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# 1995 Calculated Interstate and Intrastate Revenues for the Proposed Universal Service Fund and Formats for Comparisons of Different Benchmarks

*Response to Request from the NARUC Communications Committee*
*December 4, 1996; Revised December 13, 1996*

## Telecommunications Industries Analysis Project

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## Copyright and Project Address

**Telecommunications Industries Analysis Project:**

**1995 Calculated Interstate and Intrastate Revenues for the Proposed Universal Service Fund and Formats for Comparisons of Different Benchmarks**

*Response to Request from the NARUC Communications Committee*
*December 4, 1996; Revised December 13, 1996*

Carol Weinhaus and project participants

These numbers and calculations were compiled through the efforts of a team of project participants with additional input from other government agencies and companies. We would like to thank AT&T, Bell Atlantic, MCI, National Cable Television Association (NCTA), National Exchange Carrier Association (NECA), NYNEX, SBC Communications, Sprint, US WEST, and various state Commissioners and their staffs.

The Telecommunications Industries Analysis Project is associated with the Public Utility Research Center at the University of Florida College of Business Administration.

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# Project Information

## List of Participants in the Telecommunications Industries Analysis Project

| | |
|---|---|
| State Regulators | NARUC representatives from:<br>Florida Public Service Commission<br>Illinois Commerce Commission<br>Iowa Utilities Board<br>New York Public Service Commission<br>Washington Utilities and Transportation Commission |
| Regional Holding Companies | Bell Atlantic<br>BellSouth<br>NYNEX<br>SBC Communications Inc.<br>US WEST |
| Independents | GTE<br>Kalona Cooperative Telephone<br>Sprint Local Telecom Division |
| Interexchange Carriers | AT&T<br>Sprint |
| Cellular and Wireless Carriers | 360° Communications |
| Foreign Domestics | InfoCom Research, Inc.<br>NTT America |
| Local, National, and International Services | BT<br>France Telecom North America |
| Materials Manufacturers | Corning |
| Academic | University of Florida |

Sponsors:

Corporation for Public Broadcasting

Assisting with *public* data:

Bellcore
Federal Communications Commission
National Exchange Carrier Association
National Telecommunications and Information Administration

## Project Information, cont.

**Background on the Telecommunications Industries Analysis Project**

The goal of the Telecommunications Industries Analysis Project is to provide information to support the development of alternative communications policies to meet the needs of stakeholders in an environment that includes competitive and non-competitive markets, federal and state regulatory jurisdictions, and a proliferation of new services made possible by technological advances. The purpose of the project is to produce research and analysis which will assist policy makers in making informed decisions.

The project provides a neutral forum of communications industry stakeholders exploring multiple viewpoints of selected issues. This forum incorporates the following elements:

- **Broad representation:** The current forum includes foreign and domestic local exchange carriers (LECs), interexchange carriers (IXCs), materials and equipment manufacturers, and federal and state regulators. The project actively seeks expansion of this forum to include other communications industry representatives such as competitive access providers, cable television companies, computer companies, electric power utilities, or publishers.

- **Multiple viewpoints:** Participants are required to play an active role in the research and analysis, to represent their own interests, to understand and to assist in developing others' perspectives, and to work toward the common goal of representing multiple views. Since papers reflect multiple viewpoints and ideas, authors and reviewers may not agree with particular views or approaches expressed in the papers. The objective is to lay out ideas and options to assist policy makers in their decisions.

- **Analysis and results of alternative policies:** Research tools, including a jointly produced data base and computer software models, and data analysis developed by this forum create a common language for examining issues. The common language allows the participants to focus on underlying issues. Appropriate computer software tools, including modifications to existing tools, are developed.

- **All data, analysis methods, and results are public:** Data used by this project must be publicly available on a nationwide basis. Research products become public domain information.

- **Neutral setting:** The project resides in a neutral setting, free of partiality, thereby ensuring objective and independent research.

# I. Calculations and Assumptions

## Introduction

At the National Association of Regulatory Utility Commissioners' (NARUC) meeting in November 1996, the NARUC Communications Committee asked the Telecommunications Industries Analysis Project (Project) to assist the Commissioners in their effort to examine the effect on individual states if the Federal Communications Commission (FCC) were to use intrastate revenues to fund a percentage of the Universal Service Fund. For example, what if interstate revenues fund 100%? What if the interstate portion is less than 100%?

The Project is pleased to provide NARUC with this report, which provides background for NARUC's efforts to examine this issue. For the past six years, the Project has assisted policy makers by producing, within a neutral setting, education materials and analytical tools to explore alternative approaches to key issues.

The Project was asked to compile total industry revenues for the companies that will likely be contributing to the new universal service fund (USF). This document provides a description of the steps and sources underlying the calculations, as well as a list of caveats, since data are from different sources.

