along with all other revenue requirements through the Settlements and Division of Revenues processes. Carriers handling most U.S. toll traffic were compensated based on a shared rate of return, and risk associated with service provisioning was averaged. Hence the investments of all carriers who agreed to a shared rate of return, including investments in shared facilities, earned at the same rate. In contrast, post-divestiture rental fees for shared facilities are explicit charges for the use of certain plant items, and there is no assurance that the same rate of return will obtain for shared facilities and other investments employed in providing interstate services.

-InterLATA/IntraLATA split of pre-divestiture revenue requirements

Note: AT&T/BOC split of revenue requirements does not, of course, equal Federal/State jurisdictional revenue requirement allocation



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Figure 3-1: Chart 2, Frame 3
 Post-Divestiture Industry Revenue Requirements - Initial View

Access charge and shared facilities considerations necessitate separate representations for post-divestiture BOC and AT&T revenue requirements.

3.4 Frame 4: Post-Divestiture Industry Revenue Requirements

In Frame 4 and Figure 3-2, we have split and rearranged pre-divestiture revenue requirements from Frame 3 to explicitly show separate representations of AT&T and BOC revenue requirements. The shapes of the analytical accounts shown in Frame 4 correspond to the BOC and AT&T components of analytical accounts shown in Frame 3. We also show access charges and shared facilities rental fees, as well as a different way of treating CPE.

FCC action in CC Docket No. 80-286,* entitles the BOCs to include in their definition of interstate revenue requirements certain revenue requirements that were historically directly related to the book value of CPE but that since January 1, 1983 did not necessarily correspond with the books of accounts for CPE. In accordance with practices adopted in CC Docket 80-286 to accommodate the detariffing of CPE per CI-2,** CPE revenue requirements defined to be interstate were frozen as of December 31, 1982. Over a five-year transition period BOCs will be entitled to recover from the interstate jurisdiction a gradually declining portion of these frozen revenue requirements that at one time were associated with CPE. This level of recovery is prescribed regardless of the level of sales of embedded CPE in 1983 or divestiture

*CC Docket 80-286. Amendment of Part 67 of the Commission's Rules and Establishment of a Joint Board. Recommended Decision and Order. Adopted: Nov. 18, 1981; Released: Dec. 14, 1981. FCC 81-566.

**CC Docket 20828. Second Computer Inquiry. Final Rule. Adopted: May 2, 1980. 77 FCC 2d, 384.

on January 1, 1984. CPE sales have the effect of removing CPE from BOC books of accounts and reducing annual revenue requirements, while divestiture removes all embedded CPE revenue requirements from BOC books of accounts since all CPE assets and revenue requirements remain with AT&T per the Plan of Reorganization. These frozen revenue requirements will be referred to as transitional CPE costs.

Access charges that recover transitional CPE costs in the interstate jurisdiction defray other BOC intrastate revenue requirements. These "other" revenue requirements defrayed by the recovery of "transitional CPE costs" are reflected by the void shown across a variety of analytical accounts. This void must appear because transitional CPE costs are not intended to increase BOC revenue requirements. The portions of Frame 4 in the BOC/IOC column that are labeled Non-Plant-Related Revenue Requirements and Telephone Plant-Related Revenue Requirements, exclusive of the void, represent total BOC revenue requirements. The void shown equals the area for transitional CPE costs. Note that the location of the void is uncertain since, as discussed in connection with Chart 1, revenue requirements are recovered in aggregate--not on an account-by-account basis. This uncertainty is reflected by the irregular shape of the void.

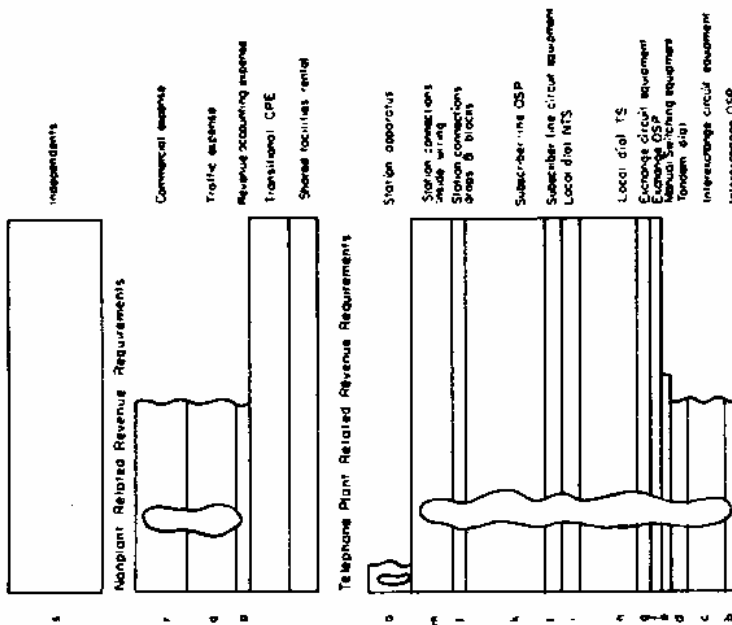
In the column labeled BOCs/IOCs, the major changes from Frame 3 are, first, the inclusion of the transitional CPE costs per the 80-286 joint board and, second, the inclusion of shared facilities rental fees.

In the AT&T/IOCs column, we also see shared facilities rental fees as well as NTS and traffic-sensitive (TS) access fees, and billing and

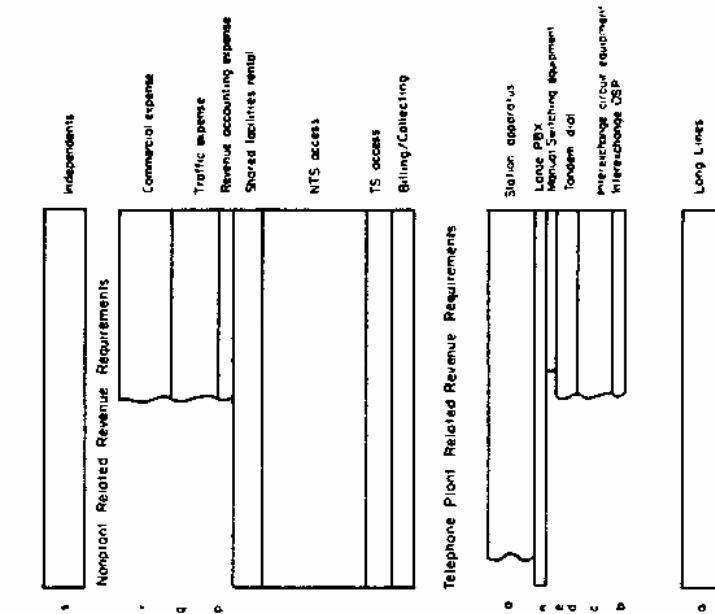
-InterLATA/IntraLATA split of pre-divestiture revenue requirements

- show new expense categories
- shared facilities rental fees
- access charges

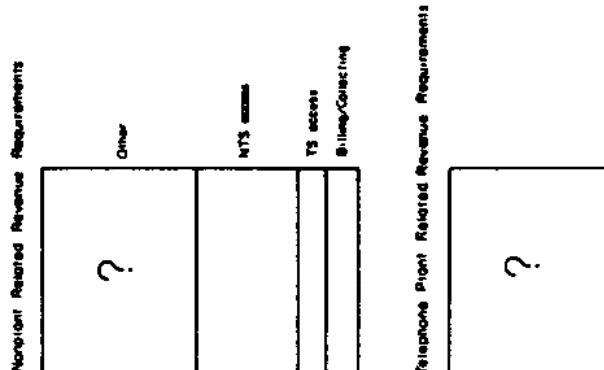
**BOCs/IOCs
(IntraLATA)**



**AT&T/IOCs
(InterLATA)**



**OCC_i, i=1,...,k
(InterLATA & IntraLATA)**



s. 1985 Program on Information Resources Policy, Harvard University.

**Figure 3-2: Chart 2, Frame 4
Post-Divestiture Industry Revenue Requirements**

collecting fees. These AT&T expenses show up in the BOC column as telephone-plant-related revenue requirements, and in some cases as non-plant-related revenue requirements.

The third column of Frame 4 shows OCC revenue requirements-- non-plant-related as well as telephone plant-related revenue requirements. Non-plant-related revenue requirements include non-traffic-sensitive, traffic-sensitive and billing and collecting access charges. It is recognized that OCCs have generally chosen not to subscribe to BOC/IOC billing and collecting services. Revenue requirements are, nevertheless, shown for these services since billing and collecting is offered by local carriers on a nondiscriminatory basis, and OCCs could avail themselves of these services in the future. For OCCs that do not subscribe to BOC/IOC billing and collecting, the "Billing/Collecting" row of the figure would be absent, and billing and collecting costs would be included in the row labeled "Other" in the Non-Plant-Related Revenue Requirements segment of the figure. For the OCCs "Other" non-plant-related and telephone-plant-related revenue requirements, the graphic shows question marks since information for those categories of revenue requirements is not expected to be available. OCCs are not subject to a uniform system of accounts for reporting data, and per Docket 79-252* the FCC has decided to forbear

*CC Docket 79-252. Rates for Competitive Common Carrier Services and Facilities, Authorizations Therefor. Final Rule (Fourth Report and Order). Adopted: Oct. 19, 1983; Released: Nov. 2, 1983. 48 F.R. 52452, Nov. 18, 1983.

from regulating OCCs and to decrease reporting requirements applicable to them. Note that OCC "Other" non-plant-related revenue requirements include OCC expenses for leased Private Line facilities and for MTS and WATS services that they resell.

3.5 Frame 5: Post-Divestiture Jurisdictional Allocation of Industry Revenue Requirements

Frame 5 and Figure 3-3 replicate Frame 4 and illustrate the jurisdictional allocation of all BOC and AT&T revenue requirements for all analytical accounts. In practice, however, BOC (AT&T) revenue requirements that are satisfied by AT&T (BOC) shared facility rent payments cannot be jurisdictionally allocated by the BOC (AT&T) since the jurisdictional allocation of those revenue requirements is dependent on the state vs. interstate use of the shared facilities by AT&T (the BOC). Hence the Frame 5 representation for the BOCs reflects the total of the BOCs' jurisdictional allocation of revenue requirements for BOC-provided services and AT&T's jurisdictional allocation of BOC revenue requirements for shared facilities leased to AT&T. Similarly, the Frame 5 representation for AT&T reflects the total of AT&T's jurisdictional allocation of revenue requirements for AT&T-provided services and the BOCs' jurisdictional allocation of AT&T revenue requirements for shared facilities leased to BOCs. An alternative graphic portrayal could have classified BOC (AT&T) revenue requirements into state, interstate and nonjurisdictional where the latter category reflects revenue requirements satisfied by shared facilities leased to AT&T (BOCs). The jurisdictional classification of those revenue requirements is, of course, depicted in the shared facilities rental row shown in Frame 5 for AT&T (the BOCs).

Significantly, under CI-2 and CC Docket 81-893,* station apparatus and large PBX (i.e. accounts n and o) were transferred to AT&T Information Systems (formerly American Bell) on January 1, 1984. These accounts will therefore not appear in subsequent representations of AT&T revenue requirements since the focus of this volume is on the regulated AT&T Communications as opposed to AT&T Information Systems. The portion of account o in the BOC/IOC column reflects revenue requirements for official CPE, charge-a-call phones and public phones and enclosures that remain with BOCs post-divestiture.

*CC Docket 81-893. Procedures for Implementing the Detariffing of Customer Premises Equipment and Enhanced Services (Second Computer Inquiry). Report and Order. Adopted: Nov. 23, 1983. FCC 83-551.

OCC, 1=1, . . . k
(InterLATA & IntraLATA)

AT&T/IOCs
(InterLATA)

BOCs/IOCs
(IntraLATA)

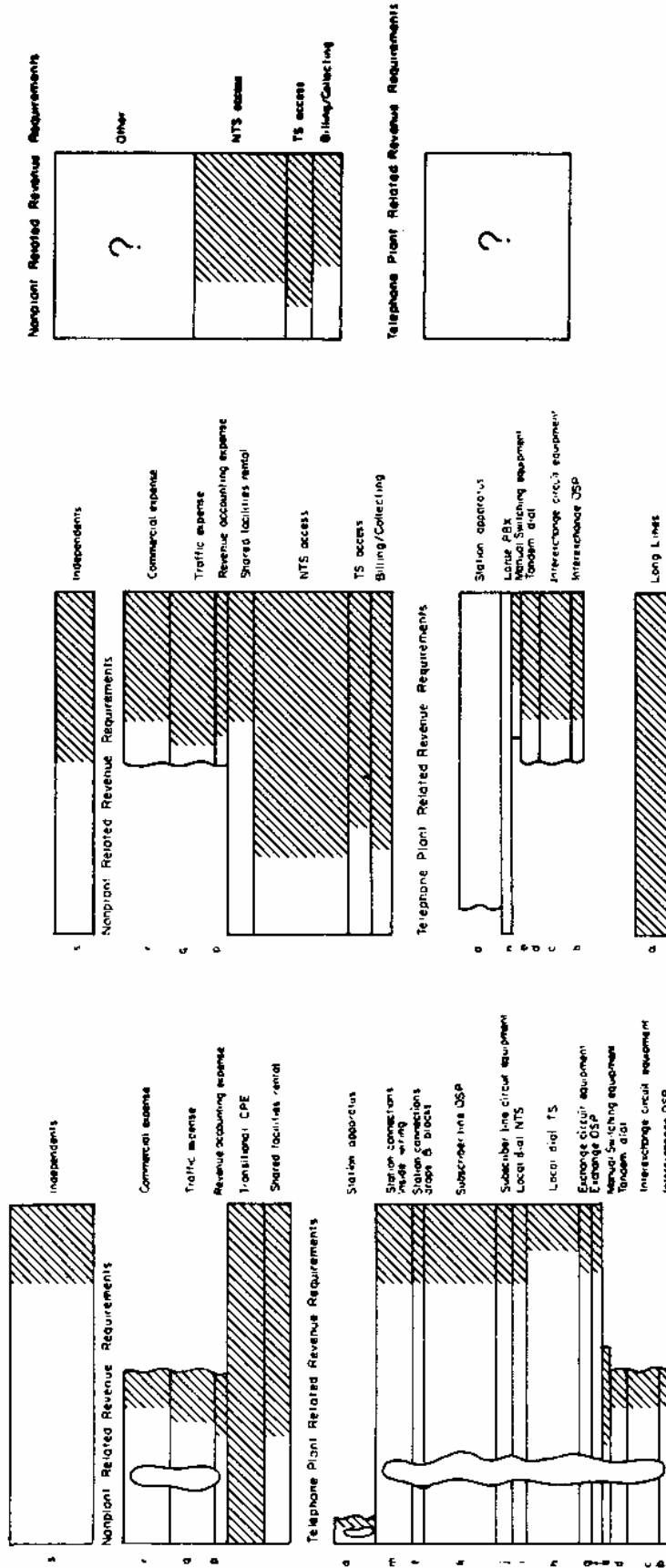


Figure 3-3: Chart 2, Frame 5
Post-Divestiture Jurisdictional Allocation of Industry
Revenue Requirements

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3.6 Frames 4' and 5': Frames 4 and 5 Rearranged

Frames 4' and 5' (Figures 3-4 and 3-5) provide a clearer visual display of the information shown in Frames 4 and 5. The irregularly shaped areas shown in Frame 4 have been rearranged in Frame 4' to obtain rectangular areas for post-divestiture BOC, AT&T, and OCC revenue requirements. Frame 5' shows the jurisdictional allocation of those revenue requirements.

The origins of the revenue requirements neatly displayed in Frames 4' and 5' are documented by the detailed disaggregation shown in Frames 4 and 5 of each pre-divestiture analytical account into BOC and AT&T components. Further insights on the post-divestiture environment could be gleaned by a similar exercise illustrating the BOC/AT&T split of the USOA components of analytical accounts.

Figures emphasize process and are not drawn to scale. If data were available, all graphics could be drawn to scale, allowing inferences regarding the relative importance of various accounts and the relative importance of some of the changes taking place. For example: How much revenue requirement is associated with detariffing CPE? What percentage is CPE revenue requirements of total revenue requirements? How does the distribution of AT&T revenue requirements over analytical account categories compare with the distribution of BOC revenue requirements over analytical account categories? The graphics provide a context for addressing numerous such questions.

**BOCs/IOCs
(IntralATA)**

1	Independents
Nonplant Related Revenue Requirements	
2	Commercial expense
3	Traffic expense
4	Revenue accounting expense
5	Shared facilities rental
Telephone Plant Related Revenue Requirements	
6	Station apparatus
7	Station connections inside wiring
8	Station connections trunks & trunks
9	Subscriber line OSP
10	Subscriber line circuit equipment
11	Local area NTS
12	Local area TS
13	Exchange circuit equipment
14	Exchange OSP
15	Manual switching equipment
16	Interchange circuit equipment
17	Interchange OSP

**AT&T/IOCs
(InterLATA)**

1	Independents
Nonplant Related Revenue Requirements	
2	Commercial expense
3	Traffic expense
4	Revenue accounting expense
5	Shared facilities rental
6	NTS access
7	TS access
8	Billing/Collecting
Telephone Plant Related Revenue Requirements	
9	Manual switching equipment
10	Tandem dial
11	Interchange circuit equipment
12	Interchange OSP
13	Long Lines

**OCC
i=1,...,k
(InterLATA & IntralATA)**

Nonplant Related Revenue Requirements	
1	Other
2	NTS access
3	TS access
4	Billing/Collecting
Telephone Plant Related Revenue Requirements	
1	?

Figure 3-4: Chart 2, Frame 4'
Post-Divestiture Industry Revenue Requirements

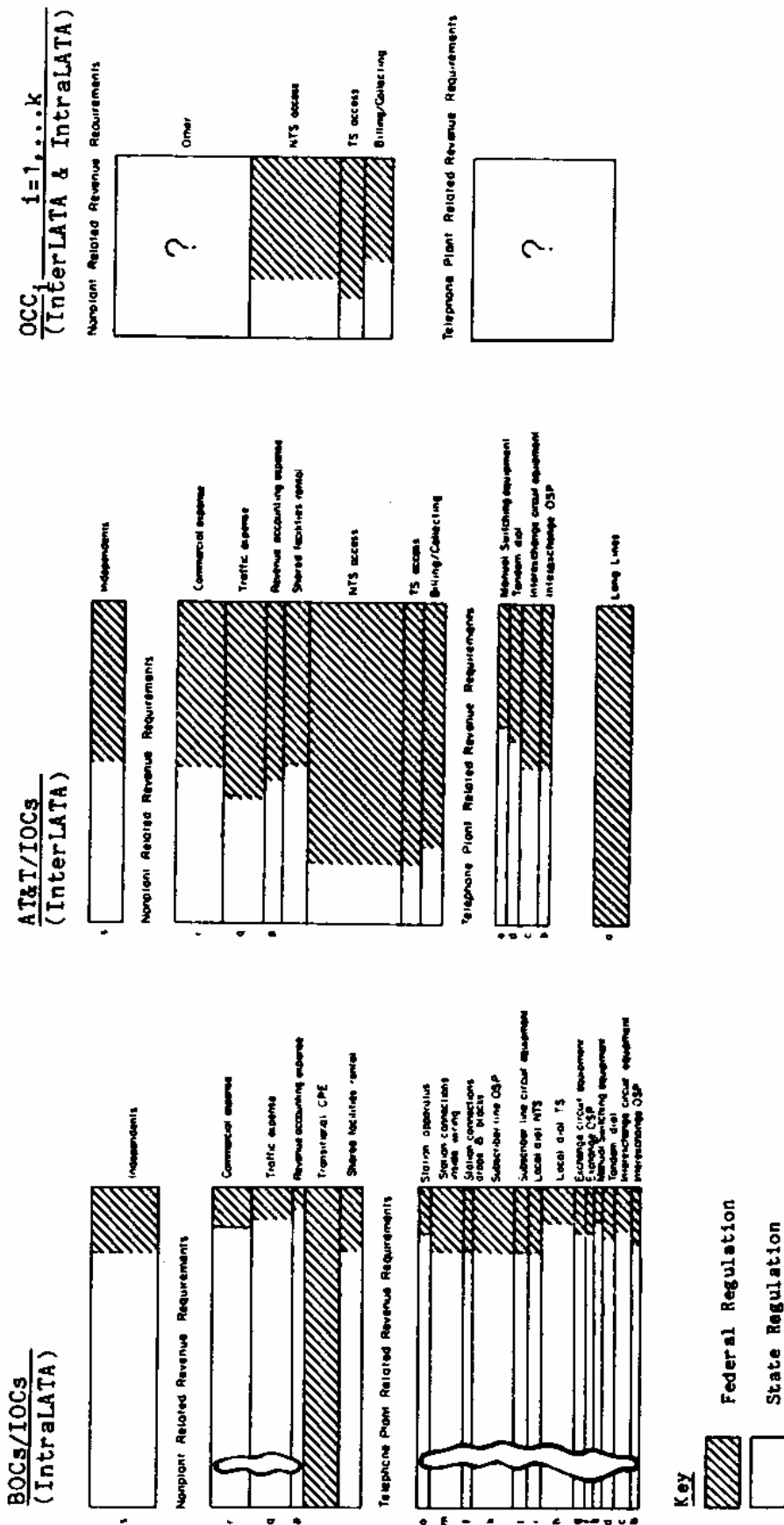


Figure 3-5: Chart 2, Frame 5'
Post-Divestiture Jurisdictional Allocation of Industry Revenue Requirements

3.7 Frame 6: Linkage Between BOC/IOC and Interexchange Carrier Revenue Requirements

Frame 6 and Figure 3-6 show that in an access charge or divested environment, certain BOC revenue requirements become interexchange carrier expenses. Frame 6 replicates Frame 5' with additional shading in certain portions of that chart. The cross-hatched shading denotes BOC revenue requirements recovered by interstate interLATA carrier access charges. The non-cross-hatched portion of BOC interstate revenue requirements is recovered through customer access charges, BOC interstate intraLATA toll, corridor traffic or shared facilities leasing arrangements with AT&T. Note that portions of the same accounts that are recovered by interstate interLATA access charges are recovered from BOC non-access services. BOC intrastate revenue requirements with vertical shading are recovered by intrastate interLATA carrier access charges. The unshaded portion of BOC intrastate revenue requirements is recovered by BOC state services, including customer access charges, intrastate intraLATA toll, local exchange service and possibly other state services as well as shared facilities leasing arrangements with AT&T. As in the case of interstate revenue requirements, portions of the same accounts that are recovered by intrastate interLATA access charges are recovered from non-access BOC services.

Although this discussion has employed the analytical account category representation of BOC revenue requirements as a basis for distinguishing access and non-access revenue requirements, similar observations hold for IOCs. IOC data could be classified by analytical account categories, and portions of certain accounts could be associated with interstate and intrastate interLATA access charges.