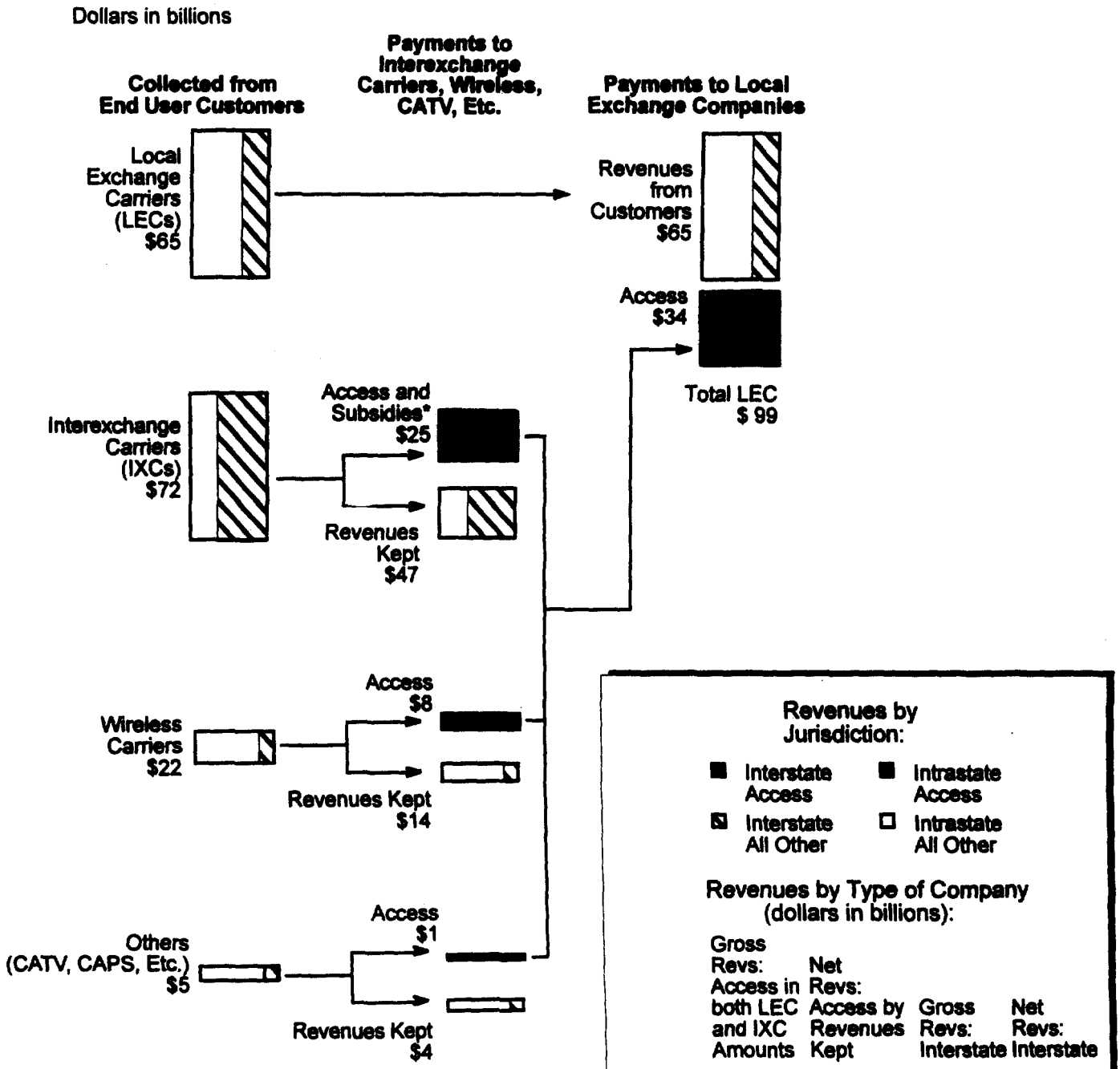
In addition, the Project was asked to incorporate the spreadsheet containing the revenues into a separate spreadsheet already developed by the NARUC Staff Subcommittee on Communications — Ad Hoc Subcommittee on Universal Service. This earlier NARUC spreadsheet contains models developed by the subcommittee staff, and these models remain as originally created. The project was requested to use its new spreadsheet to run the NARUC-supplied models with the revenue data and additional input data supplied by the developers of the Benchmark Cost 2 (BCM 2) model and the Hatfield model. The net result is that the Project linked the input data with the existing NARUC models.

The Project was also asked by NARUC to develop three additional formats for examining the input data. These additional formats show a range of results for different benchmarks. The three formats show, for each state (by total amount and by per line): how much is paid into the USF fund; who, on balance, pays into, or receives from, the fund; and the impact of varying the percent paid by interstate and by intrastate. Printouts of these formats are included in this document in Section IV.

## Overview of Total Industry Revenues

**Figure 1** shows the summary of the revenue data compiled by the Project. Total industry revenues consist of those from large local exchange carriers (LECs), small LECs, interexchange carriers, wireless companies, and others — competitive access providers (CAPs), Cable TV companies (CATV) providing telecommunications services, etc. In addition, since there are intercompany payments (access charges and other payments between carriers), industry revenues are divided into two categories: "access" and "all other". The chart also indicates revenues by interstate/intrastate jurisdiction and by gross revenues ($198 billion) and net revenues ($164 billion, gross net of intercompany payments). The models and output charts associated with this report use net revenues of $164 billion.

**Figure 1: 1995 Interstate and Intrastate Revenue Flows Among Telecommunications Companies**




| | Gross Revs: Access in both LEC and IXC Amounts | Net Revs: Access by Revenues Kept | Gross Revs: Interstate | Net Revs: Interstate |
|---|---|---|---|---|
| Total LECs | $99 | $99 | $26 | $26 |
| Large LECs | $94 | $94 | $24 | $24 |
| Small LECs | $ 5 | $ 5 | $ 2 | $ 2 |
| IXCs | $72 | $47 | $49 | $32 |
| Wireless | $22 | $14 | $15 | $10 |
| Others | $ 5 | $ 4 | $ 2 | $ 1 |
| Total | $198 | $164 | $92 | $69 |

*Subsidies include USF, Lifeline, Link-up, etc.