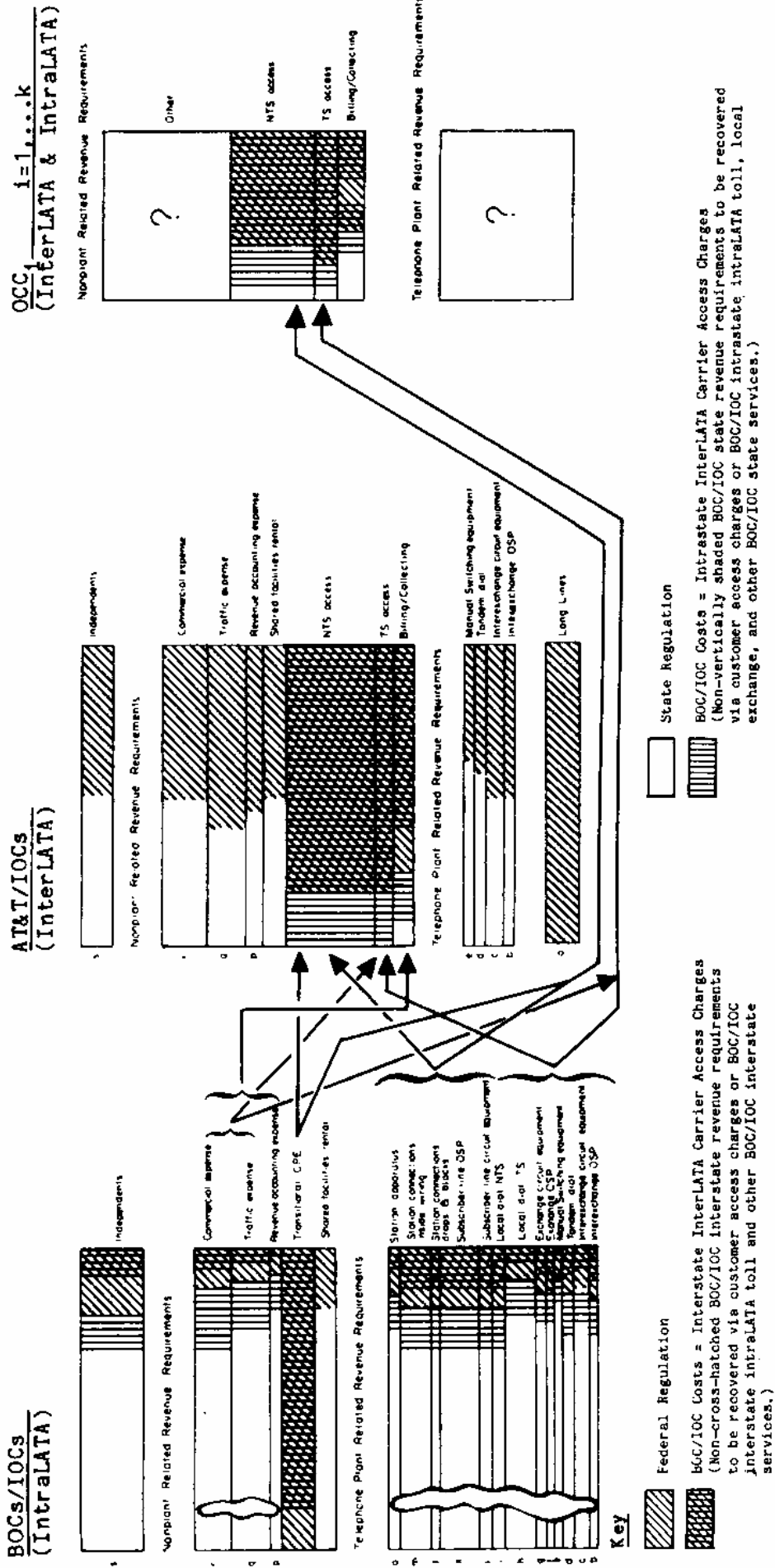


Figure 3-6: Chart 2, Frame 6
 Access Charges: Certain BOC/IOC Revenue Requirements Become Interexchange Carrier Expenses

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While the left side of Frame 6 presents the BOC revenue requirements to be recovered by access charges, the AT&T column of the chart indicates which non-plant-related revenue requirements represent access expenses for AT&T. Again, the cross-hatched shading depicts AT&T interstate interLATA access expense, and the vertical shading depicts AT&T intrastate interLATA access expense.

The last column of Frame 6 shows OCC revenue requirements including interstate and intrastate access charges. The cross-hatched and vertical shading denote these access expenses. As in previous charts, question marks are drawn in the areas reflecting other revenue requirements for OCCs since that information is not expected to be available. We can know the OCCs' access expenses since they are incurred through demand for tariffed services from BOCs or IOCs.

Arrows drawn between the BOC revenue requirements and non-plant-related revenue requirements for AT&T and OCCs show the relationship between BOC revenue requirements and expenses for AT&T and the OCCs. For example, NTS access charges assessed both AT&T and the OCCs recover BOC and IOC revenue requirements for non-traffic-sensitive plant. NTS revenue requirements are for station apparatus, station connections-inside wiring, station connections-drops and blocks, subscriber line outside plant, and subscriber line circuit equipment. We see that local dial NTS, local dial TS, exchange circuit equipment, exchange outside plant, manual switching equipment, tandem dial, interexchange circuit equipment and interexchange outside plant are defined to be traffic-sensitive items, and a portion of the revenue requirements for these items is to be recovered via the traffic-sensitive access charges assessed AT&T and the OCCs. Certain

BOC/IOC non-plant-related revenue requirements are also recovered through access charges. We also see that transitional CPE costs are mapped into NTS access charges both for AT&T and the OCCs.

The relationship between BOC/IOC revenue requirements and interexchange carrier access expense is further illustrated by Figure 3-7. We first review the generic access configuration used in this figure, and then discuss the association between revenue requirements for analytical account categories and elements of the physical access configuration.

The physical access configuration shows a rate category 3 (RC-3) element reflecting the link between a subscriber's premise and his serving central office, labeled "BOC central office." The same RC3 would, of course, apply if an independent company central office served the subscriber. The BOC central office performs local switching or rate category 2 (RC-2) functions. In this diagram the BOC central office serving the subscriber is directly linked to another BOC central office serving interexchange carriers. In reality, one or more tandem switchers are likely to exist between the BOC central office serving the subscriber and the BOC central office serving the interexchange carriers, but for simplicity the tandem switchers do not appear in this chart. Links between the central office serving the end-user and the central office serving the interexchange carriers perform local trunking or rate category 1b (RC-1b) functions. Finally, the links between the points of presence (POPs) of AT&T or of any of the OCCs and their serving central offices are labeled rate category 1a (RC-1a). We note that the RC-3, RC-2, RC-1b, and RC-1a designations are similar to the ENFIA rate elements, and are employed here to identify and

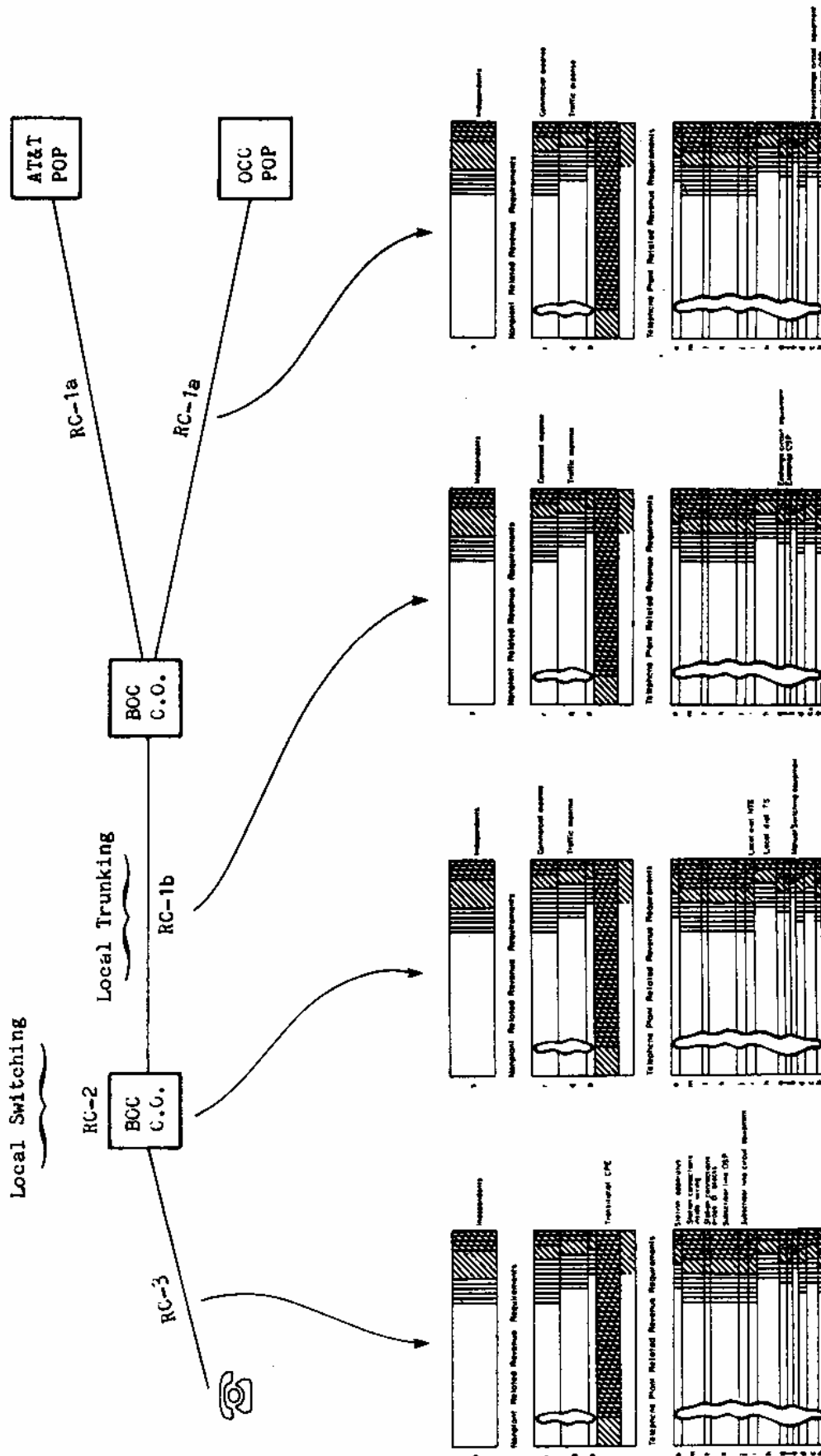


Figure 3-7: Illustrative Relationship Between Physical Access Configuration and Revenue Requirement Accounts

distinguish the functions served by various local distribution plant items.

The lower portion of the figure is the representation of post-divestiture BOC/IOC revenue requirements developed in Frame 6. Analytical account labels are shown only for those analytical accounts reflecting revenue requirements to be recovered by a given element of the access charge. Hence, NTS access charges (rate category 3) recover NTS revenue requirements for transitional CPE, station apparatus, station connections-inside wiring, station connections-drops and blocks, subscriber line outside plant and subscriber line circuit equipment. TS access charges recover RC-2, RC-1b and RC-1a revenue requirements. Rate category 2 includes TS revenue requirements in the analytical accounts labeled commercial expense, traffic expense, local dial NTS,* local dial TS and manual switching equipment. Rate category 1b includes TS revenue requirements for commercial expense, traffic expense, exchange circuit equipment, and exchange outside plant. Finally, rate category 1a includes TS revenue requirements represented by the analytical accounts for commercial expense, traffic expense, interexchange circuit equipment and interexchange outside plant.

We emphasize that Figure 3-7 oversimplifies the general access configuration, and we have not shown the components of analytical accounts that define in detail the revenue requirements to be covered by access charges. The essence of the illustration is that there is a

*CC Docket 78-72, Phase I. In the Matter of MTS and WATS Market Structure. Third Report and Order. Adopted: Dec. 22, 1982; Released: February 28, 1983. 48 F.R. 10319, March 11, 1983. Local dial NTS revenue requirements were classified as traffic sensitive in this report.

direct relationship between analytical accounts and various elements of the access charge.

Our understanding of the implications of access charges would be facilitated by supplementing the rough illustration shown in Figure 3-7 with generic access configurations reflecting the various ordering options, distinctions between switched access and dedicated access, and distinctions between access for MTS, WATS, FX, various categories of Private Line, OCC services and reseller services. We would want to show these generic access configurations in sufficient detail to reflect each of the elements of the access charge. Similarly we would want to disaggregate the revenue requirement rectangles in sufficient detail so that we could see the mapping of the BOC and IOC revenue requirements into each of the elements of the access charge. This exercise would help understand the relationship of BOC and IOC revenue requirements to access charges, and would provide insights to interexchange carriers regarding the basis on which they are charged for access.

3.8 Overview of Differences/Similarities Between Pre- and Post-Divestiture Recovery of Local Distribution (Access) Revenue Requirements from Toll Services

Previous sections of this chapter defined post-divestiture BOC/IOC and AT&T/IOC revenue requirements and linkages between them. We also showed the relationship between a sample access configuration and BOC/IOC revenue requirements for local distribution facilities comprising the configuration that are to be recovered by access charges. Here we a) employ the representations of BOC/IOC and AT&T/IOC revenue requirement linkages to contrast the pre- and post-divestiture

treatment of revenue requirements traditionally recovered from toll services, b) show how and why access charges enable continued BOC/IOC recovery of those revenue requirements, and c) provide an overview of the implications of BOC/IOC revenue requirement recovery via access charges versus pre-divestiture mechanisms.

3.8.1 Pre-Divestiture Environment: Aggregate Recovery in Toll Rates of Revenue Requirements for Local Distribution and Interexchange Plant

Pre-divestiture, as indicated in Chapter 2, Bell System and IOC revenue requirements were jurisdictionally allocated, and recovered in aggregate in each jurisdiction. Aggregate recovery implied that explicit prices did not generally exist for recovery of revenue requirements in different analytical account categories. Therefore, for example, revenue requirements for local distribution facilities classified as NTS in accounts 1 through 0 were allocated between the state and interstate jurisdictions and recovered in each jurisdiction in combination with jurisdictionally allocated revenue requirements for all other analytical account categories. All other revenue requirements, including those for TS local distribution plant, interexchange plant, billing and collecting and all other expense categories (i.e., non-telephone-plant-related revenue requirements) were treated in the same way. Intrastate revenue requirements were recovered from state toll and other services, while interstate revenue requirements were recovered from interstate toll services. In an environment characterized by ratemaking to recover aggregate revenue requirements, pooling, State Settlements, Independent Settlements, and Division of Revenues, each exchange and interexchange carrier satisfied

its local distribution, interexchange, and other revenue requirements. Explicit funds transfers took place between Bell System carriers and IOCs, and internal funds transfers took place within the Bell System to insure satisfaction of revenue requirements for each carrier.

3.8.2 Post-Divestiture IntraLATA Environment: Aggregate Recovery in IntraLATA Toll Rates of Revenue Requirements for Local Distribution and Interexchange Plant

IntraLATA toll and corridor traffic are BOC-offered services post-divestiture, and BOCs continue to recover from those services aggregate revenue requirements for local distribution, interexchange plant, billing and other expenses traditionally recovered from those toll routes. The process is similar to that which obtained pre-divestiture for all toll services offered by the traditional telecommunications industry. IntraLATA revenue requirements are jurisdictionally allocated, and all non-access charge revenue requirements for local distribution and interexchange plant and other expenses (i.e., non-customer access charge portion of unshaded BOC/IOC intrastate revenue requirements and non-customer access charge portion of diagonally shaded BOC/IOC interstate revenue requirements in Frame 6) are recovered in aggregate. Non-access charge intrastate revenue requirements are recovered from intrastate intraLATA toll, basic exchange service, shared facilities rental fees and other services while non-access charge interstate revenue requirements are recovered from interstate intraLATA toll, corridor traffic, and shared facilities rental fees. Since some of the intraLATA toll routes are jointly served by BOCs and IOCs, replacements to the State Settlements and Independent Settlements processes were designed to govern flows of

funds between carriers and to insure that each carrier recovers its intrastate and interstate toll service revenue requirements. These processes are dealt with in detail in Chapter 5.

3.8.3 Post-Divestiture InterLATA Environment: Access Charges Recover
Explicit Local Distribution and Billing/Collecting Revenue
Requirements

Whereas intraLATA toll is BOC-offered post-divestiture, interLATA toll is offered by AT&T and other interexchange carriers post-divestiture. From the previous discussion we saw that the pre- and post-divestiture processes for handling and recovering intraLATA toll revenue requirements are conceptually similar. In contrast, access charges were introduced as the vehicle for BOC/IOC recovery of revenue requirements for local distribution plant and billing/collecting services provided to interexchange carriers.

The major reasons for introducing access charges are as follows:

- (i) The MFJ abolished the Division of Revenues process, and forbade shared rate-of-return and any other partnership arrangements between BOCs and AT&T.
- (ii) The FCC's pro-competitive policies necessitated a system for BOCs/IOCs to offer local distribution facilities to all interexchange carriers on a nondiscriminatory basis.
- (iii) Inconsistent treatment of local distribution revenue requirements* in traditional industry services (ENFIA vs. MTS, Private

*CC Docket 78-72, Phase I. In the Matter of MTS and WATS Market Structure. Fourth Supplemental Notice of Inquiry and Proposed Rulemaking. Released: June 4, 1982. 47 F.R. 26668, June 21, 1982. See Comments of the Bell System Operating Companies and AT&T. August 6, 1982, pp. 7-8.

Line vs. MTS and WATS, FX vs. MTS and WATS, etc.) was, even prior to the MFJ, a long-term concern in FCC Docket 78-72 (MTS & WATS Market Structure).

(iv) Neither the Department of Justice, AT&T or the Federal District Court administering the MFJ had authority over the jurisdictional allocation of revenue requirements. The MFJ envisioned that all revenue requirements would be recovered post-divestiture in the same jurisdiction as pre-divestiture. A mechanism was therefore required that post-divestiture would enable BOCs to recover revenue requirements that pre-divestiture had been recovered from intrastate and interstate interLATA toll. The revenue requirements that BOCs traditionally recovered from interLATA toll that they continue to need to satisfy are for local distribution facilities. Since interLATA facilities remained with AT&T post-divestiture, BOCs would, of course, no longer need to satisfy revenue requirements for interLATA interexchange plant that had appeared on their books-of-accounts pre-divestiture.

Although the introduction of access charges was scheduled concurrently with divestiture, we see that a number of non-divestiture-related considerations contributed to that development.

The post-divestiture access charge environment for interLATA toll differs from the pre-divestiture Division of Revenues and Settlements environment in a number of important respects. Since BOCs/IOCs must assess customers and/or interexchange carriers explicit charges to recover revenue requirements that had traditionally been recovered from interLATA toll, these revenue requirements must be explicitly identified in the process of establishing the level of those charges. As indicated earlier, pre-divestiture, all interstate and intrastate

revenue requirements, for all facilities and non-plant items, were recovered in aggregate. Post-divestiture, BOCs/IOCs must segregate from the balance of their revenue requirements, revenue requirements for local distribution facilities and for billing/collecting services offered to interexchange carriers. The portions of these segregated revenue requirements to be recovered by carrier-access charges were denoted by vertical and cross-hatched shading in Frame 6.

Access revenue requirements for local distribution facilities are classified as NTS or TS. Hence in each of the state and interstate jurisdictions BOCs/IOCs recover access service revenue requirements in each of several classifications: NTS plant, TS plant, and billing and collecting. All other state and interstate revenue requirements are recovered in aggregate from non-access service offerings.

Each of the access service classifications corresponds to revenue requirements in one or more analytical account categories, and revenue requirements for each classification must be recovered via explicit rates for options within classifications. For example, options within the intrastate NTS access classification include jointly used and dedicated NTS access. Intrastate revenue requirements for jointly used and dedicated NTS access to be recovered from interexchange carriers originate in a number of analytical accounts. BOCs/IOCs recover via rate schedules for intrastate jointly used and dedicated NTS access the aggregate of the portions of those NTS accounts earmarked for recovery from intrastate interLATA toll carriers for jointly used and dedicated access. A comparable identification and recovery of revenue requirements holds for the various options included in the TS and billing/collecting access service classifications.

In an access charge environment, there is no longer a sharing of risk or an averaging of risk over all non-plant-related and telephone-plant-related revenue requirement accounts whereby investments by carriers that agree to a common rate of return all earn at the same rate of return. In an access charge environment we're beginning to deaverage prices since explicit prices are established to recover certain explicit revenue requirements. Investments associated with access charges, and services that BOCs and independent companies provide to interexchange carriers, will not necessarily earn at the same rate of return as investments for non-access services or investments recovered through BOC/IOC partnership arrangements.

Figure 3-8 indicates that explicitly identified revenue requirements for each classification of access service are recovered, at the option of each BOC and IOC, on either a pooled or an unpooled basis. For specificity, the access charge options selected by the FCC in its 8/22/83 Docket 78-72 order* are depicted in the figure. A broader range of options is discussed in Section 3.9. NTS access charges are shown to be either customer-flat charges or carrier-usage charges. We assume that states, at least to an extent, will mimic this kind of structure. The cell denoting NTS carrier-usage unpooled charges is marked "N/A" since the 78-72 prescribed practices do not permit deaveraged or unpooled NTS carrier-usage charges. Figure 3-8

*CC Docket 78-72, Phase I. In the Matter of MTS and WATS Market Structure. Memorandum, Opinion and Order. Adopted: July 27, 1983; Released: August 22, 1983. 48 F.R. 42984, Sept. 21, 1983.

<u>Elements of Access Charge</u>		
	<u>Pooled</u>	<u>Unpooled</u>
<u>NTS</u>		
• customer-flat	X	X
• carrier-usage	X	N/A*
<u>TS</u>		
• carrier-usage	X	X
<u>Billing/Collecting</u>	X	X

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Figure 3-8
Elements of Access Charge

*Deaveraging of NTS carrier usage charges is not an allowable option under either the Third Report and Order (CC Docket 78-72, Phase I. In the Matter of MTS and WATS Market Structure, Adopted: Dec. 22, 1982; Released: February 28, 1983. 48 F.R. 10319, March 11, 1983.), or the Memorandum, Opinion and Order (CC Docket 78-72, Phase I. Adopted: July 27, 1983; Released: August 22, 1983. 48 F.R. 42984, Sept. 21, 1983).

shows four possible kinds of pools for access charges, and three possible kinds of unpooled access charges. Hence, the revenue requirements for access services (NTS and TS access charges, and billing and collecting charges) are potentially split into numerous pots for each of the state jurisdictions and the federal jurisdiction.

The term "potentially" is used since the number of pots is dependent on the number of local exchange carriers that choose to deaverage their access charges and how many kinds of access charges they choose to deaverage. For example, if three local exchange carriers choose to deaverage NTS customer-flat charges (three pots), TS carrier-usage charges (three pots), and billing and collecting charges (three pots), and all other access revenue requirements were pooled (four pots) we would have a total of 13 pots!! Total access revenue requirements are potentially fragmented into numerous pieces in each state jurisdiction and in the federal jurisdiction, and different rate schedules and earnings levels are likely to result for each "pot" of revenue requirements. This, of course, is in contrast to the pre-divestiture state of affairs where all jurisdictionally allocated access and non-access toll service revenue requirements were recovered in aggregate, and there was one pool in each state jurisdiction and one pool in the federal jurisdiction.

Here we have dealt only with the fragmentation of access revenue requirements. We will see in the discussion of Charts 3 and 4 that post-divestiture non-access revenue requirements are fragmented as well.

From the above discussion we saw that local distribution and billing and collecting revenue requirements that had traditionally been

recovered from interLATA toll are recovered by BOCs/IOCs via access charges. The access charge mechanism, therefore, governs a portion of the flows of funds between carriers that pre-divestiture had been governed by the Division of Revenues, Independent Settlements and State Settlements processes. The balance of the flows of funds dictated by these pre-divestiture processes ensured that carriers who made available their interexchange facilities for Long Lines/BOC/IOC jointly provided toll services could satisfy revenue requirements for those plant items and other expenses. Post-divestiture, there is no jointly provided AT&T/BOC toll, and a new process was designed to compensate IOCs on IOC/AT&T jointly provided toll routes. Details of this process, and other aspects of AT&T/IOC post-divestiture interLATA enterprises are dealt with in Chapter 5.

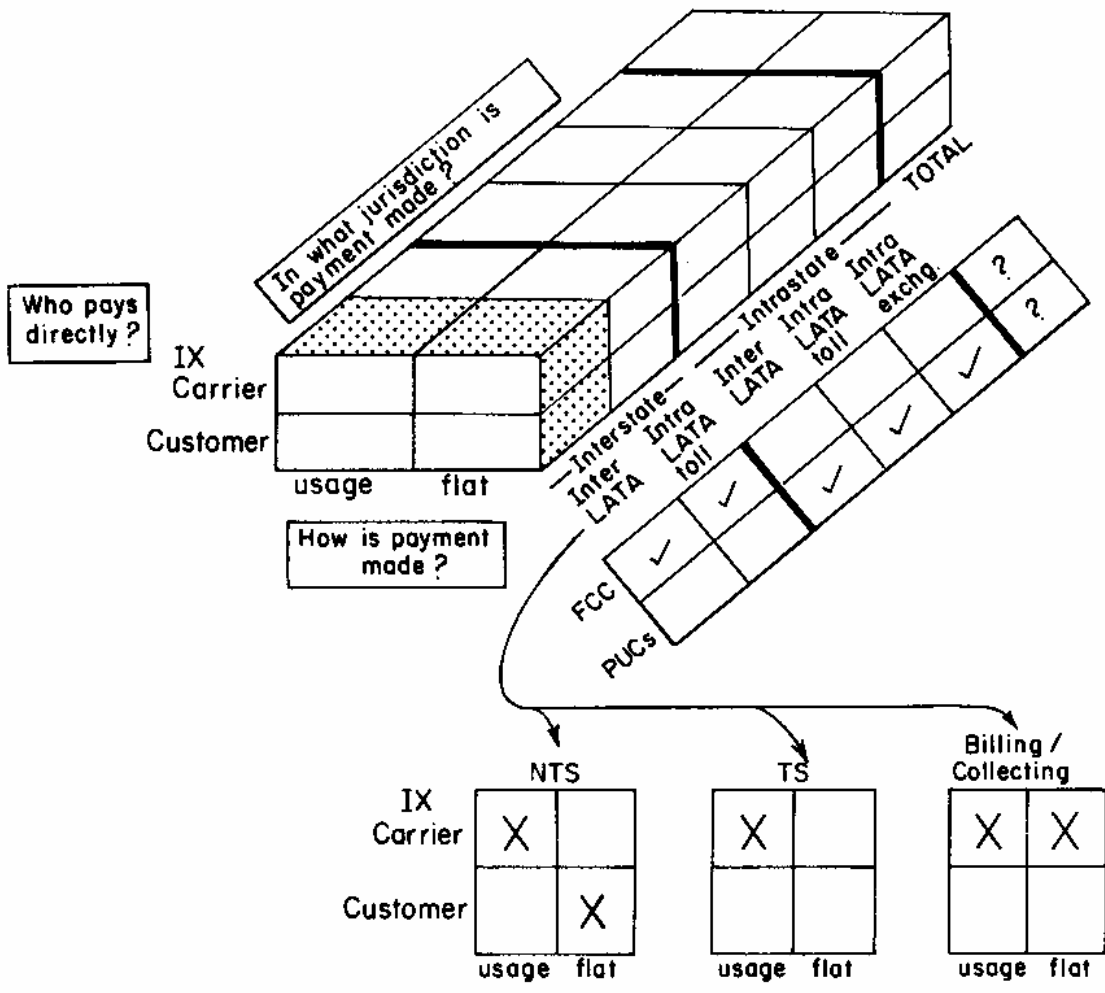
3.9 Options for Recovery of Access Revenue Requirements

Section 3.8 showed that access charges were instituted to ensure continued post-divestiture recovery of revenue requirements for NTS and TS access and billing and collecting services that pre-divestiture had been recovered from interLATA toll. These charges were seen to apply in the state and interstate jurisdictions and could be recovered by customer and/or carrier payments. Although local distribution refers to jointly used plant for local exchange, state toll and interstate toll services, only a portion of the revenue requirements for this plant is to be recovered by access charges immediately following divestiture. In this section we provide a schematic representation yielding perspective as to where access charges apply, the range of options for access service rate structures and the level of revenues recovered under each option. This representation will be used

extensively in the Chapter 5 discussion of post-divestiture BOC/IOC revenue requirements.

Figure 3-9 shows a cube to represent various dimensions for examining access pricing and revenues. The "Who pays directly?" dimension shows that either the interexchange carrier or the end-user customer can pay the charge. From the "How is payment made?" dimension, we see that the payment can be based on either a usage charge or a flat charge. Hence, the interexchange carrier can be assessed a usage charge or a flat charge. Similarly, the end-user customer can be assessed a usage charge or a flat charge. Usage charges include a broad range of possible rate structures ranging from a fixed average charge per minute of use to capped and tapered rate schedules whereby charges are limited to a fixed maximum or decline with increasing usage. The third dimension of this chart asks the question "In what jurisdiction is payment made?" and we see that the payment can be made either in the interstate jurisdiction or in the intrastate jurisdiction. If it is made in the interstate jurisdiction it can be either for interLATA or for intraLATA toll. In the intrastate jurisdiction, it can be either for interLATA or intraLATA toll, or for intraLATA exchange services. The cube provides a very general representation of the different possible price structures for access charges obtaining in any service area.

Arrows emanating from the interstate interLATA cross-section of the cube illustrate that it contains rate structures for the NTS, TS and Billing/Collecting portions of the access charge. "X"s denote the options chosen by the FCC in its 8/22/83 Docket 78-72 order. Similar arrows can be drawn from other cross-sections of the cube to illustrate



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Figure 3-9: Access Service Options

the rate structures that apply for other kinds of traffic.

Figure 3-9 shows that interstate access services are regulated by the FCC, while intrastate access and basic exchange services, which use the same plant as interstate access services, are regulated by the PUCs in each state. We see that as a result of the jurisdictional allocation of the joint and common revenue requirements for NTS plant, neither the FCC nor the PUCs maintains control over total rates for NTS access services. Fragmented regulatory oversight increases the challenges of balancing various public policy objectives* such as efficient resource allocation, avoidance of uneconomic bypass, and maintaining low-priced basic service.

In practice we have only seen the evolution of explicit interLATA access charges. A great deal of attention has been focused on interstate interLATA access charges and intrastate interLATA access charges. Although there are revenue requirements for intraLATA toll and exchange services that are defined in precisely the same way as those for interLATA services, the industry has not moved in the direction of explicit access charges to recover these intraLATA revenue requirements. As competitive pressures grow in the intraLATA arena, we may witness ENFIA-like disputes at the state level, and further attention is likely to be focused on the intraLATA cells of the cube.

*This topic is further dealt with in Samuel M. Epstein, A Comprehensive View of NTS Access Costs: Historical Precedents and Alternatives for the Future. Cambridge: Program on Information Resources Policy, Harvard Univ., 1983 (unpublished research outline).

In addition to employing this cube in the context of a representation of access price structures, we could, as illustrated in Figure 3-10, apply demand to the various cells of the cube, show the total revenues recovered by the various elements of the access charge, and derive the total payments made by carriers or customers. We could calculate the total carrier payment in all jurisdictions of non-traffic-sensitive charges on a usage basis, the total payment for traffic-sensitive charges and the total payment for billing and collecting. We could also illustrate, for example, the proportion of the non-traffic-sensitive carrier-usage charge that is expected to be permanent in each of the state and interstate jurisdictions to finance a universal service fund.

The cube provides a conceptual framework for organizing and analyzing pricing, demand, and revenue information for the access lines of business. Policy issues whose analysis is facilitated by the cube include the extent of parity or disparity of interstate and intrastate, interLATA and intraLATA access rate structures; the combined impact on customers of the jurisdictional allocation of revenue requirements and the structure or distribution of those revenue requirements over the customer base; and the establishment of procedures for financing and distributing universal service funds.

• Sample Rate Structure for Jointly Used NTS Access

IX Carrier	3¢/minute	\$1.4B
Customer	0	\$2/line/month
	usage	flat

• Demand for Jointly Used NTS Access (Annual)

IX Carrier	X minutes	N/A*
Customer	N/A	Y lines
	usage	flat

* Assume 1.4B charge is lump sum fee and is not demand-related

• Revenue for Jointly Used NTS Access

Revenue = (Sample Price x Demand) for each cell

IX Carrier	(.03)(X)	1.4B
Customer	0	(\$2)(12)(Y)
	usage	flat

Figure 3-10
Illustrative Calculation of Revenues Recovered by
Each Element of the Interstate InterLATA Access Charge

3.10 Potential Inferences from Chart 2

3.10.1 Frame 3

Frame 3 provides a conceptual framework for comparing the AT&T and BOC asset split with the split of annual revenue requirements. Such a comparison would be facilitated by arranging the assets by account category in a rectangle similar to the rectangle representing annual revenue requirements. We could then examine the pre-divestiture relationship between assets and annual revenue requirements, as well as the post-divestiture relationship between the AT&T/BOC asset split and AT&T/BOC annual revenue requirements.

Frame 3 also provides a base for comparing BOC/IOC/AT&T Communications annual revenue requirements immediately following divestiture on January 1, 1984 with revenue requirements that evolve over the months and years following divestiture. Such comparisons are of interest since the MFJ may change the evolution of costs for all parties as new facilities are constructed to meet its requirements. Frames 3 and 4 provide an analytical framework for tracing the evolution of the industry and measuring the impact of changes that are introduced by the MFJ. We recognize that it may not be possible to study the impacts of specific equipment configuration and other changes introduced by MFJ, since events, totally unrelated to the MFJ, will be impacting the industry as well. Growth, technological innovation and other changes will necessitate construction and will generate revenue requirements in the future which may not be separable from MFJ-dictated construction. Nevertheless, if representations were developed for historical revenue requirements at various points in time, and were also developed at various points in time in the future, we would have a

framework for monitoring the evolution of industry costs. Such representations could disaggregate analytical account categories to any required level of detail to focus attention on issues of particular interest to the industry, regulators, legislators and other stakeholders.

3.10.2 Frame 4

Frame 4 explicitly notes AT&T and BOC expenses for shared facilities, and AT&T (and OCC) access expenses. This represents a different relationship between AT&T and the BOCs than that which existed pre-divestiture or that which exists between AT&T and the independents or between the BOCs and the independents post-divestiture. Post-divestiture, AT&T and the independents, and the BOCs and the independents, will remain "partners" in toll enterprises. However, AT&T and the BOCs are no longer partners in any aspect of the business. Joint AT&T/BOC service provisioning on statewide or nationwide average schedules is forbidden, and money will no longer be transferred between AT&T and BOCs on the basis of a shared rate of return. Rather, transfers of funds will be based on tariffed access charges or through other contractual arrangements that explicitly specify prices.

Included in the non-plant-related revenue requirements shown in Frame 4 are several kinds of non-plant expenses incurred by interexchange carriers: force and other operating expenses, shared facilities contractual obligations, access expenses for NTS and TS facilities, and finally, access expenses for certain BOC-rendered services. NTS access expenses differ from other categories of revenue requirements. Non-NTS access expenses correspond to costs caused by interexchange carrier demand for services. NTS revenue requirements,

however, are fixed for any customer connected to the network and do not vary with use, yet they are levied on carriers, by regulatory policy, on a usage-sensitive basis. Since these expenses are not under the control of interexchange carriers, no degree of efficiency--other than perhaps bypass--can serve to reduce them.

Drafting of Frame 4 with reported data is likely to indicate a high dollar value for AT&T non-plant-related expenses. Therefore, post-divestiture, a large percentage of the revenues collected by the interexchange business are employed to pay expenses rather than to recover capital. A possible financial implication of regulatory lag in the adjustment of toll rates as BOCs/IOCs revise access tariffs is that in a post-divestiture access charge environment there may be a greater degree of risk in the interstate enterprise and the financial community may require a higher rate of return.

3.10.3 Frame 5

Frame 5 shows that AT&T is subject to USOA record keeping. On the other hand, the OCCs are deregulated. Considerably greater detail is therefore feasible on such a chart for AT&T Communications than for the OCCs.

3.10.4 Frame 6

Frame 6 shows the relationship between BOC revenue requirements and interexchange carrier access charges. Note that the access charges are explicit only for interLATA toll although revenue requirements in the same analytical accounts are to be recovered via intraLATA businesses (i.e. both toll and exchange services).

Frame 6 can also indicate the relationship between BOC revenue requirements and AT&T rental fees for shared facilities as well as the

parallel relationship between AT&T revenue requirements and BOC rental fees for shared facilities. No arrows are drawn between the telephone-plant-related revenue requirements for BOCs to be recovered via AT&T shared facilities rental fees, or between the AT&T telephone-plant-related revenue requirements to be recovered via BOC shared facilities rental fees, since further research is required to identify which accounts generate the revenue requirements that are in fact recovered by these rental fees paid by BOCs and AT&T. Conceptually, of course, we know that these rental fees are designed to recover certain telephone-plant-related revenue requirements from BOCs or AT&T.

The capability of Frame 6 to relate traffic-sensitive revenue requirements with traffic-sensitive elements of access charge tariff structures may provide a tool for identification and sizing of transport revenue requirements for AT&T vs. OCC traffic. This matter is the subject of a pending proceeding--FCC Docket 83-287.*

*CC Docket 83-287. Waiver of Commission's Rules. (Access Charges). Memorandum, Opinion and Order, Adopted: June 23, 1983; Released: June 28, 1983. 48 F.R. 31649, July 11, 1983.

Chapter 4Chart 3: Post-Divestiture AT&T/IOC Revenue Requirements4.0 Overview

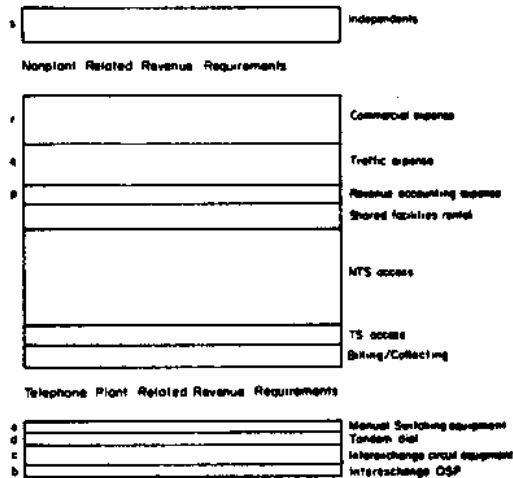
Chart 3 deals with post-divestiture AT&T and IOC interLATA annual revenue requirements. This chart and the accompanying discussion are in the same format as Chart 1 and Chapter 2 that deal with pre-divestiture telecommunications industry revenue requirements. The comments provided in Section 2.10 regarding inferences from Chart 1 remain valid for Chart 3. Additional potential inferences from the treatment of post-divestiture revenue requirements provided here will be interleaved with the discussion of the substance of each column.

4.1 Column 1: Revenue Requirements

Revenue requirements for each state, for Long Lines* and for the total of all states are represented by the areas of the graphics in Column 1. These revenue requirements relate only to interstate interLATA and intrastate interLATA operations.

The graphic from the State 1 row of Column 1 is duplicated in Figure 4-1. For convenience the same graphic appears in Column 1 for each state. A graphic representing total AT&T/IOC interLATA revenue requirements is shown in the Total row as well as in the middle segment of Figure 3-4.

*"Long Lines" on Chart 3 refers to the interstate division of AT&T Communications. Although Long Lines is not the official name of the post-divestiture AT&T organization that provides interstate interLATA services, we employ that designation to maintain comparability between Charts 1 and 3.



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**Figure 4-1: Chart 3, State 1 Row, Column 1
State 1 Post-Divestiture InterLATA Annual Revenue Requirements**

Telephone plant annual revenue requirements shown in Column 1 are based on the AT&T/BOC asset split and are associated with the interLATA investments that remain with AT&T after divestiture. The non-plant expenses include access charges and other expenses facing the residual AT&T post-divestiture. The derivation of the Column 1 graphics was provided in Sections 3.3 and 3.4 in connection with the discussion of Chart 2.

The representations in Column 1 reflect joint expenses for multi-state interexchange corporations as well as state-specific revenue requirements. Post-divestiture, AT&T provides intrastate interLATA services through 22 interexchange corporations. Non-Long Lines plant employed in the provisioning of interstate services, and

retained by AT&T post-divestiture, is also held by these corporations. Joint expenses refer to administrative and other non-state-specific costs incurred by multi-state interexchange corporations. State-specific revenue requirements reflect expenses or investment revenue requirements for plant items located in a specific state. The revenue requirement rectangles for each state and for the total of all the states and Long Lines reflect an allocation of the joint expenses for multi-state interexchange corporations among each of the states plus state-specific revenue requirements for each state. This is analogous to the pre-divestiture allocation of multi-state BOC expenses among the states served by each BOC.

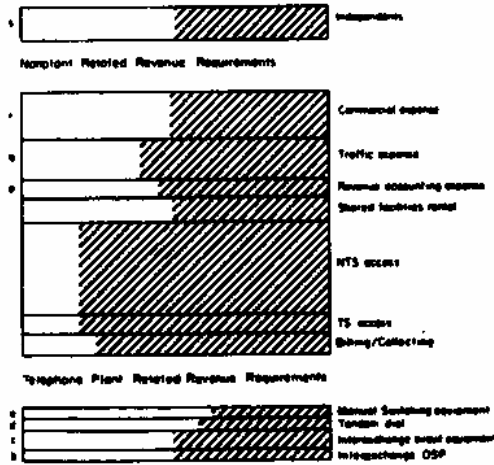
None of the Column 1 graphics is drawn to scale. In practice, however, if we were to analyze reported data, a visual scan of this column would indicate, for example: the relative differences between revenue requirements in different states, the relative importance of different accounts in different states, the relative importance of Long Lines revenue requirements, and so on. We could also aggregate these data into groups of states that constitute each of the 22 AT&T Communications interexchange corporations. This could facilitate inferences regarding the 22 interexchange entities.

4.2 Column 2: Jurisdictional Revenue Requirement Allocation

Column 2 of Chart 3 shows the post-divestiture jurisdictional allocation of revenue requirements to the interstate jurisdiction, and residual revenue requirements under state regulation. As in Column 2 of Chart 1, jurisdictional revenue requirement allocations are governed by the Separations Manual. Access expenses assessed in the state jurisdiction are classified as state revenue requirements, while access

expenses assessed in the interstate jurisdiction are classified as interstate revenue requirements.

Rows 1, 2 and 3 illustrate jurisdictional revenue requirement allocations in each of the states. The jurisdictional allocation of revenue requirements for State 1 is shown in Figure 4-2. The shaded



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**Figure 4-2: Chart 3, State 1 Row, Column 2
Jurisdictional Allocation of State 1 Post-Divestiture
InterLATA Annual Revenue Requirements**

areas of the Column 2 graphics denote the portions of analytical accounts allocated to the interstate jurisdiction. In the Long Lines row, we show that all revenue requirements are allocated to interstate since Long Lines does not provide intrastate services. In the Federal row, we show the sum of the allocations to interstate in each of the states, and the Long Lines revenue requirements that are entirely inter-

state. Finally, in the Total row, we show the sum of all the interstate and state revenue requirements. The graphic provided in the Total row of Column 2 was also shown as the middle segment of Figure 3-5.

Analysis of reported data would enable in-depth inferences regarding jurisdictional revenue requirements in each state, jurisdictional revenue requirements for the 22 interexchange entities, and differences between interexchange entities. We could study the impact on access expenses of changes in the way certain BOC/IOC revenue requirements will be allocated in the future. For example, what happens to access expense in each state if there is a change in the process for allocating BOC/IOC non-traffic-sensitive revenue requirements to interstate? What happens to access expense if there is a change in the measurements employed for determining interstate allocations of BOC/IOC plant-related revenue requirements? What if the FCC institutes seven-day measurements versus business-day measurements? Which states end up with increased versus decreased interstate access expense? The graphics may be useful as a tool for assessing the impact of transitioning from the current jurisdictional allocations to some new proposed allocations. In which states might we have substantial transition problems? Where might we have temporary, undesirable dislocations as a result of new practices for allocating revenue requirements? For example, where will we be temporarily increasing allocations and subsequently interstate prices only to decrease them later because of some other regulatory change (for example, Customer Access Line Charges [CALCs]*)?

*A CALC is a recurring monthly charge to customers for recovery of NIS access revenue requirements. CALCs were referred to as customer-flat charges in Section 3.9 and in Figures 3.8 and 3.9.

4.3 Column 3: Intra-jurisdictional Revenue Requirement Handling

Column 3 is split into two parts, 3a and 3b. In 3a we show the intra-jurisdictional revenue requirement handling for the portion of the revenue requirements that remain with the state jurisdiction, and in 3b we show the intra-jurisdictional handling of revenue requirements that are allocated to interstate.

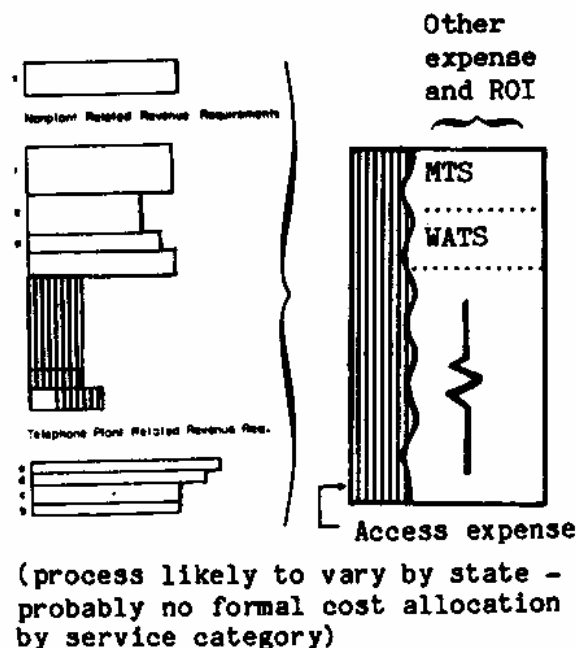
4.3.1 Intrastate Revenue Requirement Handling

Column 3a reflects carrier access, interexchange plant and various non-plant-related revenue requirements. Carrier access expense includes revenue requirements for NTS and TS facilities and ancillary services (billing and collecting). Interexchange plant revenue requirements include capital recovery and return on investment for interexchange facilities. Non-plant expenses, in addition to access expenses, include traffic, commercial and revenue accounting expenses and shared facilities rental fees paid to BOCs. The sum of the Column 3a revenue requirements (carrier access expense, interexchange revenue requirements and other non-plant expenses) is to be recovered by AT&T service offerings in the intrastate jurisdiction, namely MTS, WATS, 800 Service and Private Line, and by shared facilities rental fees* assessed BOCs.

Column 3a for State 1 and Figure 4-3 show revenue requirements allocated to the intrastate jurisdiction for that state. The intrastate interLATA toll revenue requirements classified by analytical

*See Section 3.5 for further detail on the treatment of shared facilities rental fees.

account category on the left-hand side of Figure 4-3 are reflected by the area of the rectangle on the right-hand side of that figure. Since account identities are lost in downstream processes they are not shown in that rectangle. Revenue requirements will be recovered in aggregate rather than on an account-by-account basis. However, access-related and shared facilities rental revenue requirements remain explicit identifiable expenses determined by BOC/IOC prices. We denote with vertical shading revenue requirements generated by access charges



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Figure 4-3: Chart 3, State 1 Row, Column 3a
State 1 Handling of Post-Divestiture Intrastate
InterLATA Annual Revenue Requirements

assessed AT&T by BOCs and IOCs. The sum of the access expense and the other revenue requirements (exclusive of shared facilities revenue requirements recovered from BOCs) are recovered via rates for intra-

state interLATA service offerings: MTS, WATS, 800 Service and Private Line.

Dotted versus solid lines in Figure 4-3 indicate the service category distribution of revenue requirements since formal processes do not exist to allocate intrastate revenue requirements by service category. Processes for splitting intrastate revenue requirements by service can vary by state. The evolution of intrastate competition may create pressures to institute explicit processes similar to those prescribed in the interstate arena by the ICAM for allocation of revenue requirements among service categories. Since the competitive situation in each state can be expected to vary, the evolution of processes for allocating intrastate revenue requirements among service categories is likely to vary by state.

Revenue requirements are handled in Column 3a on this chart differently from the way they were handled in Column 3a on Chart 1. On Chart 1, revenue requirements to be recovered from intrastate toll were determined, in most states, in conjunction with pricing. The objective was to maximize, subject to toll parity and market constraints, the amount of contribution that could be eked out of the intrastate toll enterprise. In the environment described on this chart, telephone plant revenue requirements for intrastate toll are explicitly determined by the AT&T/BOC asset split, by the capital recovery practices for particular categories of accounts and by other business expenses. The access expenses are also formally determined since they are tariffed. Based on BOC/IOC rates for access charges, and plant-related revenue requirements and other expenses for intrastate interLATA toll, revenue requirements that must be recovered by

intrastate interLATA service offerings result. We no longer pursue the objective of minimizing local exchange revenue requirements by maximizing aggregate revenue to be recovered by other intrastate services since local exchange services are offered by non-AT&T corporations post-divestiture.

A certain amount of flexibility, of course, exists for BOCs/IOCs to set access charges--that is, the size of the area with vertical shading in Column 3a--that maximize BOC/IOC intraLATA revenue requirement recovery from access services and thereby minimize the level of residual revenue requirements to be recovered from local exchange service. There are, however, constraints on the viable level of access revenue requirements. The threat of uneconomic bypass limits the level of revenue requirements that BOCs/IDCs can expect to recover via access charges. Additionally, to avoid jurisdictional shopping,* intrastate interLATA revenue requirements will have to bear some relationship to access charges for interstate interLATA toll. As the competitive marketplace evolves, these access charges will also have to bear some relationship to interstate intraLATA and intrastate intraLATA access charges that develop.

The graphics for each of the states are the same generically as the graphic for State 1, except for scale. This statement holds as

*Jurisdictional shopping refers to selection by carriers of access services that minimize their expenses. Hence, if interstate and intrastate access services are offered at differing prices, interexchange carriers will select services in the jurisdiction with the lower price.

well for states such as New York with explicit processes for identifying intrastate toll revenue requirements. Chart 1 showed a different graphic for New York since BOC interexchange revenue requirements were separated explicitly in New York in contrast to the way they were determined in other states. However, there is no need to show on this chart a separate graphic to depict New York interexchange revenue requirements since post-divestiture interexchange interLATA revenue requirements are explicitly determined for all states. These revenue requirements are AT&T Communications state revenue requirements and are no longer combined with other BOC revenue requirements. As indicated earlier, revenue requirements are explicitly determined for intrastate interLATA services, and flexibility for swishing revenue requirements between these services and other intrastate service categories is lost.

Collecting data and studying the intrajurisdictional handling of revenue requirements in each of the states would provide various insights. Of interest from such a display would be, for example, the percentages that state interLATA access revenue requirements are of state revenue requirements, and the extent of variation existing between states. These percentages indicate the relationship between areas with vertical shading in Column 3a and the total areas of the graphics for each state. The discussion of Column 3b will pursue other implications of intrajurisdictional revenue-requirement handling processes.