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The basic steps for deriving IXC revenues are as follows:

1. Develop IXC revenue growth factor to reconcile using 1994 data with 1995 data. Use *TRS* 1994 data for IXC access revenues and divide by *TRS* 1993 data for IXC total revenues. The result is an IXC revenue growth factor.

2. Apply the IXC revenue growth factor from step 1 to the 1994 *TRS* IXC total revenues. This produces 1995 IXC revenues.

3. Apply the 1995 intrastate/interstate distribution of LEC access revenues (excluding SLC revenue) to the revenues developed in step 2. The result produces a split of IXC total revenues between the intrastate and interstate jurisdictions.

4. Subtract the total interstate LEC access charge revenues (excluding SLC revenues) from the interstate IXC revenues developed in step 3. This produces interstate IXC revenues net of access.

5. Subtract the total intrastate LEC access charge revenues from the intrastate IXC revenues developed in step 3. This produces intrastate IXC revenues net of access.

The basic steps for deriving wireless carrier revenues are as follows:

6. Distribute the 1995 *CTIA* wireless revenues among the individual states by number of business access lines for Tier 1 companies (based on *ARMIS 43-01* data) to produce revenue by state.

7. Apply the total 1994 *TRS* ratio of state to interstate to split total wireless revenues between the jurisdictions.

8. To identify the access portion of wireless revenues, calculate a factor based on IXC revenues net of access divided by total IXC revenues derived in step 2. This factor is applied to the interstate and intrastate numbers developed in step 7 to produce a split between access and all other revenues for wireless carriers.

The basic steps for deriving all other carrier revenues are as follows:

9. Develop a revenue factor for all other carriers. Divide 1994 *TRS* revenue for all other carriers by 1994 *TRS* LEC revenues.

10. Multiply this growth factor by the 1995 *ARMIS* LEC revenue by state. This produces revenues for all other carriers by state.

11. Develop a factor from LEC, IXC, and wireless revenues to be applied to the other carrier revenues to produce revenues net of access. Add the calculated revenues net of access for the LECs, IXCs, and wireless companies, and divide this sum by the total revenues for the sum of these same companies.

12. Multiply the factor developed in step 11 by the other carrier revenue developed in step 10 to produce revenues net of access by state for other carriers.

**Large LEC Revenues**

Large LEC revenues are based on calculations using 1995 *ARMIS 43-01* data filed by Tier 1 companies. The following are calculations used to derive the total revenues for the large LECs, which were used to estimate their contributions to the universal service fund:

| *Row No.* | *Revenue Description* | *Description of Revenue Accounts* | *ARMIS 43-01, Total Company* | *ARMIS 43-01, Intrastate* | *ARMIS 43-01, Interstate* | *Calculations* |
|---|---|---|---|---|---|---|
| 1 | Local Service Revenues | USOA Account 5000: all revenues associated with exchange operations | Column b, row 1010 | Column b minus Column h, row 1010 | Column h, row 1010 | |
| 2 | Network Access Revenues | USOA Account 5084: includes subscriber line charge (SLC), switched access, special access and state access revenue | Column b, row 1020 | Column b minus Column h,, row 1020 | Column h, row 1020 | |
| 3 | Toll Network Services Revenues | USOA Account 5100: LEC toll revenues | Column b, row 1030 | Column b minus Column h, row 1030 | Column h, row 1030 | |
| 4 | Miscellaneous Revenues | USOA Account 5200: includes directory, billing & collection, and all other revenues | Column b, row 1040 | Column b minus Column h, row 1040 | Column h, row 1040 | |
| 5 | Settlements | USOA Accounts 5069, 5129, 5169 and 5269: includes basic, toll and misc charges and credits resulting from contractual revenue pooling and/or sharing agreements | Column b, row 1050 | Column b minus Column h, row 1050 | Column h, row 1050 | |
| 6 | Gross (Retail) Revenues | Total booked revenues received from other carriers and end users | | | | Sum of rows 1 through 5. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | Access Expense | USOA Account 6540: includes access charges paid to exchange carriers for exchange access service | Column b, row 1170 | Column b minus Column h, row 1170 | Column h, row 1170 | |
| 8 | LEC Revenues Net of Payments to Other Carriers | Gross LEC revenues less payments to other carriers | | | | Row 6 minus row 7. |

Note: 1995 total company, intrastate and interstate net transition revenues for ARMIS LECs totaled $93.8 billion, $70.7 billion and $23.1 billion, respectively. The *ARMIS* LECs are Ameritech, Bell Atlantic, BellSouth, NYNEX, Pacific Telesis, SBC, US WEST, Alltel, Cincinnati Bell, Centel, Contel, GTE, Lincoln, Rochester, SNET and Sprint Local Telecom (formerly United). Cincinnati Bell revenues are included in revenues for the state of Ohio, and excluded from revenues in the state of Kentucky. SLC revenues are available on Row 5081 of the *ARMIS 43-03 Report*.
SLC revenues are not available for the following ARMIS LECs: Alltel (PA), United (OR, TN, VA AND WA) and GTE (AK). Alltel (PA), United (OR, TN, VA AND WA) and GTE (AK).