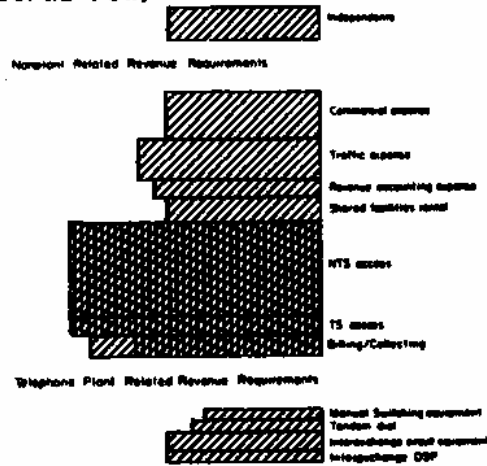
4.3.2 Interstate Revenue Requirement Handling

Column 3b deals with the intrajurisdictional handling of revenue requirements in the interstate jurisdiction. The kinds of revenue requirements treated here are similar to the revenue requirements in

the state jurisdiction and include carrier access, interexchange plant and various non-plant-related expenses. Carrier access expenses consist of NTS and TS access charges and expenses for ancillary services. Interexchange plant revenue requirements include capital recovery and return on investment for interexchange facilities. Non-plant-related expenses include revenue requirements for traffic, commercial and revenue accounting expenses and shared facilities rental fees paid to BOCs. A portion of the interstate revenue requirements is recovered through shared facilities rental fees assessed BOCs.* Through the ICAM, the balance of the interstate revenue requirement is divided among various service categories.

*See Section 3-5 for further detail on the treatment of shared facilities rental fees.

State 1 contribution to interstate revenue requirement pool (see Federal row)

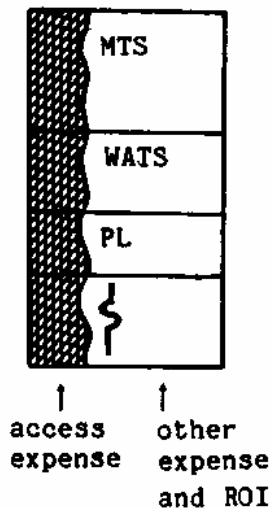


Note: account identities lost except for access expense

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Figure 4-4: Chart 3, State 1 Row, Column 3b
State 1 Contribution to Post-Divestiture Interstate InterLATA Revenue Requirement Pool

Interstate Revenue Requirement Pool
ICAM service category revenue requirement allocations



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Figure 4-5: Chart 3, Federal Row, Column 3b
Post-Divestiture Interstate InterLATA Revenue Requirement Pool

The graphic shown in the row for State 1 in Column 3b and in Figure 4-4, shows the State 1 contribution to the interstate revenue requirement pool. The total revenue requirement pool is shown in the Federal row of Column 3b and in Figure 4-5. A similar graphic representation applies for each state. In the Long Lines row, we see the Long Lines contribution to the interstate revenue requirement pool. Note that each state and Long Lines contributes to the federal pool the area represented by its graphic. Contributed revenue requirements will, in general, be recovered in aggregate from various interstate services rather than on an account-by-account basis. Account category distinctions are therefore not shown in Figure 4-5. The portion of the revenue requirements depicted in the Federal row that relates to interstate interLATA carrier access charges is shaded with cross-hatching. As for intrastate interLATA services, interstate interLATA access and shared facilities revenue requirements are explicit identifiable expenses determined by BOC/IOC prices. These prices enable BOCs/IOCs to recover access and shared facilities revenue requirements in portions of their accounts.

The ICAM rules are applied to divide the total of the contributions to the interstate revenue requirement pool among MTS, WATS, Private Line and any other sub-categories that may be required. The graphic in the Federal row shows an area reflecting access expense for each of the service categories including MTS, WATS, and PL.

The graphic in the Federal row could be refined to show the distribution of access service revenue requirements among access service options ordered from exchange carriers in providing each of the toll services. For example, provisioning of WATS (OutWATS or 800

Service) involves the use of dedicated access for the "closed end" as well as jointly used access at the open end. Provisioning of FX also requires a mix of dedicated and jointly used access. Private Line uses only dedicated access. The portion of the Private Line revenue requirement that is recovered by access charges could be disaggregated to highlight the portion of the Private Line access charge that represents some level of regulatory-body imposed surcharge such as the FCC-proposed* \$25 surcharge. The same holds for potential surcharges on WATS access lines. NTS and TS access charge distinctions could also be shown.

We could also examine, in the context of Figure 4-5, the portion of the WATS revenue requirement associated with WATS resale. That would provide insight on the composition of demand for WATS as the resale market grows and as the mix of AT&T-offered services changes, with AT&T becoming a "wholesaler" leasing services to other interexchange organizations that are either resellers or mixed resellers/facility-based carriers. This is, of course, in contrast to situations that existed in the past whereby initially there was no resale, and later there was only limited resale.

Among the other inferences to be made from Columns 3a and 3b are the following: We can see the percentage that interstate interLATA

*CC Docket 78-22, Phase I. In the Matter of MTS and WATS Market Structure. Memorandum, Opinion and Order. Released: August 22, 1983. 48 F.R. 42984, Sept. 21, 1983.

access service revenue requirements recovered from carriers are of interstate revenue requirements. We could also examine the importance of the cross-hatched revenue requirements in the graphics shown in Column 3b for each state, and the variation in those shaded areas by state. The existence of some states with access revenue requirements higher than those in other states may have implications for the evolution of alternatives to AT&T interLATA services. In states where access charges are high, competition to AT&T services may be discouraged by the high costs of doing business resulting from high access charges. The residents of some states may not have a choice of interexchange carriers because incentives are not created for competitive market entry. Availability of competitive offerings may be a factor to be taken into account in the establishment of access charges. High access charges enable BOCs to recover revenue requirements that otherwise need to be recovered from residual BOC services. On the other hand, to the extent that access charges are kept too high, customers are precluded from having a choice of interexchange carriers, perhaps their toll costs are artificially high, and repressed toll demand decreases BOC/IOC TS access revenues. High access charges may also create incentives for uneconomic bypass.

Columns 3a and 3b provide a framework for comparing the sizes of the post-divestiture state and interstate revenue requirement pools with the sizes of those pools in a pre-access charge environment. Assuming a non-zero customer access line charge (CALC), and the absence of revenue requirements for BOC-provided intraLATA interstate and corridor traffic, the size of the interstate revenue requirement pool is smaller here than in Column 3b of the pre-divestiture chart.

The discussion of how revenue requirements are defined for post-divestiture interLATA enterprises, how those revenue requirements are jurisdictionally allocated, and how they are handled in each of the state and interstate jurisdictions has laid the groundwork for the pricing of state and interstate services.

4.4 Column 4: Pricing

Columns 4a and 4b deal with pricing. This discussion covers only interLATA services since we assume that AT&T Communications provides only interLATA services after divestiture.

4.4.1 Pricing of State Services

The graphic for State 1 in Column 4a reviews the nature of the pricing schedule for state services. This graphic is duplicated in Figure 4-6. It is shown that end-user customers and carriers pay for services on either a usage or a flat basis. Pricing for carriers reflects rates for resold services and facilities leased by OCCs. The

Toll services

IX Carrier	MTS WATS	PL Leased facilities WATS access lines
Customer	MTS WATS OCP (?)	PL OCP (?) WATS access lines
	usage	flat

Note: statewide average toll schedules
-Shared facilities

* 1985 Program on Information Resources Policy, Harvard University.

Figure 4-6: Chart 3, State 1 Row, Column 4a
Post-Divestiture Pricing of State InterLATA Services

services for which revenue requirements will be recovered by usage schedules are MTS, WATS, and possibly optional calling plans. Services

priced on a flat rate basis are Private Line, WATS access lines, and possibly optional calling plans.

Prices for facilities shared by AT&T and BOCs are explicitly established by contracts between those parties, and are reflected in the lower portion of the graphic. These facilities are employed for BOC intraLATA services as well as for AT&T interLATA services. We assume that pricing for shared facilities is on a state-by-state basis rather than on some broad nationwide average schedule. BOCs pay the same price for shared facilities employed for their state and interstate services. Shared facilities rental prices are shown in both Columns 4a and 4b because, as noted in Section 3.5, the graphic representation of AT&T revenue requirements include the jurisdictional allocation of revenue requirements satisfied by these rents based on the BOCs' use of the rented facilities.

In practice, AT&T rental charges assessed BOCs for shared facilities are non-jurisdictional, and BOCs determine the mix of state and interstate usage of the facilities they lease.

Despite the fact that this is a post-divestiture chart, the notion of statewide average toll schedules still obtains for AT&T/IOC-offered state toll.* Whether calls are handled by AT&T facilities, a combination of AT&T and independent facilities, or entirely by independent facilities, all intrastate interLATA calls are subject to the same statewide average toll schedules regardless of the revenue requirements generated by individual links of the call.

*It is unlikely that post-divestiture BOC/IOC state toll will be offered on the same schedule as AT&T/IOC state toll. This state of affairs represents a departure from statewide average toll schedules.

4.4.2 Pricing of Interstate Services

Pricing for federal services is dealt with in Column 4b. The Long Lines row and Figure 4-7 indicate that end-user customers or carriers leasing facilities pay directly, on a flat basis, for Long Lines Private Line services. The Federal row and Figure 4-8 depict pricing for the full menu of AT&T interstate services. Again, end-user customers and interexchange carriers pay directly for services on either a flat or usage basis. We see pricing on a usage basis for MTS and WATS and perhaps optional calling plans if they are offered. We also see flat-rate pricing for Private Line, WATS access lines and possibly optional calling plans. The same nationwide average schedule for all states applies for each AT&T and IOC-provided interstate toll

Toll Services

IX Carrier		Leased facilities
Customer		PL
	usage	flat

Figure 4-7: Chart 3, Long Lines Row, Column 4b
Post-Divestiture Pricing of Long Lines Services

Toll services

IX Carrier	MTS WATS	PL Leased facilities WATS access lines
	Customer	MTS WATS OCP (?)
	usage	flat

Note: Same nationwide average schedule for all states regardless of whether AT&T or IOC facilities are used.

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Figure 4-8: Chart 3, Federal Row, Column 4b
Post-Divestiture Pricing of Interstate InterLATA Services

AT&T and IOC-provided interstate toll service. Whether a call is handled entirely by AT&T interexchange facilities, entirely by independent facilities, or by a combination of AT&T and independent facilities, the same nationwide average schedule applies.

In contrast to the pre-divestiture pricing of each Bell System/IOC interstate service on a nationwide average schedule, each post-divestiture interstate service may no longer be priced according to a single rate schedule. Seven RHCs as well as post-divestiture AT&T offer interstate services, and each of these separate corporations may price interstate services according to different schedules.

BOC-provided interstate services consist of intraLATA toll where LATAs

cross state boundaries, and corridor traffic. In October, 1983 BOCs filed "copycat tariffs" that proposed 1/1/84 pricing schedules for BOC interstate services equal to the 1983 AT&T interstate price schedules. In the future such pricing will not be feasible,* and we are likely to see some deaveraging of the interstate schedules. The AT&T-offered interstate interLATA toll will be priced on a given schedule, and over time BOC-offered interstate toll will be priced according to other schedules. It remains unclear whether a given RHC will file a single interstate tariff for all the interstate toll that its component BOCs handle, or whether each BOC will file a tariff for the interstate toll that it provides.

The existence of statewide average end-user intrastate toll rates and nationwide average end-user interstate toll rates assumes that AT&T/IOC toll rates will not reflect disparities between access charges imposed at each end of toll calls. As will be illustrated in Chart 4 (Column 4), BOC/IOC access charges can vary by carrier providing the local distribution facilities at the origination and termination points of calls. To the extent that access charges are deaveraged, interLATA carriers may be assessed different access charges by different BOCs and IOCs serving a given state. Disparate access expenses assessed interexchange carriers may create pressures for deaveraged toll rates that more closely reflect the cost of service. A

*A single AT&T/BOC interstate schedule is not feasible since AT&T/BOC pooling is not allowed. Furthermore, BOCs and AT&T must cost justify their rates. Existing cost methodologies are not likely to yield the same results when applied by AT&T to interstate traffic of all lengths of haul, and applied by BOCs to interstate short-haul toll traffic which they continue to provide.

carrier providing a ubiquitous service who averages in his rate structures disparate costs is competitively disadvantaged relative to other carriers serving selected routes and offering deaveraged rates.

Among the possible insights we can glean from Columns 4a and 4b is the extent of parity or disparity of state and interstate toll schedules, and clues as to causes for disparities. For example, explicit access expenses that vary by state and by regulatory jurisdiction (state versus federal) may be one major reason for rate disparities between state toll offerings in different states, and for rate disparities between state and interstate toll offerings. By summarizing on this chart and on Chart 4 price schedules for each state, we could also see how AT&T state and interstate toll rates relate to BOC state and interstate toll rates.

4.5 Column 5: Demand

Column 5 shows the major state and interstate service offerings, as well as relevant demand units. Demand in State 1 is illustrated by the graphic in the State 1 row of the chart and Figure 4-9. The state portion of the graphic shows MTS demand in minutes, WATS demand in access lines and minutes, Private Line demand in access lines and circuits by Private Line option, and demand for optional calling plans, should they be offered, as well as demand for shared facilities. The interstate portion of the graphic shows demand for interstate MTS, WATS, Private Line, possibly optional calling plans and shared facilities. Because the same the kind of information is required in each state, the same graphic that is shown for State 1, Column 5 applies for all states.

The Long Lines row shows demand in access lines and circuits for most interstate Private Line service options. The Federal row shows total demand for interstate services: MTS, WATS, Private Line, and possibly optional calling plans. Availability of total interstate demand as well as interstate demand in each state enables an assessment of which states are the principal contributors to total demand.

·MTS -minutes	·MTS
·WATS -access lines -minutes	·WATS
·PL -access lines -options	·PL
·OCP	·OCP
·Shared facilities	·Shared facilities

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Figure 4-9: Chart 3, State 1 Row, Column 5
Post-Divestiture InterLATA Demand in a Given State

The Total row shows total demand for state and interstate services. These totals summarize the total demand handled by the post-divestiture AT&T, and enable inferences regarding the distribution of demand over the states. We could, for example, compare the percentage contribution of each state to total demand to percentage contribution of each state to total billed revenues, or to percentage contribution

of each state to total revenue requirements.

An important characteristic of demand is the extent of concentrations of originated and terminated demand regardless of the service labels that are used today. This kind of information is extremely useful in some of the access decisions facing interexchange carriers. A knowledge of the nature of demand concentrations would help make decisions as to whether dedicated access is applicable or whether access employing jointly used NTS plant is perhaps more cost effective. To minimize access costs, the design of service offerings and the satisfaction of customer requirements will have to deal explicitly with such tradeoffs. Access costs are estimated to be approximately 60 percent* of total post-divestiture AT&T Communications expenses and taxes. Hence, any decisions that minimize these costs can be crucial in the competitive environment in which AT&T must operate.

4.6 Column 6: Billed Revenues

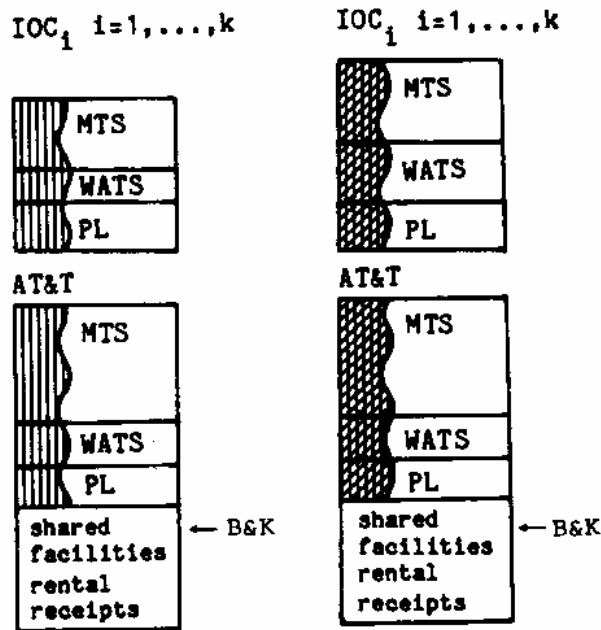
Column 6 deals with revenue sources or revenue requirement recovery. The two major sources of revenue are billed revenues for various toll service offerings, and rental receipts for shared facilities. Pre-divestiture all revenues resulted from billing for services to end-users, OCCs and resellers, and explicit revenue receipts from shared facilities did not exist.

Column 6 shows revenue sources and revenue requirement recovery for each state and Long Lines. The services from which revenue requirements are recovered by interLATA carriers are shown in the graphic

*This figure is contained in the executive summary filed with AT&T Communications' Proposed Interstate Rates. For summary see Telecommunications Reports, Vol. 49, no. 40, Oct. 10, 1983, pp. 2-6.

for State 1 and in Figure 4-10. The left-hand side of the graphic reflects billing by each* IOC and by the State 1 BOC on behalf of AT&T for intrastate MTS, WATS and Private Line. The post-divestiture AT&T also recovers revenue requirements for shared facilities. The portion of the revenues shaded with vertical lines reflects AT&T/IOC recovery in their toll service rates of access expenses in addition to other revenue requirements.

The right-hand side of Column 6 shows revenue sources for interstate services. It reflects billing by AT&T (via BOCs) and IOCs*



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Figure 4-10: Chart 3, State 1 Row, Column 6
State 1 Post-Divestiture InterLATA Billed Revenues

*Conceptually we would have a box for each independent company in the state that is billing for MTS, WATS and Private Line.

for MTS, WATS and Private Line, and AT&T shared facilities rental receipts. The access expenses for AT&T/IOC interstate interLATA offerings are shaded with cross-hatching.

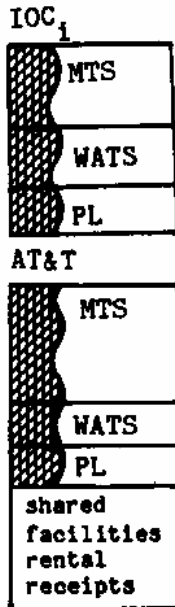
The areas of Figure 4-10 shaded with vertical lines and cross-hatching reflect dollar amounts that AT&T and the independents pay to local exchange carriers as access charges. The remaining revenue requirements that have been recovered from toll services will be pooled and divided among the AT&T and IOC entities providing interLATA services. Column 7 will define revenue pools in each state and in the interstate jurisdiction. These pools are financed by the unshaded revenues represented in Column 6.

Graphics similar to that shown for State 1 apply for all other states. Reported data would enable us to draw the graphics to scale and to examine differences between states and differences between the relative importance of billing on behalf of AT&T by BOCs and IOC billing. We could also display the independents' data by major category of IOC. For example, we might want to show the large independents separately (GT&E, United & Continental) from remaining independents to illustrate the relative importance of various providers of interLATA services.

The Long Lines row shows AT&T's revenue requirement recovery from interstate Private Line billing. The Federal row and Figure 4-11 show the sum of the Long Lines interstate revenues and other interstate revenues recovered in each state. In addition to AT&T/IOC total interstate toll service revenues, this row also shows total shared facilities rental receipts that correspond to BOC use of shared facilities for interstate services. Note that the right-hand side of

the graphic for State 1 in Column 6 represents the State 1 contribution to total interstate revenues shown in the Federal row. If we filled in the graphics for each of the states, we would see the contribution of each state to total interstate revenues. The Total row shows total IOC and BOC billing on behalf of AT&T for intrastate and interstate interLATA toll services and total billing for shared facilities.

Total I/S Rev.



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Figure 4-11: Chart 3, Federal Row, Column 6
Federal Post-Divestiture InterLATA Billed Revenue

Before leaving this column, we note that shared facilities rental receipts are recovered on a bill-and-keep (B&K) basis and represent payment of an explicit contractual expense rather than the result of a partnership agreement and a settlement from a pool where risk is averaged.

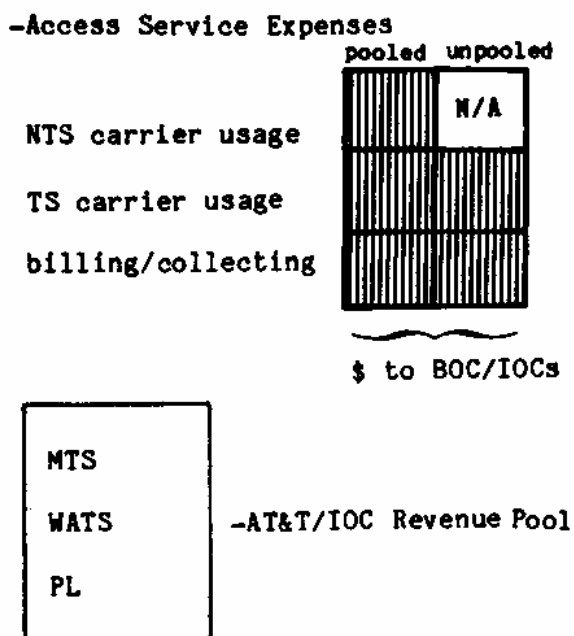
One could argue that there is nothing new about the shared facilities rental receipts, since pre-divestiture, members of the partnership made their facilities available for use by other carriers in providing toll services. Each carrier satisfied through the Settlements and Division of Revenues processes revenue requirements defined for shared and other facilities. Toll revenues were pooled, and members of the partnership withdrew their expenses, taxes, recovered capital, and return on investment from the pool. When there was a partnership arrangement with a shared rate of return, all partners providing any required facilities for a service enjoyed the same rate of return on their investments in those facilities. If the achieved rate of return was at the authorized interstate level of 12.75, for example, all partners and all investments employed in providing the given service earned at that rate. All elements of the business performed equally well (or poorly).

Post-divestiture, shared facilities revenue requirements are recovered according to explicit rates specified in contractual arrangements. The price in those contracts is established regardless of how well the intrastate toll enterprise performs in a given state, or how well the interstate enterprise performs in aggregate, or the performance of any other part of the business. Facilities made available at an explicit price may not earn at the average rate of return for the service using those facilities. Rather, earnings for shared facilities will be based on revenue requirements, demand and price for those facilities. Earnings on "partnership" services (next column) will likely be at some other level based on the revenue requirements (including shared facilities expenses), demand and price for those services.

4.7 Column 7: Revenue Pools

Columns 7a and 7b identify revenue pools for state and interstate interLATA services. Definition of these pools is facilitated by recognizing that access expenses as well as non-access revenues were recovered from toll services by the processes described in Column 6.

The graphic for State 1 in Column 7a, which is also provided in Figure 4-12, illustrates the classification of state toll service revenues recovered in Column 6 into (a) access service expenses incurred in connection with providing state toll services, and (b) the AT&T/IOC State 1 revenue pool. The State 1 graphic shows that a



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Figure 4-12: Chart 3, State 1 Row, Column 7a
Definition of State 1 Post-Divestiture AT&T/IOC
InterLATA Revenue Pool

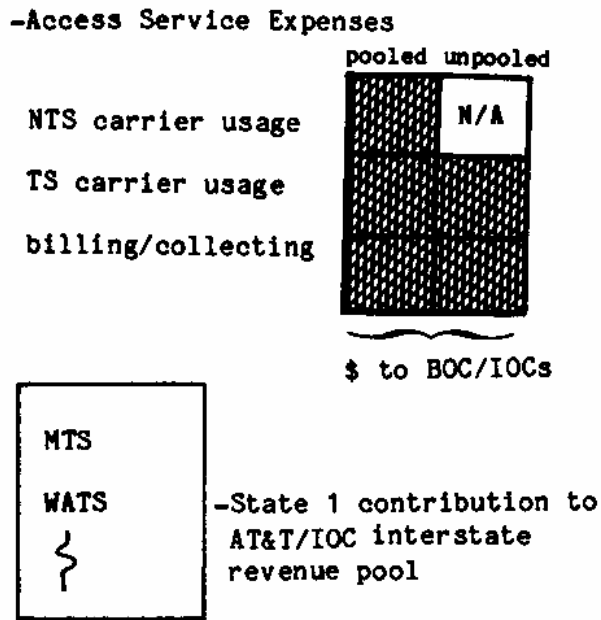
portion of the revenues recovered from intrastate MTS, WATS, Private Line and other toll services in Column 6 covers pooled and unpooled access service expenses incurred in connection with provisioning of those services. Remaining toll service revenues form the AT&T/IOC revenue pool in State 1. Note that the revenues dealt with here exclude shared facilities rental receipts. Since shared facilities revenues are recovered on a bill-and-keep basis, they are not a consideration in a column that defines revenue pools.