**Small LEC Revenues**

The small LEC revenues are calculated from *REA Reports*. The following tables provide the calculations used to produce the small LEC revenues:

| Columns | Data Description | Data Source/Calculation |
|---|---|---|
| *Revenue Input Data by LEC* | | |
| A | State Designator | input |
| B | NECA # | input |
| C | State FIPS | input |
| D | Local | input - 1994 REA revenue data |
| E | Access | input - 1994 REA revenue data |
| F | Long Distance | input - 1994 REA revenue data |
| G | CABS | input - 1994 REA revenue data |
| H | Miscellaneous | input - 1994 REA revenue data |
| I | Uncollectibles | input - 1994 REA revenue data |
| J | Total | input - 1994 REA revenue data |

## I. Calculations and Assumptions, cont.

| Columns | Data Description | Data Source/Calculation |
|---|---|---|
| K | Local | input - 1995 REA revenue data |
| L | Access | input - 1995 REA revenue data |
| M | Long Distance | input - 1995 REA revenue data |
| N | CABS | input - 1995 REA revenue data |
| O | Miscellaneous | input - 1995 REA revenue data |
| P | Uncollectibles | input - 1995 REA revenue data |
| Q | Total | input - 1995 REA revenue data |

| Columns | Data Description | Data Source/Calculation |
|---|---|---|
| *Minutes of Use Data by LEC* | | |
| R | Interstate InterLATA - Originating | input - 1995 Minutes of Use |
| S | Interstate InterLATA - Terminating | input - 1995 Minutes of Use |
| T | Interstate IntraLATA - Originating | input - 1995 Minutes of Use |
| U | Interstate IntraLATA -Terminating | input - 1995 Minutes of Use |
| V | State InterLATA - Originating | input - 1995 Minutes of Use |
| W | State InterLATA - Terminating | input - 1995 Minutes of Use |
| X | State IntraLATA - Originating | input - 1995 Minutes of Use |
| Y | State IntraLATA -Terminating | input - 1995 Minutes of Use |
| Z | Interstate Minutes of Use | sum of R through U |
| AA | State InterLATA MOU | V + W |
| AB | State IntraLATA MOU | X + Y |
| AC | Interstate Access Ratio | Z / (Z + AA) |
| AD | 1994 Interstate Access Revenues | AC x E [using 1995 Interstate Access Ratio] |
| AE | 1994 Interstate Other Revenues | AC x G |
| AF | 1994 State Access Revenues | E - AD |
| AG | 1994 State Other Revenues | J - E - AE |
| AH | (blank) | |

## I. Calculations and Assumptions, cont.

| Columns | Data Description | Data Source/Calculation |
|---|---|---|
| *Develop Jurisdictional Revenue by LEC* | | |
| AI | 1995 Interstate Access Revenues | AC x L |
| AJ | 1995 Interstate Other Revenues | AC x N |
| AK | 1995 State Access Revenues | L - AI |
| AL | 1995 State Other Revenues | Q - L - AJ |
| AM | (see memo) | input |
| AN | (blank) | |
| AO | (blank) | |

| Columns | Data Description | Data Source/Calculation |
|---|---|---|
| *Aggregate by State* | | |
| AP | State Abbreviations | input |
| AQ | 1994 Interstate Access Revenues | sum AD5..AD16, etc. by State |
| AR | 1994 Interstate Other Revenues | sum AE5..AE16, etc. by State |
| AS | 1994 State Access Revenues | sum AF5..AF16, etc. by State |
| AT | 1994 State Other Revenues | sum AG5..AG16, etc. by State |
| AU | State Abbreviations | input |
| AV | 1995 Interstate Access Revenues | sum AI5..AI16, etc. by State |
| AW | 1995 Interstate Other Revenues | sum AJ5..AJ16, etc. by State |
| AX | 1995 State Access Revenues | sum AK5..AK16, etc. by State |
| AY | 1995 State Other Revenues | sum AL5..AL16, etc. by State |

| Columns | Data Description | Data Source/Calculation |
|---|---|---|
| *Calculate 1995 Revenues* | | |
| AZ | State Abbreviations | input |
| BA | 1995 Interstate Access Revenues | Pool LECs: AV/1000 |
| BB | 1995 Interstate Other Revenues | Pool LECs: AW/1000 |
| BC | 1995 State Access Revenues | Pool LECs: AX/1000 |

| | | |
|---|---|---|
| BD | 1995 State Other Revenues | Pool LECs: AY/1000 |
| BE | 1995 Interstate Access Revenues | Non-BOC Tier 1 LECs: input |
| BF | 1995 Interstate Other Revenues | Non-BOC Tier 1 LECs: input |
| BG | 1995 State Access Revenues | Non-BOC Tier 1 LECs: input |
| BH | 1995 State Other Revenues | Non-BOC Tier 1 LECs: input |
| BI | (blank) | |
| BJ | 1995 Interstate Access Revenues | Total Independent: BA + BE |
| BJ | 1995 Interstate Other Revenues | Total Independent: BB + BF |
| BL | 1995 State Access Revenues | Total Independent: BC + BG |
| BM | 1995 State Other Revenues | Total Independent: BD + BH |
| BN | 1995 Total Revenues | Total Independent: sum BJ thru BM |
| BO | 1995 Interstate Access Revenues | Distribution Matrix: BJ / BN sum |
| BP | 1995 Interstate Other Revenues | Distribution Matrix: BK / BN sum |
| BQ | 1995 State Access Revenues | Distribution Matrix: BL / BN sum |
| BR | 1995 State Other Revenues | Distribution Matrix: BM / BN sum |
| BS | (blank) | |

| Columns | Data Description | Data Source/Calculation |
|---|---|---|
| *Calculate SLC Revenues* | | |
| BT | 1994 SLC - Pool LECs | bus. access lines x $6, res. access lines x $3.5 |
| BU | 1994 SLC - non-BOC Tier 1 | input |
| BV | 1995 SLC - Pool LECs | bus. access lines x $6, res. access lines x $3.5 |
| BW | 1995 SLC - non-BOC Tier 1 | input |
| BX | (blank) | |