For illustrative purposes, FCC orders in CC Docket 78-72 were the basis for defining pooled and unpooled access charges in the Chart 3 graphics. Pooled access expenses can include NTS carrier-usage charges, TS carrier-usage charges and charges for ancillary services. Unpooled access service expenses can include TS carrier-usage charges and charges for ancillary services. The decision to pool or deaverage is generally at the discretion of local exchange carriers. Since neither the 2/28/83 or 8/22/83 78-72 Orders permit deaveraging of interstate NTS carrier usage charges, the cells for "NTS carrier-usage, Unpooled" charges in the graphics for Column 7 are marked N/A. Deaveraging of those charges is an option that states could permit local carriers, as well as an option that the FCC could entertain for interstate access services in the future. Shaded revenues in the left hand side of the graphic for State 1, Column 6, cover the access service expenses in the State 1, Column 7a graphic.

The Column 7a graphic for each state is the same as that for State 1 except for scale. A single pool of AT&T/IOC revenues is established in each state.

Column 7b shows the establishment of a revenue pool for interstate services. The graphic for State 1 in Column 7b, which is also provided in Figure 4-13, illustrates the classification of interstate toll service revenues recovered in Column 6 into (a) access service expenses incurred in connection with providing interstate toll services, and (b) the State 1 contribution to the AT&T/IOC interstate revenue pool. The State 1 graphic shows that a portion of the revenues recovered from interstate MTS, WATS, Private Line and other toll services in Column 6 covers pooled and unpooled access service expenses. Remaining interstate toll service revenues comprise the State 1 contribution to the AT&T/IOC interstate revenue pool shown in the Federal row and in Figure 4-14. Since rental fees for shared BOC/AT&T facilities used in providing interstate services are recovered on a bill-and-keep basis, they are not a consideration in defining the AT&T/IOC interstate revenue pool.

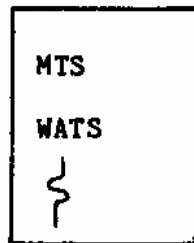
The Column 7a discussion of pooled and unpooled intrastate access charges applies for interstate access charges as well. Shading in the right-hand side of the graphic in Column 6 reflecting revenues to cover access expense, corresponds to the explicit representation of those access expenses in the Column 7b graphics.



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Figure 4-13: Chart 3, State 1 Row, Column 7b
Definition of State 1 Post-Divestiture Contribution to AT&T/IOC Interstate InterLATA Revenue Pool

-AT&T/IOC interstate revenue pool



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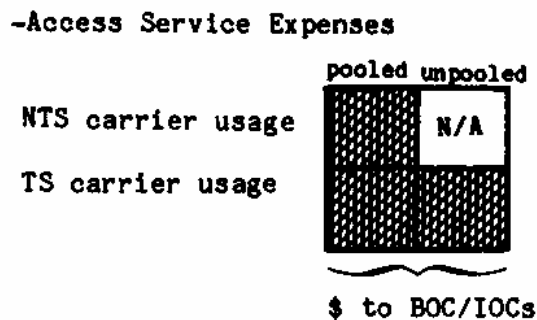
Figure 4-14: Chart 3, Federal Row, Column 7b
Post-Divestiture AT&T/IOC Interstate InterLATA Revenue Pool

All states have graphic representations similar to that shown for State 1. Revenues in each state cover access service expenses and the state's contribution to the AT&T/IOC interstate revenue pool.

The Long Lines row and Figure 4-15 show revenues to cover access service expenses and the AT&T/IOC revenue pool contribution by Long Lines. Access service expenses result from pooled or unpooled NTS and traffic-sensitive carrier-usage charges and are shaded with cross-hatching. These expenses represent payments by AT&T's interstate division to BOCs and IOCs. Since Long Lines does its own billing for the services reflected in the Long Lines row, no billing and collecting

charges for those services are assessed AT&T by BOCs and IOCs. The portion of the revenues that AT&T bills directly for Private Line services, over and above revenues to cover access service expense, constitutes the Long Lines contribution to the AT&T/IOC revenue pool. The box labeled PL represents this contribution. These revenues correspond to the unshaded portion of the graphic in Column 6 for Long Lines.

The Federal row defines the interstate AT&T/IOC revenue pool. This revenue pool is defined to be the sum of the



-Long Lines contribution to AT&T/IOC interstate revenue pool

PL

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Figure 4-15: Chart 3, Long Lines Row, Column 7b
 Definition of Long Lines Post-Divestiture Contribution
 to AT&T/IOC Interstate InterLATA Revenue Pool

contributions to the pool from each of the states and Long Lines and reflects the sum of revenues represented in the lower part of the graphics for each state and Long Lines in Column 7b.

4.8 Column 8: Distribution of Revenues by Ownership

The foundation for a discussion of the distribution of revenues by ownership is provided by the classification in Columns 7a and 7b of toll service revenues into revenues that cover access service expenses and revenues that form various AT&T/IOC revenue pools. Pools were defined for AT&T/IOC intrastate interLATA toll revenues in each state and for AT&T/IOC interstate interLATA toll revenues in the federal jurisdiction. Revenues that cover access service expenses as well as AT&T/IOC pooled revenues must be divided by ownership.

Column 8 illustrates the processes for distributing among owners revenues in each pool. In each state, AT&T and each independent company recovers expenses, taxes, capital, and return on investment. A very similar process takes place in dividing the interstate pool among owners. AT&T (that is, the 22-state interexchange organizations and Long Lines) and each independent operating company again recover expenses, taxes, capital and return on investment. IOC return on investment is based on either a rate of return that is shared with AT&T or some other contractual arrangement. This process is described in more detail later in this section.

Although Chart 3 focuses on AT&T/IOC revenue requirements and on the distribution of revenues in AT&T/IOC pools that were defined in Columns 7a and 7b, for completeness we briefly address the attribution of access service revenues by ownership. Unpooled access service revenues are on a bill-and-keep basis. Therefore, the BOC or IOC that does the billing keeps the revenues that it billed. For at least the initial period following divestiture, the BOC providing service in a given state will administer pooled intrastate access service revenues

in that state. Pooled interstate access service revenues will be administered by the National Exchange Carriers Association (NECA) for those local exchange carriers that have chosen to pool various access charge elements or where pooling is mandatory. In summary, access service revenues are recovered on either a bill-and-keep or pooled basis. If recovery is on a bill-and-keep basis, there is no further need for distribution of revenues. If recovery is on a pooled basis, pools are administered by either a BOC or by NECA. Chart 4, which deals with post-divestiture BOC and IOC revenue requirements, will deal in detail with the attribution of pooled access service revenues by ownership.

Column 8 illustrates the attribution of AT&T/IOC revenues by ownership. The graphic for State 1 in Column 8 shows the differences between the contributions of AT&T and each IOC to the state or interstate revenue pools, and the amount of each carrier is entitled to keep, such that AT&T and each IOC recovers expenses, taxes, capital and return on investment. This graphic is duplicated in Figure 4-16. For example, in the column marked State Toll, we see minus \$30 million. In the determination of who keeps the revenues that have been contributed to the State 1 pool by AT&T or by the independents, \$30 million of the revenues contributed by AT&T belong to other carriers serving that state. AT&T keeps the balance of its contribution to the pool. Of this \$30 million, \$5 million goes to the first independent, \$10 million goes to the second, \$15 million goes to the third. The net change from the total AT&T/IOC contributions to the State 1 partnership revenue pool is zero. That is, the sum of all the entries in that column is zero.

The row for State 3 shows a similar situation. Of AT&T's contribution to the state revenue pool, \$40 million belongs to AT&T's

-Access Service Revenues
 .unpooled: BOC/IOC Bill and Keep
 .pooled: BOC/NECA billing
 (see BOC/IOC chart)
 -AT&T/IOC Revenues: State 1
 (Δ from contribution to state or
 interstate AT&T/IOC revenue pools)

	State Toll	I/S Toll
AT&T	- 30m	+ 50m
IOC ₁	+ 5m	+ 20m
IOC ₂	+ 10m	+ 20m
IOC ₃	+ 15m	+ 10m
Total Δ	0	+100m

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Figure 4-16: Chart 3, State 1 Row, Column 8
 Net Effect of Distribution of Post-Divestiture InterLATA
 Revenues by Ownership in State 1

partners in that state. \$20 million belongs to the first independent company, \$20 million belongs to the second independent company, and the net of those exchanges of funds is zero. AT&T keeps the balance of its contribution to the state revenue pool, and each of its IOC partners keeps its full contribution to that pool.

In the Total row for Column 8, and in Figure 4-17, we see the result of the attribution of revenues by ownership in each of the states. We see that the net change in the size of the revenue pool in each state is zero because there are no transfers of funds between

states. There are only changes from each partner's contribution to the state revenue pool within each state.

The above process is very similar to the State Settlements process that was described in Chart 1 in a pre-divestiture environment. A major difference between the pre- and post-divestiture environments is in the definition and sizes of the state revenue pools.

Total State and Federal Revenue by
Ownership

(Δ from contribution to state or
interstate AT&T/IOC revenue pools)

	State Toll	I/S Toll
State 1	0	+100m
State 2	0	
State 3	0	-200m
Long Lines	N/A	+\$2m
Total	0	0
Δ		

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Figure 4-17: Chart 3, Total Row, Column 8
Summary of Net Effect of Distribution of
Post-Divestiture InterLATA Revenues by Ownership

Pre-divestiture, one large pool represented all access and non-access state toll revenue requirements. In the post-divestiture environment, however, there will be six pools for state revenues: a pool for AT&T/IOC partnership intrastate interLATA toll, a pool for BOC/IOC partnership intrastate intraLATA toll, and four state access service revenue pools. There will be a pool for the NTS carrier-usage charge, a pool

for the traffic-sensitive carrier-usage charge, a pool for billing and collecting, and a pool for the NTS customer-flat charge. Some of these charges may not exist in some of the states so the number of pools may be less, but conceptually we see how one large pre-divestiture pool in each state is replaced by a number of smaller pools. In addition, there are some revenues that will not be subject to pooling. These are access charge revenues for categories of access charges (for example, NTS customer-flat, TS carrier-usage, billing/collecting) assessed by local exchange carriers who have chosen not to pool. The only intrastate pool dealt with in Chart 3 is that for AT&T/IOC intrastate interLATA toll. The discussion of Chart 4 will further treat the definitions and distribution of revenues in the other post-divestiture pools. Similar observations can be made regarding the definitions and distribution of pre- and post-divestiture interstate pools.

We now address the portion of Column 8 labeled Interstate Toll. Entries in the interstate portion of the graphic for State 1 (Figure 4-16) reflect net receipts or payments by each carrier calculated as the difference between contributions of each carrier to the interstate revenue pool and revenues each carrier must withdraw from the pool to recover expenses, taxes, capital and return on investment. For example, for State 1 we see that AT&T will receive \$50 million over and above its contribution to the interstate revenue pool. The first independent will receive \$20 million over its contribution, the second independent will get \$20 million, and the third independent will get \$10 million. So the total change from the contributions of each of the carriers to the interstate partnership revenue pool for State 1 is plus \$100 million.

State 3 illustrates the reverse of this situation. Funds contributed to the interstate partnership revenue pool are distributed to other states. \$100 million of AT&T's State 3 contribution to the interstate revenue pool is distributed to other states. AT&T keeps the balance of its contribution to the interstate revenue pool from State 3 sources. We also show that \$50 million of the contributions of each independent company in State 3 is distributed to other states. The total change from the contributions of each of the partners to the interstate revenue pool is seen to be minus \$200 million.

The Long Lines row shows that the change from Long Lines' contribution to the interstate partnership revenue pool is z million dollars. Hence, in this illustration, in the process of recovering expenses, capital investment, return on investment and taxes, Long Lines recovers z million dollars more than its contribution to the interstate partnership revenue pool.

The Interstate Toll column in the graphic for the Federal row summarizes payments and receipts by all carriers (AT&T and IOCs) whose interexchange facilities are employed in the provisioning of interstate interLATA service. We see that the change from the contributions of the carriers in State 1 to the interstate partnership revenue pool was plus \$100 million. Therefore, carriers in State 1 withdrew from the pool \$100 million in excess of their contributions to the pool. The change from the contributions of the carriers in State 3 to the interstate partnership revenue pool is seen to be minus \$200 million. State 3 carriers, therefore, lost to other states \$200 million of their contributions to the interstate partnership revenue pool. Plus z million dollars is shown as the change from Long Lines' contribution to

the interstate partnership revenue pool. The "Total Delta" row shows that the net of all these transfers of funds between states and Long Lines is zero.

In this discussion, we have referred to AT&T and the IOCs with whom it jointly provides interLATA services as "partners." They are partners in the sense that they provide intrastate toll services on statewide average schedules and interstate toll services on nationwide average schedules. All interstate (state) MTS calls, for example, of a given length of haul, at a given time of day, of the same class of service (for example, direct dial, operator-person, operator-station) are priced on the same schedule regardless of the route and mix of AT&T/IOC facilities employed. In addition, AT&T and certain IOCs agree to a shared rate of return, and therefore divide among themselves revenues remaining in a given state pool or in the interstate pool following withdrawal of expenses, taxes, capital and revenues to satisfy requirements of carriers that do not agree to a shared rate of return. It is conceivable that in the future IOCs may opt to establish explicit rates for use of their interexchange facilities which include return on investment at some specified rate. Hence, instead of compensation arrangements based on AT&T/IOC-shared rates of return, explicit prices would determine IOC compensation for interexchange facilities. Explicit IOC interexchange facilities prices could change the entries in Column 8, but the conceptual process overview provided would remain valid.

Post-divestiture revenues distributed among owners by the processes described in Column 8 on Chart 3 are defined differently from pre-divestiture revenues distributed among owners by the processes

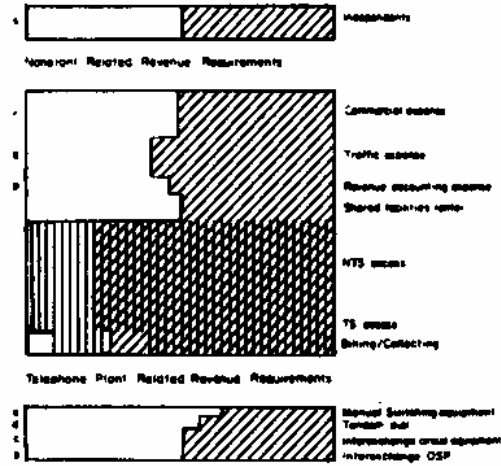
described in that column on Chart 1. Pre-divestiture revenues for distribution included payments for carrier recovery of all access, interexchange and other non-access revenue requirements.

Post-divestiture interLATA revenues for distribution dealt with on this chart do not include the portion of customer payments that cover access service (local distribution and billing and collecting) revenue requirements. Access revenues are pooled separately and are dealt with in detail in Chart 4 and Chapter 5.

4.9 Column 9: Booked Revenues

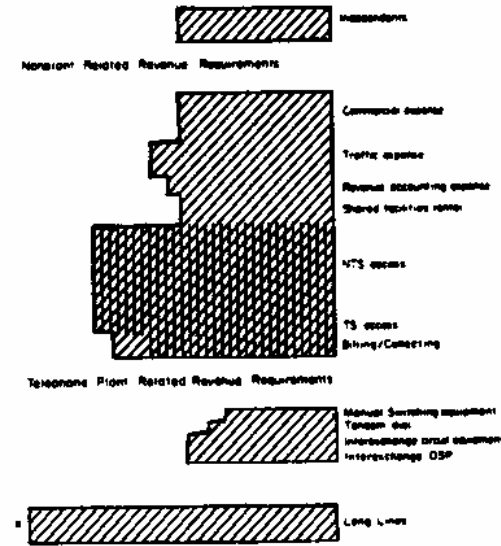
Column 9 shows booked revenue. Booked revenues result from the exchange of revenues between various AT&T Communications entities and other carriers in Column 8. We see that the partners in each state and Long Lines have all recovered their revenue requirements as defined in Column 1. The graphic reflecting booked revenues for State 1 is reproduced in Figure 4-18. Long Lines booked revenues appear in the Long Lines row, while the Federal row (Figure 4-19) shows the total of the federal booked revenues in each of the states and Long Lines. Finally, the Total row (Figure 4-20) depicts the grand total of the state booked revenues and the interstate booked revenues. In the post-divestiture as in the pre-divestiture environment, we have closure.

Revenues that the AT&T/IOC interLATA enterprises recover as "middle men" on behalf of local carriers are shaded. The cross-hatched shaded revenues are interstate interLATA access service revenues that AT&T recovers and passes on to local exchange carriers. The revenues shaded with vertical lines reflect intrastate interLATA access service revenues that AT&T recovers and passes on to local exchange carriers.



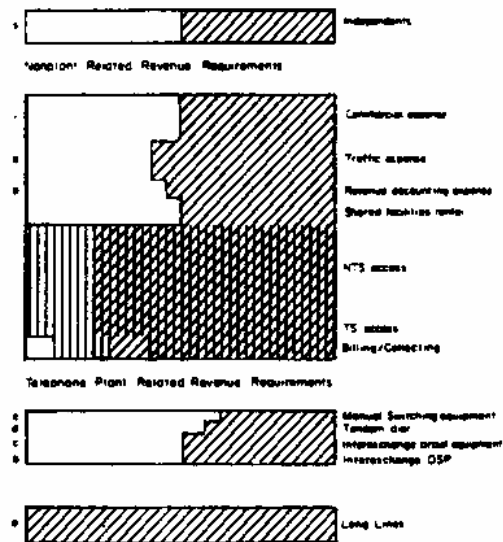
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Figure 4-18: Chart 3, State 1 Row, Column 9
State 1 Post-Divestiture InterLATA Booked Revenues



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Figure 4-19: Chart 3, Federal Row, Column 9
Federal Post-Divestiture InterLATA Booked Revenues



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Figure 4-20: Chart 3, Total Row, Column 9
Total Post-Divestiture InterLATA Booked Revenues

Since revenues are booked by service category account (i.e., MTS, WATS, etc.) rather than by analytical or USOA account, horizontal lines segmenting graphics by analytical account category do not appear in Column 9.

AT&T and IOCs who agree to a shared rate of return earn at the same interstate rate on telephone plant-related investments allocated to the interstate jurisdiction and at the same state rate in each state on telephone plant-related investments allocated to the state jurisdiction. These earnings are included in the area shown in Column 9 as Telephone-Plant-Related Revenue Requirements.

Telephone plant-related revenue requirements for BOC/IOC plant employed in the provisioning of access services are satisfied by

AT&T/IOC payments of non-telephone plant expenses shown in Column 9. The BOC/IOC access plant investments do not necessarily earn at the same rate as AT&T/IOC telephone plant investments. This matter is raised here to point out a difference between the pre- and post-divestiture environments. Pre-divestiture, all telephone plant investment for access and non-access facilities, by carriers that agreed to a shared rate of return, earned at the same rate in each state and in the interstate jurisdiction. Post-divestiture, shared rates of return, and averaging of risk, obtains only within certain plant categories of the traditional telecommunications industry and there is no assurance that the same rate of return will obtain for different categories. These categories are AT&T/IOC interLATA facilities for carriers that agree to a shared rate of return (Chart 3), BOC/IOC intraLATA non-access service facilities for carriers that agree to a shared rate of return (Chart 4), and facilities for each BOC/IOC access service (NTS, TS, Billing/Collecting) for which carriers pool revenue requirements and agree to a shared rate of return (Chart 4).

4.10 Extension of Chart 3 to Explicitly Treat Nondomestic Market

Section 2.11 outlined extensions to the conceptual framework detailed in Chart 1 to explicitly show interrelationships between U.S. and foreign carriers. Those extensions remain generally valid for the post-divestiture representation of the AT&T mode of operation. Changes from the pre-divestiture discussion include the following:

- BOC/IOC revenue requirements associated with the provisioning of non-domestic telecommunications services are recovered by local carrier access charges assessed AT&T.

- The interstate revenue pool in the Federal row of Column 7 would reflect all U.S. billed revenues for interstate telecommunications services and a portion of non-U.S. billed non-domestic revenues (i.e. inflow to the U.S. depicted in Column 6) after payment of access charges by AT&T.

Chapter 5

Chart 4: Post-Divestiture BOC/IOC Revenue Requirements

5.0 Overview

Chart 4 deals with post-divestiture BOC and IOC intraLATA annual revenue requirements. IntraLATA revenue requirements are associated with BOC/IOC-provided local exchange, directory, vertical and intraLATA toll services; facilities shared with AT&T; and access services for AT&T, OCCs, resellers and other interexchange carriers. All BOC/IOC plant employed in the provisioning of access to intraLATA and interLATA toll services is classified as intraLATA, and all BOC revenue requirements are dealt with in this chart. In contrast, since post-divestiture IOCs may provide both intra and interLATA services, IOC revenue requirements appear on both Charts 3 and 4. IOC revenue requirements for traffic that is jointly provided with AT&T, rather than with BOCs, appear on Chart 3.

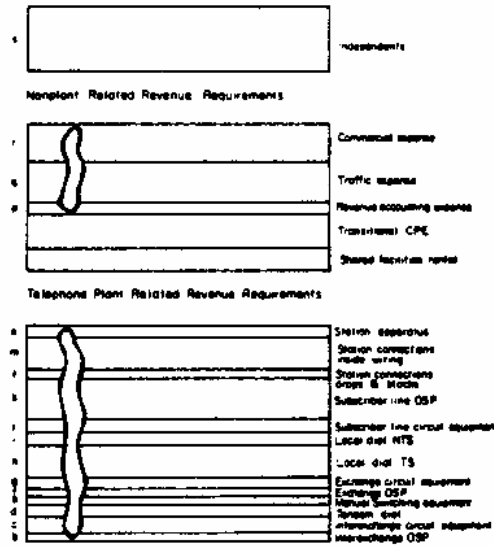
The exposition of Chart 4 follows the format of the presentations of Charts 1 and 3 in Chapters 2 and 4 respectively. Comparison of any column of Chart 1 with the corresponding columns of Charts 3 and 4 enables the reader to assess changes implied by divestiture in basic definitions, services and practices. The comments in Section 2.10 regarding potential inferences from Chart 1, and those in Chapter 4 regarding potential inferences from Chart 3, remain valid for Chart 4. Additional insights offered by the conceptual framework provided here will be included with the discussion of each column.

5.1 Column 1: Revenue Requirements

Revenue requirements for each state and for the total of all states are represented by the areas of the graphics in Column 1. These

revenue requirements relate only to interstate intraLATA and intrastate intraLATA operations and corridor traffic.

The graphic from the State 1 row of Column 1 is duplicated in Figure 5-1. For convenience, the same graphic representation



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Figure 5-1: Chart 4, State 1 Row, Column 1
State 1 Post-Divestiture IntraLATA Annual Revenue Requirements

appears in all rows. The graphic representing total BOC/IOC intraLATA revenue requirements is shown in the Total row as well as the left-hand side of Figure 3-4.

Telephone plant annual revenue requirements shown in Column 1 are based on the AT&T/BOC asset split dictated by divestiture and are associated with investments that remain with BOCs post-divestiture. Note that since BOCs retain ownership of local access facilities, access revenue requirements for BOC local exchange services, BOC toll

services and BOC-provided access to interexchange carrier points-of-presence are included in Telephone-Plant-Related Revenue Requirements. Recall that for AT&T (Chart 3) and other interexchange carriers access revenue requirements were classified as non-plant related expenses. The derivation of the Column 1 graphics was provided in Sections 3.3 and 3.4 in connection with the discussion of Chart 2.

As in Charts 1 and 3, Column 1 reflects joint revenue requirements for multi-state companies, Regional Holding Company (RHC) expenses and Central Services Organization (CSO) expenses as well as state-specific revenue requirements. The revenue requirements summarized in Column 1 represent a state-by-state allocation of the joint revenue requirements plus the state-specific revenue requirements.

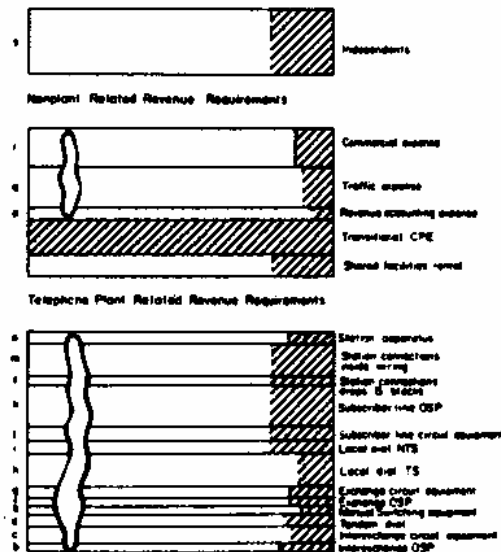
This chart, in contrast to Charts 1 and 3, does not show a separate row for Long Lines. The reason, of course, is that this is a post-divestiture view of the BOCs and their independent company partners. Long Lines is no longer a partner of the BOCs. Therefore BOCs and AT&T no longer provide services on a common rate schedule; BOCs and AT&T no longer pool revenues; and BOCs and AT&T no longer share a common rate of return. Explicit charges, rather than partnership arrangements, are established for AT&T Communications services that BOCs require, and for BOC services that AT&T Communications requires.