**Files and Spreadsheets**

There are two Microsoft Excel spreadsheets that are identical, except that one uses BCM2 data as input for calculating the USF amount paid, and the other uses Hatfield data. The format for each spreadsheet is a series of sheets that are linked to one another. The files are as follows:

*1995 Calculated Interstate and Intrastate Revenues for the Proposed Universal Service Fund and Formats for Comparisons of Different Benchmarks — Benchmark Cost Model 2 Version*
File name: TIAPBCM2.XLS

*1995 Calculated Interstate and Intrastate Revenues for the Proposed Universal Service Fund and Formats for Comparisons of Different Benchmarks — Hatfield Model Version*
File name: TIAPHATF.XLS

There is a third file, TIAPDISP.XLS with sorted data from the TIAP output sheets. This data is for display purposes only and is not linked to the other spreadsheets.

*Display Charts: Rankings by State for Various USF Funding Amounts from TIAP 1995 Calculated Telecommunications Revenues*
File name: TIAPDISP.XLS

The individual sheets in the TIAPBCM.XLS and the TIAPHATF.XLS files are labeled as follows:

*Revenue Derivations:*

| | | |
|---|---|---|
| 1. | Comb. Rev. — Large LEC | |
| 2. | Comb. Rev. — All Tier 1 | |
| 3. | Comb. Rev. — Small LEC | |
| 4. | Comb. Rev. — IXC | LEC access revenues are basis for distribution. |
| 5. | Comb. Rev. — Wireless | Business lines are basis for distribution. |
| 6. | Buss. Lines | Number of business lines used for above. |
| 7. | Comb. Rev. — All Other | Combined LEC, IXC, and Wireless revenues used for distribution. |
| 8. | Comb. Rev. — Total | |

*Other Input Data:*

| | | |
|---|---|---|
| 9a. | BCM2 Proxy | Input data from BCM2 model. See TIAPBCM2.XLS file. |
| 9b. | Hatf Proxy | Input data from Hatfield model. See TIAPHATF.XLS file. |
| 10. | Acc Lines | Access lines. |

*Models Supplied by NARUC Staff:*

11. BCM 20 Inter, or Hatf 20 Inter
12. BCM 30 Inter, or Hatf 30 Inter
13. BCM 40 Inter, or Hatf 40 Inter
14. BCM 20 40%, or Hatf 20 40%
15. BCM 20 Impute, or Hatf 20 Impute
16. BCM 20 Combined, or Hatf 20 Combined
17. BCM 30 Combined, or Hatf 30 Combined
18. BCM 40 Combined, or Hatf 40 Combined

*TIAP Output Data:*

| | | |
|---|---|---|
| 19. | TIAP Pay into USF | Provides the amount each state pays to the Universal Service Fund. |
| 20. | TIAP Pay-Receive | On balance, which states pay into and which states receive from the USF. |
| 21. | Rev Summary | Summarizes revenues by type of company (LEC, IXC, Wireless, and Other), by Jurisdiction (interstate and intrastate), and by service (access and all other). See **Figure 1** for overview. |

The individual sheets in the TIAPDISP.XLS are labeled as follows:

| | | |
|---|---|---|
| 1. | TIAP BCM2 Display Pay into USF | Ranks states by total dollar amount and by dollars per line. Provides the amount each state pays to the USF. Uses BCM2 input data. |
| 2. | TIAP BCM2 Display Pay-Receive | Ranks states by total dollar amount and by dollars per line. On balance, which states pay into and which states receive from the USF. Uses BCM2 input data. |
| 3. | TIAP Hatf Display Pay into USF | Ranks states by total dollar amount and by dollars per line. Provides the amount each state pays to the USF. Uses Hatfield input data. |
| 4. | TIAP Hatf Display Pay-Receive | Ranks states by total dollar amount and by dollars per line. On balance, which states pay into and which states receive from the USF. Uses Hatfield input data. |
| 5-6. | Grow Display BCM2 Pay into Fund<br>Grow Display BCM2 Pay-Receive | These two charts indicate that various parameters of the model can be changed. |

## I. Calculations and Assumptions, cont.

For the charts indicating growth, a set of assumptions on interstate growth in revenues were made: 10% growth in access portion of the LECs, 10% growth in IXC, 30% growth in cellular, and 30% growth in all others. This set of display charts are for illustrative purposes only. The BCM2 model numbers were used in the illustration. Time constraints limited the variations. They indicate that in the future, other patterns of growth and usage are possible.

# II. Caveats

**Caveats**

1. All data is based on 1995 nationwide industry totals.

2. The revenues are aggregated by industry segment from publicly available data. Company-specific detail was unavailable.

3. Input data for the costs were provided by the sponsors of the BCM2 model and the Hatfield model.

4. Universal service support was calculated by the BCM2 model and by the Hatfield model. The BCM2 outputs assume cost averaging within census block group for the purpose of developing universal service support. The Hatfield outputs assume that costs are averaged within six density zones for the purpose of developing universal service support. Calculated amounts of required universal service support vary with input assumptions and with the geographic size of the areas being studied.

5. This model does not consider USF high cost support for single line businesses which, per the Recommended Decision, will receive such support. Therefore, the USF fund will actually be larger than herein estimated.

6. This model relies on the BCM and Hatfield "lines," which are actually households. The model, therefore, does not account for second lines or second homes. The fact that households are used as a surrogate for primary residence lines, skews the USF funding in unknown ways by state.

7. Each state's USF charge per line is determined by taking the state's USF support and dividing this amount by the total access lines in the state. Total access lines is equal to the sum of the residence lines, single line business and multiline business lines obtained from the LEC's ARMIS data and the number of cellular lines. This count does not include lines provided by other carriers, e.g., new competitive LECs.

8. All NECA revenue data is obtained from the 1994 and 1995 REA 479 submissions.

9. Cellular carrier payments to other carriers is determined on the same basis as the IXCs (based on access charges). This is because prior to 1996, cellular carriers were generally charged access type rates for calls originating and terminating to cellular customers. This structure has significantly changed in 1996 with the interconnection compensation structure being applied to cellular calls. Cellular carriers will now be compensated for calls it receives and terminates to cellular customers and pay for calls originating from its customers and terminating to customers served by another carrier.

10. The input data from the Hatfield model excludes Alaska and Hawaii numbers while the input data from the BCM2 model includes the Alaska and Hawaii numbers.

# III. Data Sources

**Data Sources: BCM2 and Hatfield Models**

**Figures 2 and 3** provide the input data from the BCM2 model and from the Hatfieid model. The data outputs were given to the Project from the developers of each model. For assumptions used to generate the numbers and descriptions of the models, contact the model developers.

*BCM2 Model*
*Benchmark Cost Model: A Joint Submission by MCI Communications Inc., NYNEX Corporation, Sprint Corporation, and U S WEST, Inc.*, FCC Docket No. 80-286, December 1, 1995. The revised version *Benchmark Cost Model, Version 2* was filed on July 3, 1966 by Sprint and U S WEST as part of CC Docket No. 96-45.

*Hatfield Model*
*Hatfield Model 2.2, release 2.* Hatfield Associates, Inc. Boulder, Colorado, August 20, 1996.

**Other Data Sources**

*ARMIS 43-01 Data*
Data specifications and reporting requirements for the ARMIS Quarterly Report (FCC Report 43-01) are described in the *Automated Reporting Requirements for Certain Class A and Tier 1 Telephone Companies (Part 31, 43, 67, and 69 of the FCC's Rules), Erratum*, CC Docket 86-182, DA 89-1010, Released August 29, 1989. Calculations use 1995 data.

*ARMIS 43-03 Data*
Data Specifications and reporting requirements for the ARMIS Joint Costs Report (FCC Report 43-03) are described in the *Automated Reporting Requirements for Certain Class A and Tier 1 Telephone Companies (Part 31, 43, 67, and 69 of the FCC's Rules), Errata*, CC Docket 86-182, DA 89-136, Released February 8, 1989. Calculations use 1995 data.

*CTIA Data*
CTIA, News Media Relations, "Wireless Growth Sets New Annual Records: 10 Million New Customers, Over $20 Billion in Revenues, Monthly Bills Fall Below $50," Washington, DC, September 19, 1996. Also "CTIA's Semi-Annual Data Survey Results," June 1995 and December 1995 6-month revenues added together for both wireless and roamer services. CTIA counts a subscriber as one line. Therefore a customer using two cellular lines gets counted as two subscribers.