In this column as in the columns on all the previous charts, none of the graphics are drawn to scale. If we had reported data, we could examine differences in the relative importance of given accounts in different states, and differences between revenue requirements defined

for each state. We also could disaggregate the independent revenue requirements by category of independent to gauge their relative importance. For example, we could explicitly break out revenue requirements for the major independents, GTE, United and Continental, and show those distinct from revenue requirements for the numerous smaller independent companies.

5.2 Column 2: Jurisdictional Revenue Requirement Allocation

Column 2 shows the jurisdictional allocation of the revenue requirements that were defined in Column 1. Rows 1, 2 and 3 show illustrative revenue requirement allocations in each of three states. The jurisdictional allocation of revenue requirements for State 1 is reproduced in Figure 5-2. The shaded areas of the Column 2 graphics



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**Figure 5-2: Chart 4, State 1 Row, Column 2
Jurisdictional Allocation of State 1 Post-Divestiture
IntraLATA Annual Revenue Requirements**

denote the portions of analytical accounts allocated to the interstate jurisdiction.

The Federal row shows the sum of the interstate allocations in each of the states. The Total row shows the sum of all interstate and state revenue requirement allocations. The graphic provided in the Total row of Column 2 was also shown as the left-hand section of Figure 3-5.

5.3 Column 3: Intra-jurisdictional Revenue Requirement Handling

Columns 3a and 3b deal with the intra-jurisdictional handling of revenue requirements. Column 3a deals with the handling of state revenue requirements in each of the states, and Column 3b shows how revenue requirements that have been allocated to the interstate jurisdiction are handled.

5.3.1 Intrastate Revenue Requirement Handling

The header for Column 3a summarizes two processes for handling revenue requirements in each of the states. The first process applies to most states. The initial step of the first process separates from total revenue requirements that have been allocated to the intrastate jurisdiction, revenue requirements for each independent operating company for directory advertising and sales, local exchange service and vertical services. Residual revenue requirements, resulting from the removal of non-toll IOC revenue requirements, are divided into the following categories: a) interLATA access revenue requirements for NTS access, TS access and billing and collecting, b) BOC revenue requirements for directory advertising and sales, c) intraLATA toll revenue requirements for MTS, WATS, and the various Private Line options, d) revenue requirements for BOC vertical services, and e) revenue requirements for BOC basic exchange services.

In the case of states exemplified by New York, the first step in the process is to separate from total state revenue requirements those revenue requirements associated with the provisioning of interexchange services. Interexchange revenue requirements are split into interLATA access service revenue requirements and revenue requirements for BOC/-IOC intraLATA toll. Access services entail provisioning of NTS and TS facilities for linking end-users and interexchange carriers' points-of-presence, and billing and collecting. IntraLATA toll services include MTS, WATS and Private Line. The separation of interexchange service revenue requirements from total intrastate revenue requirements is followed by the separation, for each independent operating company in states exemplified by New York, of revenue requirements for directory advertising and sales, exchange services and vertical services. Remaining revenue requirements are divided into the following categories: a) BOC directory advertising and sales, b) BOC vertical services and c) BOC basic exchange services. For states where BOC facilities are shared with AT&T, a portion of the BOC revenue requirements would be earmarked for recovery from rental fees assessed AT&T.*

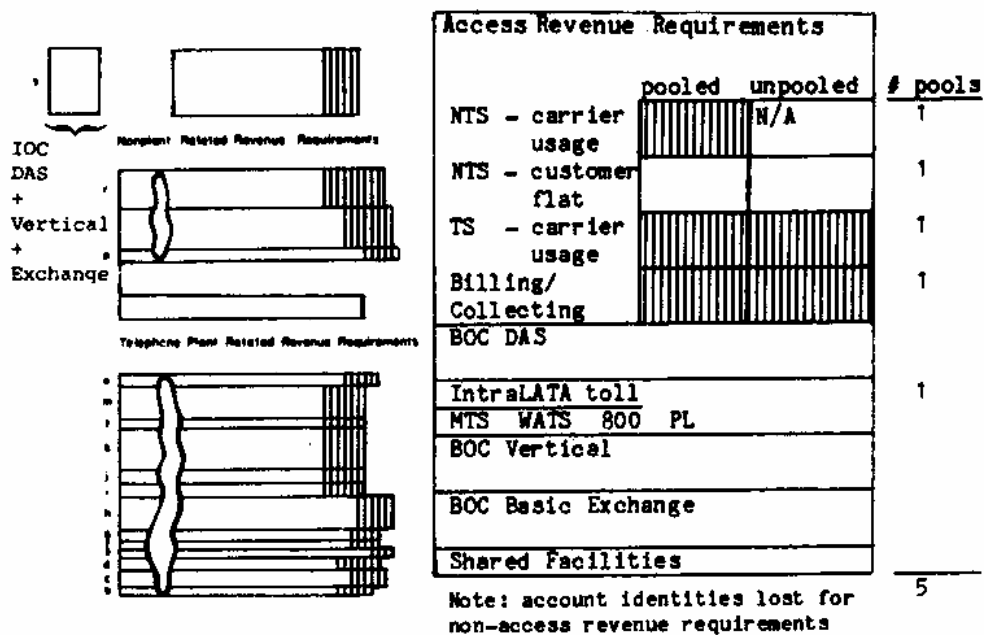
Note that there are fewer regulated BOC-offered vertical services post-divestiture than pre-divestiture. Since CPE has been transferred to AT&T Information Systems, revenue requirements for embedded CPE

*See Section 3.5 for further detail on the treatment of shared facilities rental fees.

(other than official CPE and public and charge-a-call phones) are no longer BOC revenue requirements. This point was discussed in greater detail in Section 3.5. In addition, pricing, demand and anticipated revenues for services that RHCs provide through separate unregulated subsidiaries will not be included on this chart.

Directory advertising and sales is treated as if it continues to be offered by regulated BOC and IOC entities. Post-divestiture, a number of the regional companies established separate subsidiaries for the handling of directory advertising and sales. Pre-divestiture, an attempt was made to maximize revenue requirement recovery from directory advertising and sales. A portion of the revenues that were recovered from directory advertising and sales served to recover state revenue requirements that needed to be recovered in aggregate but that may have had nothing to do with the provisioning of directory advertising and sales. To the extent that post-divestiture RHCs set up separate subsidiaries for handling directory advertising and sales, and that there are no regulatory requirements that profits from the directory advertising and sales lines of business be imputed to other lines of business, directory will not be contributing to the recovery of non-directory related state revenue requirements. It remains to be seen whether regulators will devise mechanisms to employ revenues from unregulated businesses to reduce revenue requirements to be recovered from basic exchange service, as well as to insure that deregulated services are not cross-subsidized by monopoly profits. Nevertheless, in this chart we assume that, in general, directory advertising and sales would be handled the same way pre- and post-divestiture. It is possible that the treatment of directory revenue requirements will vary on an RHC-by-RHC basis.

The above overview of the handling of revenue requirements in the state jurisdiction provides the foundation for discussing the graphics in Column 3a. The graphic for State 1 is duplicated in Figure 5-3. A portion of the area of the figure representing IOC intrastate revenue requirements is separated from the balance of the intrastate revenue requirements. It is labeled independent operating company directory advertising and sales, vertical and exchange and reflects revenue requirements for each IOC in the state for the aforementioned services. The remaining revenue requirements are grouped, on the right-hand side of the graphic, into the following categories: a) revenue requirements for access services, b) revenue requirements for BOC-provided directory advertising and sales, c) revenue requirements for BOC/IOC-provided



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Figure 5-3: Chart 4, State 1 Row, Column 3a
 State 1 Handling of Post-Divestiture Intrastate
 IntraLATA Revenue Requirements

intraLATA toll (MTS, WATS, 800 Service, and Private Line), d) revenue requirements for BOC-provided vertical services, e) revenue requirements for BOC-provided basic exchange services, and finally, f) revenue requirements for shared facilities that BOCs lease to AT&T.

We assume that pre- and post-divestiture state practices for classifying these revenue requirements by service category are similar. It is expected that revenue requirements for each of the categories will be determined in conjunction with anticipated pricing for the various services in an attempt to maximize contribution from all services other than basic exchange service. Whatever revenue requirements are not recoverable from other services will be recovered from basic exchange service. "Maximize contribution" means that an attempt will be made to set prices in keeping with market forces. In general, as prices are raised, demand is repressed. The goal here is to set prices as high as possible without repressing demand to the extent that total revenues realized at the higher price are lower than total revenues that could be realized at a lower price with higher demand. Parity of state and interstate access and toll rates and minimization of incentives for uneconomic bypass are other considerations in this process.

The graphic shows that access revenue requirements can be pooled or unpooled and will be recovered from several categories of access charges. These are non-traffic-sensitive carrier-usage charges, non-traffic-sensitive customer-flat charges, traffic-sensitive

carrier-usage charges and billing and collecting charges. Since the 8/22/83 FCC Docket 78-72 order* does not permit deaveraging of NTS carrier-usage access charges, we assume, for illustrative purposes, that deaveraging of the NTS carrier-usage charge may not be feasible initially in the state jurisdictions either. For this reason the cell denoting NTS-carrier usage/Unpooled is marked N/A in Figure 5-3. Deaveraging of NTS-carrier usage charges is, of course, an option for the future, and may be necessary in response to market pressures that evolve. The portion of the graphic labeled access revenue requirements indicates seven possible combinations of pooled and unpooled charges for various kinds of access services. Hence prices for access services will recover seven potential classifications of revenue requirements.

Account identities within categories of revenue requirements are lost in downstream processes. These categories are NTS access, TS access, billing and collecting, shared facilities rented to AT&T and the other BOC or IOC-offered services. Rate schedules are designed to recover revenue requirements in aggregate for each category rather than on an account-by-account basis. For example, NTS access service revenue requirements are contained in portions of accounts j through o and are recovered in aggregate rather than on an account-by-account basis. For this reason account identities are not shown in the right-hand side of Figure 5-3. In contrast to the pre-divestiture environment where revenue requirements for access services or for facilities shared by BOCs and AT&T were recovered in toll rates in

*CC Docket 78-72, Phase I. In the Matter of MTS and WATS Market Structure. Memorandum, Opinion and Order. Adopted: July 27, 1983; Released, August 22, 1983. 48 F.R. 42984, Sept. 21, 1983.

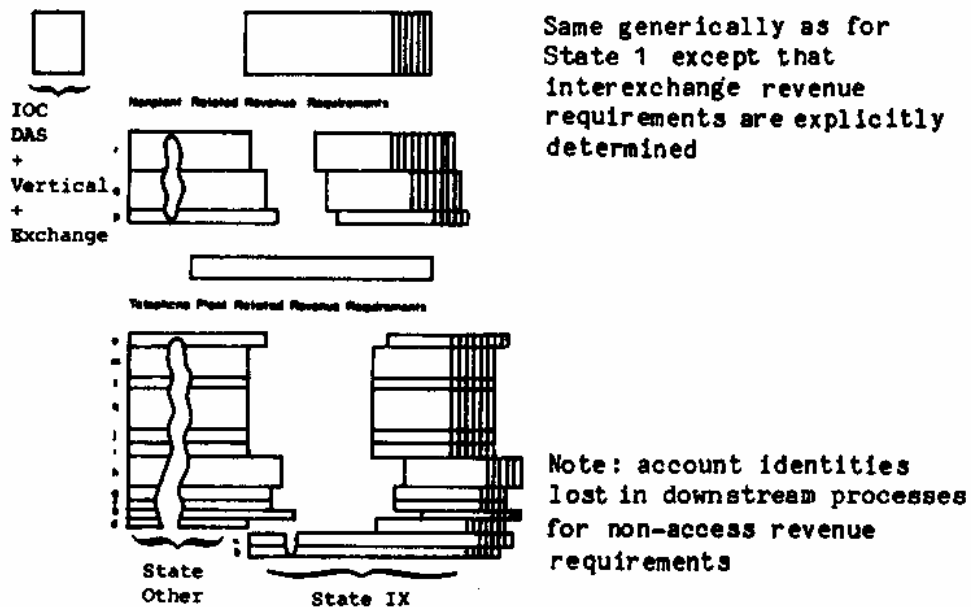
conjunction with other classifications of revenue requirements, the portions of accounts reflecting access and shared facilities revenue requirements are directly associated with access charges or with explicit facilities rental charges to AT&T.

Note that account categories containing access revenue requirements to be recovered from interLATA carriers, and shared facilities rental revenue requirements to be recovered from AT&T, also contain revenue requirements to be recovered from BOC/IOC services. Hence, although access and shared facilities rental charges recover revenue requirements for particular accounts or groupings of accounts, the level of recovery, or the precise portions of those accounts to be recovered from interexchange carriers, remains at the discretion of exchange carriers and state regulators.

On this chart, as on Charts 2 and 3, areas shaded by vertical lines continue to reflect intrastate interLATA carrier access service revenue requirements, and areas shaded by cross-hatching reflect interstate interLATA carrier access service revenue requirements.

The graphic representation for most states, with the exception of states exemplified by New York and represented by State 3, is the same as that shown for State 1 except for scale. The graphic for New York is reproduced in Figure 5-4. The difference between the handling of intrastate revenue requirements for State 3 and for the other states, is that in New York there is an explicit process for breaking out the state interexchange revenue requirements. State interexchange revenue requirements are labeled "State IX" in Figure 5-4. The New York state

SPF factor and other allocators* are used to determine these revenue requirements. Except for the difference cited above, New York revenue requirements are treated in the same fashion as revenue requirements for other states. Revenue requirements are attributed to the major service categories, and the same generic representation as that shown on the right-hand side of the graphic for State 1 holds for New York. For New York, as for all other states, account identities for non-access and non-shared facilities rental revenue requirements are lost in downstream processes.



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Figure 5-4: Chart 4, State 3 Row, Column 3a
 New York Handling of Post-Divestiture Intrastate
 IntraLATA Revenue Requirements

*Later volumes in The Telephone Debates series by Carol L. Weinhaus and Anthony G. Oettinger will cover regulatory control over revenue requirements.

5.3.2 Interstate Revenue Requirement Handling

Column 3b deals with the intrajurisdictional handling of revenue requirements that have been allocated to the interstate jurisdiction. We are dealing here with pooled and unpooled access revenue requirements for interstate interLATA toll, revenue requirements for BOC/IOC jointly provided interstate intraLATA toll and corridor traffic, and revenue requirements for BOC facilities shared with AT&T.* Corridor traffic refers to interstate toll that crosses LATA boundaries but under the MFJ will be initially handled by BOCs. Interstate toll may not be provided by all BOCs since there are states where no LATAs cross state boundaries. To the extent that none of the LATAs for a given BOC/IOC service area cross state boundaries, and there is no corridor traffic, there will not be any BOC/IOC interstate toll. Further research could determine the extent of BOC/IOC interstate toll.

The graphic for State 1 shows how revenue requirements that have been allocated to the interstate jurisdiction for State 1 are rearranged into access revenue requirements, BOC/IOC interstate toll revenue requirements and shared facilities revenue requirements. This graphic is also provided in Figure 5-5. BOC/IOC interstate toll revenue requirements are for BOC/IOC jointly-provided MTS, WATS, and Private Line, and for corridor traffic. Access revenue requirements are for access to interexchange carrier-provided interstate interLATA toll services. Revenue requirements to be recovered by NTS

*See Section 3.5 for further detail on the treatment of shared facilities rental fees.

carrier-usage charges, traffic-sensitive carrier-usage charges and billing and collecting charges are shaded with cross-hatching. Note that NTS customer-flat charges are paid directly by end-user customers. Therefore, revenue requirements for this category of access charges do not appear as AT&T expenses on Chart 3 and are not shaded with cross-hatching. For illustrative purposes it is assumed that with the exception of the non-traffic-sensitive carrier-usage charges, each type of access revenue requirements may be pooled or unpooled. Revenue requirements labeled "pooled" in the State 1 graphic constitute the State 1 contribution to a nationwide pool of interstate revenue requirements for interstate toll services or for a particular access service.

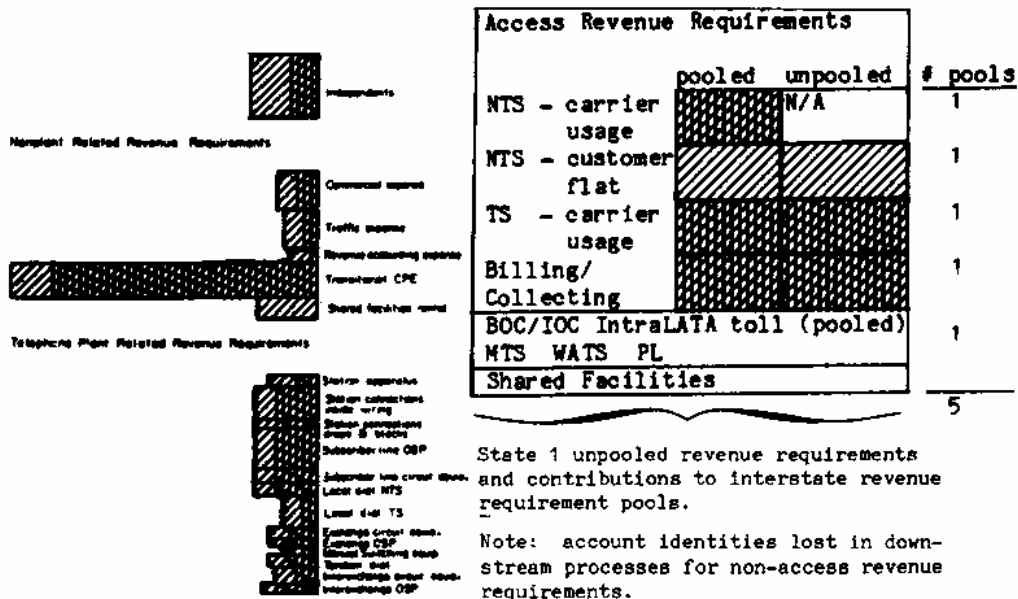


Figure 5-5: Chart 4, State 1 Row, Column 3b
 State 1 Handling of Post-Divestiture Interstate
 IntraLATA Revenue Requirements

Each local exchange carrier that chooses to "unpool" or to deaverage would have its own rate schedule to recover those deaveraged revenue requirements. If there are, say, four local exchange carriers in State 1, and each of those local exchange carriers chooses not to pool access revenue requirements for NTS customer-flat charges, TS carrier-usage charges, and billing and collecting charges, there would be 12 separate rate schedules for those access services. A single schedule would exist on a nationwide basis for each kind of access revenue requirements that are pooled. For example, if a given carrier in State 1 chose to pool its traffic-sensitive carrier-usage revenue requirements with those of other carriers, that pooling would be done on a nationwide basis, and all carriers who joined the given pool would offer traffic-sensitive access services on a single schedule. The same arrangement holds for each of the other three types of access revenue requirements. Therefore, four would be the maximum number of nationwide rate schedules that could obtain for pooled access service revenue requirements. A considerably smaller number of rate schedules results when revenue requirements are pooled rather than recovered on a deaveraged basis. The benefits of simplicity inherent in nationwide rate schedules are, however, offset by the evolution of competition which may force the introduction of deaveraging to an increasing extent.

As in the case of state intraLATA revenue requirements, account identities within categories of revenue requirements are lost in downstream processes.* These categories are NTS access, TS access,

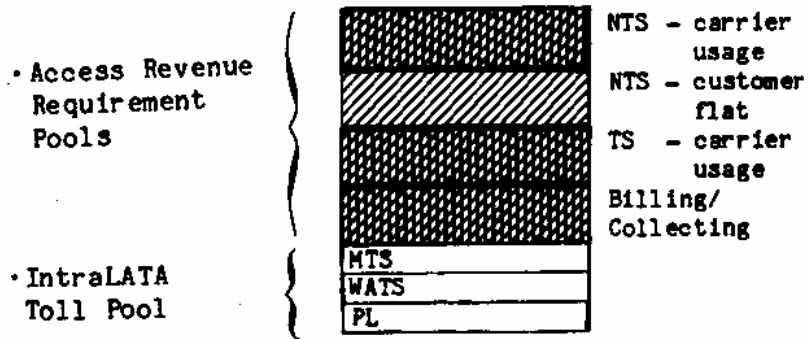
*This point was explained in further detail in Section 5.3.1.

billing and collecting, shared facilities rented to AT&T and other BOC or IOC-offered services. Rate schedules are designed to recover revenue requirements in aggregate for each category. This contrasts with the pre-divestiture environment where all revenue requirements were recovered in aggregate. Account categories containing access revenue requirements to be recovered from interLATA carriers and shared facilities rental revenue requirements to be recovered from AT&T, also contain revenue requirements to be recovered from BOC/IOC services. Therefore, although explicit access and shared facilities rental charges recover revenue requirements in particular accounts or groupings of accounts, the portions of those accounts to be recovered from interexchange carriers remains at the discretion of exchange carriers and regulators.

Graphics similar to that shown for State 1 apply for all other states. There would, however, be differences in the scale of these graphics, and in the relative importance of analytical accounts shown in the left-side of the state-by-state graphics. There would also be differences in the relative importance of access and BOC/IOC interstate toll revenue requirements in different states. If there were no interstate intraLATA toll or corridor traffic in a given state, the portion of the right-hand side of the graphic representing such traffic for that state would not appear.

The Federal row of Column 3a and Figure 5-6 illustrate the pools that result from the pooling of access revenue requirements by those local exchange carriers who have chosen to pool rather than file their own rate schedules. We also show the BOC/IOC partnership pool of revenue requirements for the provisioning of interstate intraLATA toll

and corridor traffic. As the graphic indicates, there are potentially four access revenue requirement pools: a pool for NTS carrier-usage revenue requirements, a pool for NTS customer-flat revenue requirements, a pool for traffic-sensitive carrier-usage revenue requirements, and finally a pool for billing and collecting. The existence of all four pools assumes that more than one carrier elects to pool for each of these four general classifications of access revenue requirements. The last box of the graphic in the Federal row



Note: 5 BOC/IOC Interstate Pools
 + 1 AT&T/IOC Interstate Pool

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Figure 5-6: Chart 4, Federal Row, Column 3b
 Post-Divestiture Interstate IntraLATA Revenue Requirement Pools

of Column 3a shows the pooling of revenue requirements for interstate MTS, WATS and Private Line services offered by the post-divestiture BOC/IOC partnership. We assume that the service category distribution of these interstate revenue requirements is dictated by the ICAM.

From Figure 5-6, we see that five interstate pools have been defined: four access revenue requirement pools and the pool representing BOC/IOC intraLATA interstate toll revenue requirements. In addition, on Chart 3 another pool was defined for interstate interLATA revenue requirements for the AT&T/IOC partnership. The combined size of these six pools may be considerably smaller than the size of the pre-divestiture* interstate pool. The reduction in the level of interstate revenue requirements subject to pooling is equal to the level of revenue requirements to be recovered by deaveraged access charges that will not enter a pool. Note that the AT&T/IOC interstate partnership pool (Chart 3, Column 7b) will be considerably smaller than the pre-divestiture partnership pool since that partnership no longer provides all U.S. interstate toll, and NTS access revenue requirements are not included in that post-divestiture pool. The fact that pre-divestiture, 40 percent of the interstate toll revenue requirements were non-traffic-sensitive access revenue requirements provides a rough sizing of the expected reduction in the size of the AT&T/IOC interstate pool.

For simplicity, Chart 4 reflects the assumption that there would be a single pool for intraLATA interstate toll revenue requirements. In practice, one would expect pooling of revenue requirements for all interstate intraLATA toll providers to be infeasible after divestiture. Initial BOC filings for interstate intraLATA toll were so called "copycat" tariffs that mimic pre-divestiture AT&T tariffs for

*Assuming the same demand and the same level of interstate revenue requirements pre- and post-divestiture.

interstate toll. Post-divestiture it will not be feasible for all the BOCs to file a single schedule for each intraLATA interstate toll service since they are separate corporations. There is no reason to expect that the BOC rate schedules would agree at all with the AT&T rate schedule for interstate calling. Rates are likely to differ by length of haul, time of day and other rate elements that define toll rate schedules. Post-divestiture, therefore, we can expect a change from the long-standing practice of a nationwide interstate toll rate schedule for each toll service. Perhaps only a minor portion of the market is being deaveraged since the BOCs may not provide a great deal of interstate toll service, but, significantly, divestiture appears to be accompanied by the beginning of deaveraging.

A number of possible options exist for pooling of interstate intraLATA toll revenue requirements. These options include pooling by a given RHC of all interstate intraLATA toll revenue requirements for its components BOCs, pooling on a BOC-by-BOC basis and pooling on a state-by-state basis. Pooling on any broader basis than within an RHC seems infeasible since the BOCs are separate corporations and partnership arrangements between RHCs might not be in keeping with the spirit of the MFJ. As indicated in previous discussions of these charts, in general, the only kinds of partnership agreements that obtain are those between AT&T and independents, and between BOCs and independents, although one can speculate as to whether those kinds of partnerships will continue into the future.