## Figure 2: Input Data from Benchmark Cost 2 (BCM2) Model

| | State | Total Lines* (in thousands) | Dollars (in thousands) Annual Cost Above $20 | Annual Cost Above $30 | Annual Cost Above $40 | Annual Cost Above $50 | Annual Cost Above $60 | Annual Cost Above $70 | Annual Cost Above $80 |
|---|---|---|---|---|---|---|---|---|---|
| AL | Alabama | 2,422 | 348,584 | 198,587 | 108,270 | 47,790 | 16,226 | 5,986 | 2,042 |
| AK | Alaska | 378 | 57,551 | 38,994 | 27,791 | 21,089 | 16,209 | 13,006 | 10,728 |
| AZ | Arizona | 2,344 | 243,043 | 127,399 | 86,565 | 64,898 | 50,269 | 39,664 | 31,798 |
| AR | Arkansas | 1,418 | 265,796 | 175,545 | 113,800 | 68,053 | 37,174 | 19,732 | 9,505 |
| CA | California | 20,252 | 882,639 | 281,173 | 142,589 | 83,820 | 54,420 | 37,955 | 27,452 |
| CO | Colorado | 2,317 | 216,829 | 111,807 | 71,898 | 50,641 | 36,716 | 27,241 | 20,604 |
| CT | Connecticut | 2,161 | 167,164 | 69,893 | 30,760 | 14,632 | 6,051 | 1,757 | 274 |
| DE | Delaware | 491 | 34,972 | 13,903 | 5,477 | 1,663 | 338 | 103 | 42 |
| DC | Washington D.C. | 939 | 3,870 | 337 | 11 | 0 | 0 | 0 | 0 |
| FL | Florida | 9,067 | 691,572 | 238,882 | 98,309 | 46,047 | 20,928 | 10,654 | 6,290 |
| GA | Georgia | 4,306 | 442,093 | 225,230 | 118,726 | 53,523 | 20,373 | 7,204 | 2,674 |
| HI | Hawaii | 688 | 51,292 | 22,694 | 12,303 | 7,805 | 5,288 | 3,574 | 2,334 |
| ID | Idaho | 609 | 101,014 | 67,794 | 49,048 | 35,104 | 25,374 | 19,134 | 14,547 |
| IL | Illinois | 8,054 | 528,038 | 228,955 | 122,421 | 66,976 | 30,624 | 12,715 | 4,739 |
| IN | Indiana | 3,515 | 368,809 | 185,035 | 94,865 | 39,321 | 9,197 | 1,764 | 442 |
| IA | Iowa | 1,706 | 253,959 | 155,772 | 97,944 | 57,401 | 27,794 | 10,123 | 2,544 |
| KS | Kansas | 1,592 | 216,663 | 135,529 | 93,776 | 65,287 | 46,106 | 32,908 | 23,172 |
| KY | Kentucky | 2,173 | 323,873 | 192,063 | 109,248 | 47,334 | 12,488 | 3,626 | 1,295 |
| LA | Louisiana | 2,454 | 302,844 | 159,804 | 86,405 | 43,866 | 18,012 | 7,178 | 3,220 |
| ME | Maine | 766 | 166,243 | 119,193 | 83,274 | 55,062 | 34,823 | 21,521 | 12,663 |
| MD | Maryland | 3,352 | 169,320 | 57,230 | 23,252 | 8,147 | 2,891 | 1,379 | 703 |
| MA | Massachusetts | 4,167 | 232,988 | 86,074 | 34,184 | 15,948 | 8,137 | 3,580 | 1,243 |
| MI | Michigan | 6,108 | 586,650 | 273,338 | 133,039 | 60,663 | 23,193 | 11,115 | 6,296 |
| MN | Minnesota | 2,845 | 329,232 | 192,789 | 125,520 | 79,806 | 46,192 | 25,345 | 12,843 |
| MS | Mississippi | 1,435 | 253,972 | 157,913 | 92,714 | 46,046 | 17,334 | 6,323 | 2,545 |
| MO | Missouri | 3,282 | 423,818 | 256,867 | 175,081 | 116,476 | 73,474 | 44,865 | 25,139 |
| MT | Montana | 508 | 99,430 | 72,177 | 55,338 | 42,501 | 32,857 | 25,559 | 19,796 |
| NE | Nebraska | 1,035 | 149,255 | 99,355 | 71,446 | 50,273 | 34,753 | 23,592 | 15,164 |
| NV | Nevada | 914 | 83,728 | 47,575 | 34,197 | 26,279 | 20,902 | 17,080 | 14,382 |
| NH | New Hampshire | 721 | 106,139 | 65,434 | 38,727 | 22,675 | 13,045 | 6,605 | 2,885 |
| NJ | New Jersey | 5,535 | 233,916 | 60,830 | 17,363 | 5,113 | 1,691 | 789 | 362 |
| NM | New Mexico | 885 | 135,968 | 88,829 | 65,674 | 50,513 | 39,387 | 30,881 | 23,819 |
| NY | New York | 12,169 | 660,026 | 307,393 | 166,723 | 90,257 | 47,387 | 27,765 | 18,078 |
| NC | North Carolina | 4,261 | 529,685 | 282,981 | 142,022 | 55,501 | 13,781 | 3,961 | 1,722 |
| ND | North Dakota | 413 | 92,077 | 70,790 | 57,124 | 46,762 | 37,892 | 30,214 | 23,362 |
| OH | Ohio | 6,908 | 614,541 | 272,185 | 128,393 | 50,987 | 10,646 | 1,246 | 247 |
| OK | Oklahoma | 1,984 | 267,610 | 159,072 | 101,089 | 60,569 | 34,359 | 20,305 | 12,331 |
| OR | Oregon | 1,893 | 216,926 | 119,637 | 77,503 | 51,729 | 35,591 | 25,943 | 19,245 |
| PA | Pennsylvania | 8,039 | 612,784 | 301,995 | 163,593 | 85,405 | 42,039 | 20,606 | 8,092 |
| RI | Rhode Island | 646 | 43,928 | 15,698 | 6,773 | 3,363 | 1,645 | 580 | 136 |
| SC | South Carolina | 2,082 | 279,168 | 152,970 | 81,375 | 36,459 | 11,279 | 2,965 | 949 |
| SD | South Dakota | 434 | 93,631 | 69,560 | 52,450 | 39,313 | 29,439 | 21,770 | 15,422 |
| TN | Tennessee | 3,111 | 391,294 | 214,160 | 113,375 | 50,062 | 18,230 | 8,344 | 3,992 |
| TX | Texas | 10,826 | 965,509 | 464,135 | 272,534 | 163,276 | 96,066 | 60,754 | 40,039 |
| UT | Utah | 947 | 90,499 | 47,672 | 32,826 | 24,331 | 18,912 | 15,208 | 12,253 |
| VT | Vermont | 368 | 72,293 | 51,952 | 35,859 | 22,860 | 13,603 | 7,718 | 4,114 |
| VA | Virginia | 4,315 | 377,184 | 188,054 | 99,619 | 41,440 | 12,414 | 4,863 | 1,987 |
| WA | Washington | 3,294 | 279,459 | 131,124 | 76,626 | 48,367 | 31,853 | 22,024 | 15,321 |
| WV | West Virginia | 1,075 | 214,205 | 145,860 | 96,502 | 58,452 | 32,634 | 18,613 | 10,008 |
| WI | Wisconsin | 3,188 | 343,209 | 187,460 | 107,454 | 55,616 | 25,121 | 11,994 | 6,188 |
| WY | Wyoming | 296 | 50,297 | 35,530 | 27,184 | 21,369 | 17,280 | 14,271 | 11,872 |
| National Results | | 164,686 | 14,665,589 | 7,425,225 | 4,259,038 | 2,400,874 | 1,312,436 | 792,099 | 506,898 |