Columns 3a and 3b can provide insights on the relative importance of various post-divestiture intraLATA service offerings, and on the extent to which pooling is employed to recover these revenue require-

ments. Specific questions that might be answered include: What is the percent of intrastate intraLATA revenue requirements to be recovered from carrier access charges (vertical-lines shading in Column 3a), NTS customer-flat access charges, directory advertising and sales, intraLATA toll, vertical services and basic exchange service? What is the percent of interstate intraLATA revenue requirements to be recovered from carrier access charges (cross-hatched shading in Column 3b) versus NTS customer-flat access charges versus BOC/IOC-provided interstate toll? How do these percentages vary by state, by BOC and by RHC? What percentage of intrastate and interstate access service revenue requirements are to be recovered from each access service? What percentage of the revenue requirements for each intrastate and interstate access service is pooled?

When viewed in conjunction with Columns 3a and 3b of Chart 1, Chart 4 can help to assess the change in the mix of pre- and post-divestiture BOC service offerings and the changing importance of pooling. For example, we could compare the pre- and post-divestiture levels of revenue requirements to be recovered on a pooled basis as well as the levels of revenue requirements to be recovered on a bill-and keep basis.

Telcos that pool revenue requirements and agree to a shared rate of return are averaging the risks of planning and other business decisions with the partners with whom they pool. The price paid for this averaging of risk is that charges to end-user customers and carriers for a given service by a "low cost" telco may exceed revenue requirements on the books of that telco. Such charge-revenue requirement relationships will impact the flows of funds between telcos when pooled

revenues are divided by ownership per the processes to be discussed in Column 8. Since post-divestiture revenue requirement pools are disaggregated by type of access service, flows of funds between states can be associated with types of analytical accounts (for example, NTS access or TS access accounts). Pre-divestiture, revenue requirements for all analytical account categories were recovered in aggregate and when pooling arrangements held, one could not readily associate flows of funds with cost-price relationships for any category of plant items. These issues will be discussed in greater detail in connection with Column 8 (Section 5.8) but are alluded to here to provide perspective on the implications of pooling, and hence on the value of knowing the percentage of revenue requirements that are pooled.

Another example of information provided by Columns 3a and 3b of Charts 1 and 4 is knowledge of differences between the pre- and post-divestiture distributions of revenue requirements across service categories. Such information indicates, for example, (a) the percentage of BOC* revenue requirements satisfied by intrastate toll pre-divestiture, and (b) the percentage of BOC* revenue requirements satisfied by access services and by intrastate intraLATA, interstate intraLATA and corridor traffic post-divestiture.

Questions pertinent to the change in the importance of BOC toll offerings include the following: What percentage of the toll that was handled by BOCs pre-divestiture is no longer handled by BOCs? What is

*A meaningful comparison would require consistent pre- and post-divestiture treatment of CPE revenue requirements.

the potential impact on the price of local service of this lesser degree of toll handled by BOCs post-divestiture? As discussed in Section 2.3, a pre-divestiture ratemaking goal was to maximize the amount of contribution that was recovered from intrastate toll. In the interest of encouraging a competitive telecommunications marketplace, the MFJ sought separate control of bottleneck local distribution facilities and interexchange plant. Hence post-divestiture BOC toll service is limited to intraLATA offerings. To the extent that BOCs are left with substantially less intrastate toll, and that some of the revenue requirements recovered from "lost" intrastate toll remain with BOCs post-divestiture, other BOC-offered regulated services must pick up these revenue requirements. BOC offerings through unregulated subsidiaries are not likely to compensate for revenue requirements recovered pre-divestiture from toll offerings that are no longer BOC-provided.

It can be argued that intrastate access charges must be designed to keep BOCs whole and to recover these "lost" revenue requirements. However, the recovery through access charges of previously obtained contribution from toll may be constrained by a required relationship between interstate interLATA and intrastate interLATA access charges to avoid jurisdictional shopping. To the extent that post-divestiture there is a need for access-charge parity, BOCs may not have the flexibility to recover the pre-divestiture level of contribution

through the mechanism of access charges.* The levels of access charges are also constrained by the need to discourage uneconomic bypass.

Columns 3a and 3b may also lend insights on the financing of universal service funds. Key questions include: What portion of state and interstate access service revenue requirements are designed to ensure universal service? What is the total size of these revenue requirements in each state? "Total size" refers to the amount of revenue requirement to be recovered in the interstate jurisdiction plus the revenue requirement to be recovered in the interstate jurisdiction plus the revenue requirement to be recovered in the intrastate jurisdiction to finance universal service. We can expect that state regulators will be at least as concerned with universal service considerations as has been the Federal Communications Commission, and therefore attempts may be made to set up universal service funds within states. We should look at what is being done in the interest of universal service across all jurisdictions. As the discussion of the access options cube in Section 3.9 emphasized, NTS access is in a single entity although several government bodies are regulating it. Looking across jurisdictions could clarify the total impact of any number of disjoint regulatory activities.

The prospects for uneconomic bypass are impacted by the financing of universal service funds by carrier-usage charges both in the state and interstate jurisdictions and the recovery of those expenses in the rates of interexchange carriers. Such practices could yield a very high level of recovery of non-traffic-sensitive costs on a usage-sensitive basis. Even with some changes in the way access revenue

*This subject is dealt with in greater detail in Samuel M. Epstein. A Comprehensive View of the Treatment of NTS Access Costs: Historical Precedents and Alternatives for the Future. Cambridge: Program on Information Resources Policy, Harvard Univ., 1983 (unpublished research outline).

requirements are recovered, there may still be very significant incentives for high volume users to leave local networks in favor of teleports* and other forms of bypass. Hence, carrier-usage charges to finance universal service funds could ultimately be detrimental to universal service. As incentives for uneconomic bypass are created and an increasing number of high volume users leave the public switched network, a reduced customer base will be faced with higher rates to enable local exchange carriers to recover their fixed costs. Furthermore, to the extent that high volume users are no longer customers of public switched network services, high carrier-usage charges could no longer be recovered in their rates to ensure universal service.

Thus far in our exposition of Chart 4, we have defined the revenue requirements for each of the states and for the total of all states, we have reviewed the jurisdictional allocation of these revenue requirements, and we discussed the handling of revenue requirements in each jurisdiction. The foundation has, therefore, been established for discussing pricing practices.

5.4 Column 4: Pricing

In Columns 4a and 4b we consider the various kinds of rate schedules that will exist for recovery of the revenue requirements that were defined in 3a and 3b.

*This is the subject of an upcoming study by Richard A. Larios, a research fellow at the Program on Information Resources Policy, Harvard University.

BOC/IOC provided toll service. Toll rates will be paid directly by end-user customers or by carriers (resellers, OCCs) either on a usage basis or on a flat rate basis. MTS, WATS and possibly optional calling plans will be priced on a usage-sensitive basis. Private Line services, OCC facilities, possibly optional calling plans, and WATS access lines will be priced on a flat basis. The existence of statewide average schedules means that the same rate schedule applies whether BOC facilities are used exclusively, whether independent operating company facilities are used exclusively, or whether some combination of BOC and independent facilities is used.

The third and fourth major service categories indicated are vertical services and exchange service, respectively. As discussed previously, exchange service rates will be paid directly by end-user customers or carriers (if resold), on either a usage or a flat basis. Additional message units will be assessed on a usage basis where message rate or measured message rates are offered. Flat rates will obtain where flat service rates are offered, and for the initial allowance for message rate and measured rate service offerings.

The right-hand side of the graphic for State 1 uses the conceptual representation for access pricing that was discussed in Section 3.9. Since explicit intrastate access charges will obtain only for interLATA services, access prices are represented by the interLATA portion of the cube. Arrows that emanate from the interLATA area point to three squares denoting the various kinds of access charges that would be assessed. There are non-traffic-sensitive access charges, traffic-sensitive access charges, and access charges to recover billing and collecting revenue requirements from interexchange carriers.

In the non-traffic-sensitive square an "X" marks the two options for NTS revenue requirement recovery that would be employed per the FCC's 8/22/83 78-72 order. Interexchange carriers would be assessed NTS access charges on a usage basis, and customers would be assessed NTS access charges on a flat basis. In the traffic-sensitive square, an "X" marks the interexchange carrier-usage cell, indicating that interexchange carriers would be assessed traffic-sensitive access charges on a usage basis. Interexchange carriers would also be assessed flat and usage-based billing and collecting charges.

We show a more general representation than the FCC's 78-72 choices to encourage an awareness of the broad range of alternative plans available to telcos and regulators. For example, in the case of non-traffic-sensitive access charges, carriers might be assessed a certain portion of the revenue requirement on some flat basis, or customers might be assessed a portion of the non-traffic-sensitive access revenue requirements on a usage basis. A very general representation is shown to help us visualize the full set of available options.

As discussed earlier in connection with the definitions of pools of intrastate revenue requirements, if only one local exchange carrier decides to unpool or to deaverage his access charges, there would be seven possible rate schedules. If all carriers choose to pool, or states do not allow deaveraging, then there would be only four possible rate schedules.

The graphic for State 1, Column 4a indicates that there is also a price schedule for shared facilities rentals, which is the rental of BOC facilities by AT&T following divestiture. We assume that pricing

for shared facilities is on a state-by-state basis rather than on some broad nationwide average schedule. AT&T pays the same price for facilities employed for its state and interstate services. Shared facilities rental prices are shown in both Columns 4a and 4b because, as noted in Section 3.5, the graphical representation of BOC revenue requirements includes the jurisdictional allocation of revenue requirements satisfied by these rents based on AT&T's use of the shared facilities. In practice, BOC rental charges assessed AT&T for shared facilities are non-jurisdictional, and AT&T determines the mix of state and interstate usage of the facilities it leases.

The graphics for State 2, State 3, and so on would be similar to the graphic shown for State 1. Including the pricing schedule detail would allow us to compare prices between states for each service category.

5.4.2 Pricing of Interstate Services

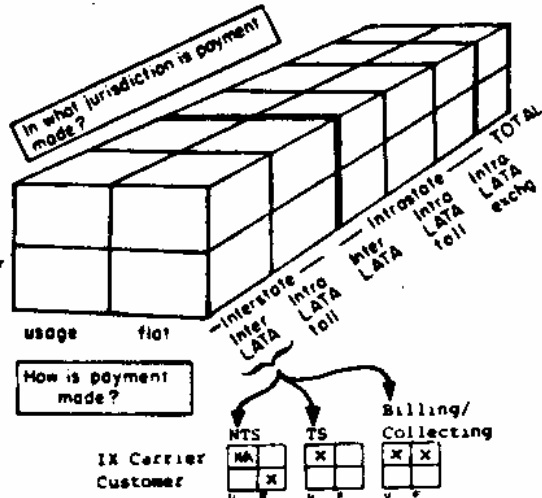
In the interstate arena, price schedules are required for access services for which revenue requirements could either be pooled or unpooled and for BOC/IOC-provided interstate toll services consisting of interstate intraLATA and corridor traffic. Note that when access service revenue requirements are not pooled, separate sets of schedules appear in the row for each state. Pooled access service revenue requirements are recovered by a single set of schedules appearing in the Federal row.

.Access Services
 -schedules for unpooled revenue requirements (3 possible schedules per state)

Note: these revenue requirements are a portion of pre-divestiture interstate pools

Who pays directly?

IX carrier
 customer



.Shared Facilities

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Figure 5-8: Chart 4, State 1 Row, Column 4b
 Post-Divestiture Pricing of Interstate IntraLATA Services in State 1

The graphic for State 1 Column 4b and Figure 5-8 represent the access service schedules for unpooled revenue requirements. Per the 8/22/83 FCC Docket No. 78-72 Order, the carrier-usage charge for recovery of non-traffic-sensitive revenue requirements cannot be deaveraged. Under that plan, there would therefore be three possible kinds of schedules for unpooled access service revenue requirements. Any given carrier that chose to make maximum use of the deaveraging option would have three separate schedules for interstate access services in that state. If State 1 was served by four local exchange carriers, and they all chose to deaverage, the graphic in State 1 Column 4b would represent 12 schedules. Access service revenue requirements that are recovered on a deaveraged basis are, of course, not included in any pools.

As in the graphic for intrastate revenue requirements, the pricing for interstate interLATA access revenue requirements applies to three categories of access service revenue requirements: NTS, TS, and billing and collecting. For specificity, "X"s are shown to represent the options that the FCC has selected in its 8/22/83 78-72 order; the eventual implementation of access charges may entail some option other than the options specified by the existing 78-72 order.

The graphics for State 2 and State 3 and all the other states would be analogous to the graphic shown for State 1 in Column 4b.

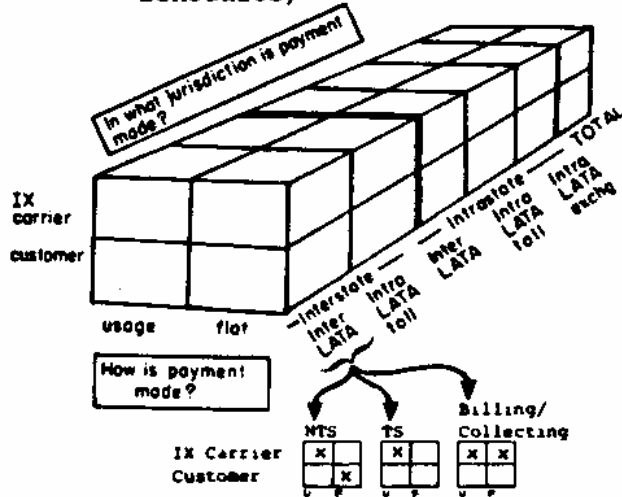
The Federal row of Column 4b and Figure 5-9 represent the BOC/IOC partnership rate schedule for interstate intraLATA toll. The foundation for a nationwide average schedule for each interstate intraLATA toll service was provided in the Federal row of Column 3b. Interstate intraLATA service charges are paid by end-user customers or carriers on either a usage or flat basis. As discussed in Section 5.3.2, nationwide average interstate intraLATA schedules may not obtain in the future.

•IntraLATA Toll: nationwide average schedule (?)

•Access Services: schedules for pooled revenue requirements (4 rate schedules)

IX Carrier	MTS WATS	PL Leased Facilities WATS access lines
Customer	MTS WATS OCP (?)	PL OCP (?) WATS access lines
	usage	flat

Who pays directly?



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Figure 5-9: Chart 4, Federal Row, Column 4b
Post-Divestiture Pricing of Interstate IntraLATA Services
When Revenue Requirements Are Pooled

The Federal row of Column 4b also provides a representation for pricing to recover pooled interstate interLATA access service revenue requirements. The graphic represents four kinds of rate schedules corresponding to the various categories of access. Again we show three squares, each of which is associated with a given category of access charges. "X"s inserted in the appropriate cells of the squares indicate the FCC-selected 78-72 options as of early 1984.

We conclude the discussion of Columns 4a and 4b with comments regarding the kinds of inferences that can be made from the information they provide. Columns 4a and 4b enable examination of the prices of access services that are priced on a pooled basis relative to prices of

access services priced on a deaveraged basis. Major differences between the pooled and deaveraged access service prices may create incentives or disincentives for competitive entry by interexchange carriers. Note that access prices are expenses for interexchange carriers. Therefore, an incentive will exist for interexchange carriers to penetrate markets where expenses are low. Higher access charges in certain areas create a disincentive for competitive entry, and customers in those jurisdictions may lack the choices that exist for customers in other areas with lower access charges. As we enter the information age and telecommunications becomes more and more an important aspect of doing business, certain territories may become much more attractive for development of business enterprises that are telecommunications intensive. Access price disparities may also impact the perpetuation of statewide and nationwide average interLATA toll rate schedules (Chart 3 - Columns 4a and 4b, Section 4.4).

A policy issue that Columns 4a and 4b might help us analyze is the price of state and interstate intraLATA competition. The motivation for asking this question is that, as shown in Chart 4, intraLATA toll access revenue requirements are recovered in aggregate along with interexchange revenue requirements in BOC/IOC partnership toll rates. However, if competitors choose to do business in intraLATA markets, they will seek to use the same local distribution facilities that EOCs/IOCs use in their provisioning of intraLATA toll, and BOCs/IOCs will need to determine explicit intraLATA access charges for the use of these facilities. Given explicit intraLATA toll access service prices, one could calculate the difference between the end-to-end BOC/IOC toll rate, and the access service rate assessed non-BOC/IOC interexchange

carriers. This difference or residual (residual = total toll rate - access charge) reflects the interexchange component of BOC/IOC rates. Should BOCs/IOCs be required to recover in their rates "premium"* access charges, as is the case for AT&T post-divestiture, the residual will be calculated as the difference between the BOC/IOC total toll rate and their premium access charge. Under the assumption that access charges are passed along to customers, and that the interexchange rate of competitors is the difference between the rate they present to customers and their access expenses, one could compare the interexchange components of BOC/IOC and competitor rates.

To the extent that the interexchange component of BOC rates is substantially higher than the interexchange component of competitive offerings, the level of contribution that BOCs are recovering from intraLATA toll may not be sustainable, rates may need to be cut and contribution may need to be recovered from some other service. Assuming RHC corporate structures where innovative, creative BOC services (including yellow pages, CPE, and AMPS, for example) are offered through separate subsidiaries, and the major service that remains in the regulated portion of BOC enterprises is basic local exchange service, one could speculate that local exchange prices might

*Regulators may choose (or may be forced) to assess BOCs/IOCs premium intraLATA access charges since even with the availability of equal access for all interexchange carriers, customers will need to dial 5 additional digits to access a non-BOC/IOC intraLATA toll carrier. Presubscription to a non-BOC/IOC intraLATA toll carrier is not a planned option per the Plan of Reorganization. In addition, prior to the availability of equal access, non-BOC/IOC interexchange carriers will object to paying access charges for interconnection arrangements that may not offer the same features and functions as BOC/IOC interconnection. Such controversies would parallel the ENFIA and FCC Docket 78-72 disputes we have witnessed to date in the interstate arena.

need to increase were intrastate competition allowed and were it to proliferate. Note that BOCs will be able to engage in successful price competition only if their interexchange revenue requirements are less than those of competitors by at least the value of the access discount enjoyed by BOC competitors. A similar observation can, of course, be made for post-divestiture AT&T.

Another important inference from the data that would be available in Columns 4a and 4b of this chart, in conjunction with data from Charts 1 and 3, is the extent to which the introduction of access charges has introduced a change from the pre-divestiture level of state and interstate toll parity. One could also investigate the impact of deaveraging of certain access charges on disparities in toll service rates.

Column 4b also lends insights on the nature of access charges that apply to AT&T directory services. A certain amount of controversy has been associated with the AT&T filing to assess customers 75 cents per interstate directory assistance call. Of this proposed 75-cent charge 64 cents* consists of BOC charges for access services. The price schedules in Column 4b highlight the origin of the various access charges applicable to directory assistance and the extent to which BOC charges that are not under AT&T's control are the major component of expense in the provisioning of this service.

*October 3, 1983. AT&T Communications files Proposed Interstate Rates for January 1, 1984. For summary of event see Telecommunications Reports, Vol. 49, no. 40, Oct. 10, 1983, pp. 2-6.

5.5 Column 5: Demand

Column 5 discusses demand for BOC/IOC state and interstate service offerings. As mentioned earlier, demand plays a role in the determination of the level of revenue requirements that can be recovered from each major service category in the state arena (Column 3a). Under the assumption that the ICAM applies for BOC/IOC-provided interstate toll, demand plays a role in the distribution of revenue requirements by interstate service category (Column 3b).

The graphic for State 1 in Column 5 indicates the major categories of state and interstate services. This graphic is also provided in Figure 5-10. The state services are directory advertising and sales, intraLATA toll, vertical services, exchange services, access services, and shared facilities. The interstate side of that graphic shows that the major interstate services are BOC/IOC-provided intraLATA toll, access services, and again shared facilities. Since the nature of the service offerings is the same in each state, a similar graphic would apply for each state. The right hand side of the graphic in the Federal row shows total demand for interstate services, including demand for intraLATA toll, access, and shared facilities. The Total row summarizes total demand for state and interstate services.

Demand data could indicate the relative demand concentration by service by state. Such information would enable identification of areas with the greatest competitive vulnerability, where bypass is a

problem, and the extent to which uneconomic bypass impacts states differentially. Demand data may be useful in measuring this differential and may provide useful information from a policy-making point of view. If we could associate competitive vulnerability with

•DAS	•IntraLATA Toll
	-minutes
•IntraLATA Toll	-access lines
-minutes	
-access lines	•Access Services
•Vertical	•Shared Facilities
•Exchange	
-lines	
-minutes	
-messages	
•Access Services	
•Shared Facilities	

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Figure 5-10: Chart 4, State 1 Row, Column 5
Post-Divestiture IntraLATA Demand in a Given State

certain demand characteristics, we may be in a better position to determine what kinds of transition plans are appropriate in given states. In states where there are no concentrations of originating or terminating traffic, and perhaps no concentrations of point-to-point traffic, and where other demand characteristics that make certain areas attractive to competition do not exist, perhaps we can pursue different policies than in areas that appear to be more amenable to competitive entry. To the extent that a different transition path can be followed

in certain areas, perhaps the impact of the evolution of competition elsewhere can be mitigated. Changes to accommodate competition may not be needed if, because of the nature of demand, the evolution of competition is perhaps unlikely in certain areas.

A knowledge of the nature of demand may also be useful for local exchange carrier decisions on how to maximize access service revenues. For example, to the extent that demand is dispersed, and alternatives for customers are not likely to exist because the alternate supply cost will vastly exceed the cost as defined for a BOC, it may be in a BOC's interest to attempt to deaverage the access rates and perhaps charge more in such areas than the average access rate. Of course, the BOC would have to take care not to create an incentive for uneconomic competition in areas where otherwise the incentive would not exist. That is, pricing must take account of the potential pricing of alternatives, to avoid creating incentives for the development of alternatives that would not have existed otherwise. Such a strategy would, of course, need to take account of factors such as customer reaction to higher rates and universal service considerations.

5.6 Column 6: Billed Revenues

We have discussed pricing structures in each of the state and interstate jurisdictions for BOC/IOC-provided state and interstate services, and we have discussed the demand for these services. The overview of pricing and demand considerations provides the foundation for discussion of billed revenues.

Column 6 deals with sources of revenue, or recovery of revenue requirements by end-user customer and interexchange carrier payments for BOC/IOC-provided services. A major difference between this chart

and Chart 1 is that on the earlier chart virtually all revenue requirements were recovered directly from end-user customers.* In the post-divestiture environment interexchange carriers demand services from BOCs/IOCs and resell them or combine them with capabilities of their own facilities in developing service offerings for end-users. For example, BOC/IOC local distribution facilities are employed in conjunction with AT&T interexchange plant in providing MTS and WATS services. BOCs/IOCs therefore recover substantial revenue requirements from interexchange carriers as well as from end-users. Revenue requirements for local exchange, vertical and certain toll services, and perhaps a portion of the revenue requirements for certain access services (if CALCs are implemented) are recovered directly from end-users. But other revenue requirements associated with the rental of shared facilities, resold services, and access services are recovered from interexchange carriers. Interexchange carriers are intermediate customers who recover from their end-users expenses for BOC/IOC services.

The graphic for State 1 in Column 6, which is duplicated in Figure 5-11, shows the menu of services for which BOCs will recover revenue requirements in each of the state and interstate jurisdictions. The graphic also indicates which of those revenue requirements will be recovered through a pooling process, and which of those revenue requirements will be recovered on a bill-and-keep basis.

*Revenue requirements for resold services, leased facilities and ENFIA were recovered from resellers and/or OCCs pre-divestiture, but the dollars recovered from these sources were relatively small.

The menu of services in the state jurisdiction is directory advertising and sales, intraLATA toll, vertical services, exchange services, access services and shared facilities. Note

	BOC	IOC		BOC	IOC
DAS	B&K	B&K	IntraLATA Toll	Pool (1)	
IntraLATA Toll	Pool (1)		Access	B&K	B&K
Vertical	B&K	B&K	Access	Pools (4)	
Exchange	B&K*	B&K*	Shared Facilities	B&K	N/A
Access	B&K	B&K			
Access	Pools (4)				
Shared Facilities	B&K	N/A			

*Subject to EAS contractual agreements

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Figure 5-11: Chart 4, State 1 Row, Column 6
State 1 Post-Divestiture IntraLATA Billed Revenues

that we are dealing with recovery of revenue requirements by the BOCs and each of the IOCs serving the state. We see that revenue requirements are recovered on a bill-and-keep basis for directory advertising and sales, vertical services, exchange services, certain access services and for shared facilities. On the other hand, they are recovered on a pooled basis for intrastate intraLATA toll and for certain access services where carriers have chosen to pool. Extended area exchange service billing is assumed to be subject to contractual

rather than pooling arrangements. Although we assumed in this graphic that the option exists to deaverage access charges, this option may not exist in all states. The extent of deaveraging of access service rate schedules on a state-by-state basis is a subject for further research.

The right-hand side of the graphic for State 1 shows the menu of interstate services consisting of intraLATA toll, access services and shared facilities. Access service revenue requirements can be recovered either on a bill-and-keep or on a pooled basis. IntraLATA toll revenue requirements are assumed to be recovered on a pooled basis. Shared facilities revenue requirements are recovered on a bill-and-keep basis. On this side of the graphic, as on the left-hand side, we are referring to revenue requirement recovery by both BOCs and each of the IOCs that serve the state.

The numbers in parentheses next to the word "pool" summarize the number of pools that exist. On the state side of the graphic, a single pool exists for intraLATA toll and four pools exist for access services. Therefore, a total of five pools exist for state services. On the interstate side of the graphic, we also see the definition of five pools: four pools for access services and a pool for intraLATA interstate toll. The graphics obtaining for all the other states are similar to the graphic for State 1.

The Federal row and Figure 5-12 show total interstate revenues. The graphic in the Federal row represents the sum of contributions by each of the states to pools of interstate revenues. Pooling of interstate revenues is on a nationwide basis. On the right hand side of the graphic for State 1, for example, we have shown that state's

contribution to each of four pools of access service revenues. The Federal row shows the sum of the contributions to access service revenue pools from all the states. For purposes of completeness, we show the total access service revenues that are recovered on a bill-and-keep basis and the total shared facilities revenues recovered on a bill-and-keep basis. We also presume* there is a single IntraLATA interstate toll pool, and we have shown the sum of the contributions to that pool from each of states.

**Total I/S
Revenues**

	BOC	IOC
IntraLATA Toll	Pool (1)	
Access	B&K	B&K
Access	Pools (8)	
Shared Facilities	B&K	N/A

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**Figure 5-12: Chart 4, Federal Row, Column 6
Federal Post-Divestiture IntraLATA Billed Revenue**

*This matter was discussed in further detail in Section 5.3.2.

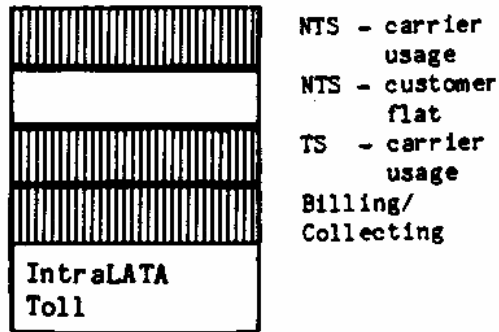
In the Total row, also for summary purposes, we show total state revenues by type of service, by BOC and by IOC, and we indicate whether those revenues are recovered on a bill-and-keep basis or on a pooled basis. Total interstate revenue in the Total row is identical to the interstate revenues in the Federal row.

5.7 Column 7: Revenue Pools

Having defined billed revenues in the discussion of Column 6, we are now in a position to define revenue pools in Column 7. Our classification in Column 6 of billed revenues into bill-and-keep and pooled revenues provides the foundation for a detailed representation of revenue pools. In the graphic for State 1 Column 7, and in Figure 5-13, we see four pools for access service revenues and a pool for intrastate intraLATA toll revenues. The State 1 contribution to pooled interstate access and toll service revenues (from Column 6) is included in the row marked Federal. A graphic similar to that for State 1 obtains for each state.

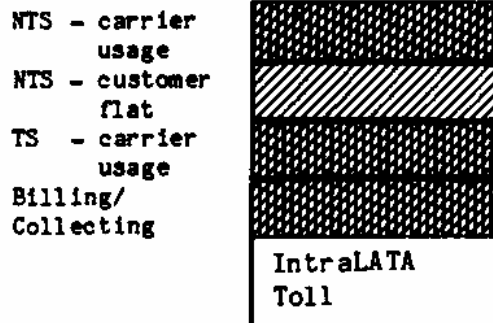
Reported data would enable us to compare the relative sizes of pools in given states, the relative importance of pooling for different kinds of access charge rate elements, and the relative importance of intraLATA toll in each state.

The graphic in the Federal row in Column 7 and Figure 5-14 indicates pools for interstate revenue requirements. We see four access service revenue pools and a pool for intraLATA toll.



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Figure 5-13: Chart 4, State 1 Row, Column 7
 Definition of State 1 Post-Divestiture BOC/IOC
 IntraLATA Revenue Pool



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Figure 5-14: Chart 4, State 1 Row, Column 7
 Post-Divestiture BOC/IOC Interstate IntraLATA Revenue Pool

An interesting potential refinement of the representation of pools defined in Column 7 would be to show the portions of the pools that were designed to "preserve universal service." Designing such graphics at different points in time would allow us to observe the relative importance of the universal service portion of the pool over time and to see how it changes.

5.8 Column 8: Distribution of Revenues by Ownership

Having defined the access and toll service revenue pools, we now discuss the processes whereby monies in those pools are distributed among the carriers whose facilities are employed in providing those services.* Before we discuss in detail the graphics in Column 8, we provide an overview of the basic process for distributing pooled revenues by ownership.

Revenues in each of the pools are distributed among the carriers who agreed to participate in pooling arrangements. Within each state, the BOC and each IOC serving the state recover from each state pool expenses, taxes, capital and return on investment. The federal pools, formed by carriers that pooled their billed interstate revenues, are distributed among partners in a similar fashion. Each BOC and each independent operating company again recovers expenses, taxes, capital and return on investment from each federal pool. Earnings on state and

*This section deals with the distribution by ownership of intra-LATA revenues. Although not discussed here, it is expected that interstate interLATA revenues from corridor traffic between two RHCs would be pooled and divided among carriers in a fashion similar to the treatment of intraLATA revenues. An example of corridor traffic between RHCs is calling between New York City (NYNEX) and Northern New Jersey (Bell Atlantic).

interstate investments are based on either a shared rate of return or on some other agreed-upon rate of return. The latter generally applies for interexchange investments of small IOCs. This process holds for each of the pools that were created within each of the states and each of the pools that were created in the federal arena. Based on the assumptions we made, there would be five pools in each state and five pools in the interstate arena.

The graphic for State 1 illustrates the distribution among carriers serving that state of revenues in any of the five intrastate pools for State 1 as well as revenues in any of the five interstate pools defined in the Federal row of Column 7. This graphic is reproduced in Figure 5-15. The left-hand side of the graphic for State 1 deals with the distribution of access service revenues, whereas the right-hand side of the graphic deals with the distribution of intraLATA toll revenues.

The graphic for State 1 in Column 8 indicates that unpooled access service revenues are recovered on a bill-and-keep basis. There is no need for any additional process for delivering revenues to their proper owner since revenues were billed by their proper owner, and the company that did the billing also keeps the revenues. For pooled access service revenues, we have BOC administration of four state pools and NECA administration of four interstate pools. The table in the graphic for State 1 shows receipts by a BOC or IOC (positive numbers) of pooled revenues in excess of the carrier's billing for a given access service, as well as payments by a BOC or IOC (negative numbers) of a portion of its billing for a given access service to other carriers. These receipts and payments are labeled "change from billed access revenues for a given pool." This illustration reflects the transfer of funds

between carriers such that each recovers expenses, taxes, capital and return on investment. Although we show an example for a "given" pool, the process illustrated holds for any of the four state access service revenue pools, and for any of the four interstate access service revenue pools.

The minus \$10 million in the column labeled "State Pool" for the BOC in State 1 means that of x million dollars of a given type of access service revenues billed by the BOC, \$10 million belong, according to established pooling conventions, to the BOC's independent operating company partners. \$10 million of billed access service revenues that the BOC collected were, therefore, distributed among the

-Access Service Revenues
 .unpooled BOC/IOC B&K
 .pooled: BOC administration of 4 state
 pools. NECA administration of 4
 interstate pools
 (Δ from billed access revenues
 for given pool)

	State Pool	I/S Pool
BOC	- 10M	+ 40M
IOC ₁	+ 3M	+ 5M
IOC ₂	+ 2M	+ 2M
IOC ₃	+ 5M	+ 3M
Total	0	+ 50M
Δ		

-IntraLATA Toll Revenues

(Δ from billed revenues)

	State Toll	I/S Toll
BOC	- 20M	+ 5M
IOC ₁	+ 10M	+ 6M
IOC ₂	+ 5M	0
IOC ₃	+ 5M	+ 2M
Total	0	+ 13M
Δ		

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Figure 5-15: Chart 4, State 1 Row, Column 8
 Net Effect of Distribution of Post-Divestiture IntraLATA
 Revenues by Ownership in State 1

other local exchange carriers in State 1. We assume there are three independent operating companies. In this illustration the first independent operating company received \$3 million; the second, \$2 million; and the third, \$5 million. We see that the net change from billed access service revenues for a given type of access service revenues in that state was zero.

In the case of a given pool of interstate access service revenues, say the traffic-sensitive carrier-usage charge, we show plus \$40 million for the BOC in State 1 in the column marked Interstate Pool. The BOC withdrew from the federal pool \$40 million over and above its billing for the particular type of interstate access service. Furthermore, each independent in that state also withdrew funds from that pool over and above its own billing. The first independent withdrew \$5 million; the second, \$2 million; and the third, \$3 million. The total change from billed access service revenues for the particular type of interstate access pool that we are dealing with in State 1 in this example was \$50 million. This state is a net payee for this particular interstate access service pool.

The right-hand side of the graphic for State 1 Column 8, deals with the distribution of state and interstate intraLATA toll revenues by ownership. We show receipts by a BOC or IOC (positive numbers) of pooled revenues in excess of the carrier's billing for intrastate or interstate toll, as well as payments by a BOC or IOC (negative numbers) of a portion of its billing for intrastate or interstate toll to other carriers. These receipts and payments are labeled "change from billed revenues" for each of state and interstate toll. In the State Toll column we see that the BOC in State 1 distributed to its partners in

that state \$20 million of revenues which it billed. Of the \$20 million that it distributed, the first independent received \$10 million; the second, \$5 million; and the third, \$5 million, for a net change in that state of zero. We expect a net change of zero because the pooling arrangement in the state is entirely contained within the state and is simply a vehicle for redistributing billed revenues among the carriers in that state.

The column labeled Interstate Toll shows changes from billed interstate toll revenues for the BOC and each of the independents. For the BOC we see plus \$5 million which means that the BOC withdrew from the pool \$5 million over and above its billing for interstate intraLATA toll. The first independent withdrew another \$6 million, and the third independent withdrew \$2 million. The billing by the second independent for interstate intraLATA toll was exactly equal to its expenses, taxes, capital and return on investment. There was no need for this IOC to send to other members of the partnership any of its billed revenues, nor was it due from other members of the partnership any revenues that they had billed. We see that the net delta for this state for intraLATA toll revenues is plus \$13 million. In total, this state received plus \$13 million over and above billing to its residents for interstate intraLATA toll services.

The graphic for State 2 would be similar to that for State 1 except, of course, for different numerical entries in the tables shown. For illustrative purposes, we show for State 3 a graphic similar to that for State 1. State 3 has only two independent companies in this illustration, but the number of independents is immaterial. It is important to note that state pooling is self-contained. The left-hand

side of the graphic for access service revenues indicates that the total change from billed access service revenues for a given access service pool is zero in the State Pool column in the row marked Total Delta. In the case of the interstate pool for access service revenues, we see that the BOC pays to other members of the partnership \$80 million, whereas the first independent receives \$20 million and the second independent receives \$10 million. The total delta from billed access service revenues for the particular interstate access service pool in State 3 is seen to be minus \$50 million. This state is, therefore, a net payer of \$50 million in revenues for this particular interstate access service pool.

Similar inferences can be made from the right hand portion of the graphic for State 3. Again, the distribution of revenues among partners for the column marked State Toll yields a total change of zero from billed revenues. In the interstate column we see that the BOC pays to other carriers \$100 million, the first independent pays \$20 million, and the second independent also pays \$20 million. The net change from billed revenues for interstate intraLATA toll services is minus \$140 million. That amount will go to intraLATA carriers in states other than State 3. State 3 is a net payer. Similar graphics to those shown for State 1 and State 3 can be produced for each of the states.

The Federal row summarizes the distribution of revenues by ownership in the interstate arena for a given access service revenue pool, and for intraLATA toll revenues. This graphic is reproduced in Figure 5-16. We see that the net effect of the redistribution of revenues in the interstate arena is zero when we look across all the

Total Federal Revenues by Ownership
-Access Service Revenues

(Δ from billed access
revenues for given pool)

	I/S Pool
State 1	+ 50M
State 2	
State 3	- 50M
⋮	
Total Δ	0

Total Federal Revenues by Ownership
-IntraLATA Toll Revenues

(Δ from billed revenues)

	State Toll	I/S Toll
State 1		+ 13M
State 2		
State 3		-140M
⋮		
Total Δ		0

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Figure 5-16: Chart 4, Federal Row, Column 8
Summary of Net Effect of Distribution of Post-Divestiture
Interstate IntraLATA Revenues by Ownership

Total State and Federal Revenues by
Ownership
-Access Service Revenues

(Δ from billed access
revenues for given pool)

	State Pool	I/S Pool
State 1	0	+ 50M
State 2	0	
State 3	0	- 50M
⋮		
Total Δ	0	0

Total State and Federal Revenues by
Ownership
-IntraLATA Toll Revenues

(Δ from billed revenues)

	State Toll	I/S Toll
State 1	0	+ 13M
State 2	0	
State 3	0	-140M
⋮		
Total Δ	0	0

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Figure 5-17: Chart 4, Total Row, Column 8
Summary of Net Effect of Distribution of Post-Divestiture
State and Interstate IntraLATA Revenues by Ownership

states. If we look at the column marked Interstate Pool on the left-hand side of the graphic, we see that the total change from billed access service revenues for the given access service pool is zero. Similarly, when we look at the column marked Interstate Toll on the right-hand side of the graphic, we see that the total change from billed revenues for interstate intraLATA toll is also zero.

In the Total row and Figure 5-17, we duplicate the information for the interstate access service revenue pool and for the interstate intraLATA toll revenue pool. We see that the total delta in both cases is zero. Similarly in the case of pools that apply for each state, for access service revenue pools as well as for state toll revenue pools, we see that the net change for each state is zero.

Inferences from Column 8 include the differentiation of net payers from net payees for given pools, and assessment of the importance of the outflows and inflows of funds relative to revenue requirements to be satisfied in each state and in the interstate jurisdiction. From Column 8 we can gauge the percentage of state or interstate revenue requirements in each state that represent transfers of funds between carriers. Pre-divestiture, settlements were relatively small compared to the large pools of revenue requirements. Analysis of Column 7 and 8 data in Charts 1 and 4 would enable assessment of pre- and post-divestiture relationships between flows of funds between carriers and sizes of pools.

Although the mechanisms governing flows of access service revenues (left-hand side of Column 8 graphics) and flows of intraLATA toll service revenues (right-hand side of Column 8 graphics) are similar, the interpretation of those funds transfers differs. Access service

revenues result from explicit charges to recover revenue requirements in analytical accounts for specific access services. On the other hand, intraLATA toll revenues are associated with all analytical accounts since they reflect recovery of revenue requirements for access facilities at each end of the call as well as revenue requirements for interexchange facilities and other expenses. The differing interpretation of access and toll service funds transfers is based on our inability to associate toll service revenues with local distribution revenue requirements, with interexchange revenue requirements or with other expenses.

As discussed in Section 3.8.2, the post-divestiture treatment of intraLATA toll is similar to the pre-divestiture treatment of all toll. Intrastate and interstate revenue requirement pools represent aggregate revenue requirements for local distribution, interexchange plant and other expenses. Flows of funds between carriers within and between states result from revenue requirement recovery conventions (revenue requirement definitions for each carrier, rate of return, etc.), demand patterns (calling by time-of-day, length-of-haul, etc.) and type of billing (sent paid, received collect, credit card, third number, etc.). Hence an outflow of funds might simply reflect a high volume of long-haul calls for which carriers providing long-haul interexchange facilities needed to be compensated, and perhaps a concentration of third-number billing where the carrier doing the billing incurs only the billing revenue requirements and other carriers need to be compensated for local access and interexchange revenue requirements.

Since all intraLATA toll revenue requirements are recovered in aggregate, one cannot associate revenue requirements classified by

analytical account category with billing, and flows of funds do not necessarily imply subsidization of payees by payers. We can classify revenue requirements by analytical account category, but we cannot determine how much any carrier's subscribers are paying for plant in a particular category. Therefore, we cannot infer that a given carrier's subscribers are paying less than that carrier's revenue requirements for a particular plant category, and that they are being subsidized by other carriers' subscribers.

In contrast to the post-divestiture treatment of intraLATA toll and the pre-divestiture treatment of all toll, access service revenue requirement pools are associated with particular analytical accounts. Furthermore, end-user customers and/or carriers are billed according to explicit rate schedules designed to recover explicitly identified revenue requirements for each category of access service. Customers in a given state pay a CALC of \$y per month per line toward the recovery of NTS revenue requirements, and interexchange carriers pay BOCs/IOCs at each end of a call explicit carrier-usage NTS and TS charges. Interexchange carriers also pay the billing BOC/IOC an explicit charge for billing/collecting services. The pooled BOC/IOC revenue requirements for any given access service category can be directly associated with BOC/IOC billing to recover revenue requirements for that access service category. Hence, when a BOC or IOC bills in excess of its revenue requirements for a given category of access, a flow of funds from that carrier to other carriers implies that the given carrier's customers (end-users or interexchange carriers) are contributing toward the satisfaction of other carriers' revenue requirements for that access category. Flows of funds in connection

with distribution of pre-divestiture toll and post-divestiture intraLATA toll cannot be interpreted in this fashion. This consideration is likely to be a factor in the willingness of carriers to pool and in legislative and regulatory debates on mandatory pooling.

5.9 Column 9: Booked Revenues

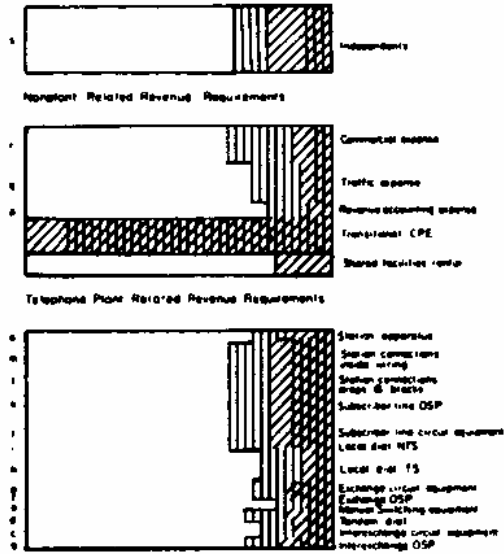
Having distributed revenues by ownership, we are in a position to deal with Column 9 which reflects booked revenues. Booked revenues reflect the sum of revenues that had been pooled and distributed among carriers in each state and unpooled revenues that are booked directly by carriers (i.e., bill-and-keep revenues). Booked revenues satisfy the revenue requirements that were defined in Column 1. In practice there would be planning error, and the booked revenues may not exactly equal the revenue requirements that were established at the outset. The assumption underlying all the charts dealt with in this volume, however, is that there are no errors in planning assumptions and that the mechanics of the processes described in Columns 1 through 8 assure that booked revenues will equal established revenue requirements.

The State 1 row and Figure 5-18 show booked revenues for State 1. The rows marked State 2, State 3 and so on would have similar graphics to that for State 1 in this column. The vertical-lines shading reflects intrastate interLATA carrier access revenues whereas the cross-hatched shading reflects interstate interLATA carrier access revenues. The Federal row shows a summary of the interstate booked revenues in each state. The Total row and Figure 5-19 show the sum of interstate booked revenues and the sum of intrastate booked revenues in each state. Since revenues are booked by service category account (i.e., MTS, WATS, NTS access, TS access, etc.) rather than by

analytical or USOA account, horizontal lines segmenting graphics by analytical account category do not appear in Column 9.

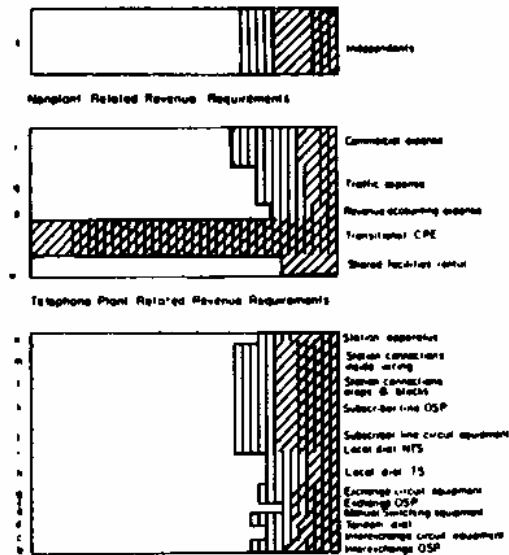
In practice, the various accounts may not all be earning at the same rate. Revenues for particular access services and contractual leasing arrangements can be directly associated with portions of analytical accounts. For these portions of analytical accounts, earnings could conceivably be different than for the residual of these analytical accounts and for other accounts for which revenue requirements were recovered in aggregate. Earnings can be expected to be the same for portions of accounts that are recovered on an aggregate basis and where carriers have pooled revenues and agreed to a shared rate of return. For example, the portions of all NTS accounts recovered in aggregate by an interstate interLATA carrier-usage charge all earn at the same rate for all carriers who have pooled revenue requirements for that access service category. Local exchange carriers that have deaveraged may experience earnings rates different from those of other carriers that have either deaveraged or pooled.

It might be interesting to compare the relative earnings of the access lines of business with the earnings of other lines of business. The ability to make such comparisons represents a difference from the pre-divestiture mode of operation. Pre-divestiture earnings from access lines of business could not be separated from earnings for other lines of business. As we have noted, access as well as non-access revenue requirements were all recovered in aggregate, and the rate of return was the same for jurisdictionally allocated access and non-access account categories reflecting investments used in providing toll service. Post-divestiture, relative earnings in each



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Figure 5-18: Chart 4, State 1 Row, Column 9
State 1 Post-Divestiture IntraLATA Booked Revenues



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Figure 5-19: Chart 4, Total Row, Column 9
Total Post-Divestiture IntraLATA Booked Revenues

jurisdiction, by carrier, by account category or grouping of account categories, can vary depending on the accuracy of planning assumptions, and on whether access service revenues were pooled or unpooled.

GLOSSARY

- . AMPS - Advanced Mobile Phone Service
- . BOC - Bell Operating Company
- . B&K - Bill-and-Keep
- . CALC - Customer Access Line Charge
- . CI-2 - Computer Inquiry II
- . CPE - Customer premises equipment: equipment which generally consists of telephone sets and private branch exchanges, used by a customer at the customer's premises to originate, route or receive telecommunications.
- . CSO - Central Services Organization. Also known as Bell Communications Research, Inc. or Bellcore.
- . DAS - Directory Advertising and Sales
- . EAS - Extended Area Service
- . ENFIA - Exchange Network Facilities for Interstate Access
- . Exchange Carrier - carrier that provides telecommunications service within a local access and transport area (see intraLATA service).* BOCs and IOCs are exchange carriers.
- . FCC - Federal Communications Commission
- . Interexchange Carrier - carrier that provides telecommunications service between local access and transport areas (see InterLATA service).*
- . InterLATA Service - telecommunications service which links a subscriber's telephone or other apparatus to the transmission facilities of AT&T and other interexchange carriers which will in turn provide telecommunications service between local access and transport areas.*
- . IntraLATA Service - telecommunications traffic between telephone and other apparatuses located within the same local access and transport area.*

*All acronyms in this study aim to reflect the general use of the terms. Starred items are taken from the glossary in AT&T Information Statement and Prospectus, November 8, 1983.

- . IOC - Independent Operating Company
- . IS - Interstate
- . IX - Interexchange
- . LATAs - all Bell System territory has been divided into 161 geographical areas which have been termed "Local Access and Transport Areas."*
- . LL - Long Lines
- . MFJ - Modified Final Judgment
- . MTS - Message Telecommunications Service
- . NECA - National Exchange Carriers Association
- . NTS - Non-Traffic-Sensitive
- . OCC - Other Common Carrier
- . OCP - Optional Calling Plan
- . PL - Private Line
- . POP - Point of Presence
- . POR - Plan of Reorganization
- . RHC - Regional Holding Company
- . TS - Traffic-Sensitive
- . USOA - Uniform System of Accounts
- . WATS - Wide Area Telephone Service

*All acronyms in this study aim to reflect the general use of the terms. Starred items are taken from the glossary in AT&T Information Statement and Prospectus, November 8, 1983.