*These number of lines were provided with the BCM2 output data by the sponsors of the model. The outputs in this report and in the accompanying spreadsheets are based on total access lines from the *ARMIS Reports*.

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## Figure 3: Input Data from Hatfield Model

| | | Dollars (in thousands) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | State | Annual Cost Above $20 | Annual Cost Above $30 | Annual Cost Above $40 | Annual Cost Above $50 | Annual Cost Above $60 | Annual Cost Above $70 | Annual Cost Above $80 |
| AL | Alabama | 179,080 | 86,829 | 22,395 | 11,805 | 5,726 | 308 | 0 |
| AK | Alaska | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AR | Arkansas | 134,133 | 72,090 | 26,784 | 14,203 | 6,863 | 139 | 0 |
| AZ | Arizona | 116,182 | 86,660 | 58,689 | 47,469 | 40,137 | 33,223 | 26,309 |
| CA | California | 323,817 | 204,207 | 135,459 | 114,939 | 95,863 | 76,788 | 57,712 |
| CO | Colorado | 94,057 | 65,557 | 39,442 | 30,693 | 23,901 | 18,924 | 14,055 |
| CT | Connecticut | 18,969 | 190 | 0 | 0 | 0 | 0 | 0 |
| DC | District of Colum | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| DE | Delaware | 5,518 | 41 | 31 | 22 | 13 | 4 | 0 |
| FL | Florida | 124,993 | 43,852 | 15,630 | 10,493 | 7,474 | 4,454 | 1,435 |
| GA | Georgia | 186,274 | 74,185 | 16,679 | 7,318 | 3,311 | 672 | 0 |
| HI | Hawaii | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IA | Iowa | 123,733 | 69,714 | 27,163 | 9,894 | 2,638 | 0 | 0 |
| ID | Idaho | 59,522 | 40,664 | 29,265 | 24,283 | 19,424 | 14,565 | 10,142 |
| IL | Illinois | 166,169 | 92,973 | 34,174 | 5,167 | 2,808 | 458 | 0 |
| IN | Indiana | 118,346 | 34,605 | 428 | 216 | 19 | 0 | 0 |
| KA | Kansas | 124,251 | 83,710 | 54,375 | 37,132 | 28,236 | 19,340 | 10,444 |
| KY | Kentucky | 119,011 | 34,527 | 1,804 | 846 | 46 | 0 | 0 |
| LA | Louisiana | 90,359 | 30,618 | 11,183 | 6,479 | 1,775 | 0 | 0 |
| MA | Massachusetts | 24,479 | 32 | 0 | 0 | 0 | 0 | 0 |
| MD | Maryland | 33,216 | 310 | 228 | 147 | 66 | 0 | 0 |
| ME | Maine | 48,967 | 17,309 | 6,602 | 5,282 | 3,963 | 2,643 | 1,324 |
| MI | Michigan | 161,846 | 56,298 | 14,137 | 10,438 | 7,104 | 3,769 | 1,146 |
| MN | Minnesota | 155,474 | 94,885 | 44,938 | 24,012 | 15,527 | 7,043 | 415 |
| MO | Missouri | 207,657 | 130,198 | 60,575 | 24,935 | 14,434 | 4,714 | 0 |
| MS | Mississippi | 131,167 | 68,563 | 19,061 | 10,244 | 3,290 | 0 | 0 |
| MT | Montana | 77,252 | 59,789 | 50,091 | 43,091 | 36,090 | 29,090 | 22,089 |
| NC | North Carolina | 154,739 | 28,359 | 2,345 | 1,569 | 814 | 171 | 0 |
| ND | North Dakota | 55,608 | 45,322 | 36,588 | 29,385 | 22,182 | 14,978 | 8,217 |
| NE | Nebraska | 108,605 | 80,360 | 54,492 | 35,166 | 28,118 | 22,498 | 16,879 |
| NH | New Hampshire | 22,016 | 3,198 | 791 | 588 | 385 | 183 | 58 |
| NJ | New Jersey | 20,100 | 256 | 189 | 123 | 56 | 18 | 13 |
| NM | New Mexico | 97,263 | 75,561 | 60,408 | 53,401 | 46,394 | 39,387 | 32,380 |
| NV | Nevada | 56,866 | 45,699 | 37,699 | 34,161 | 30,761 | 27,361 | 23,960 |
| NY | New York | 177,735 | 67,433 | 11,666 | 9,562 | 7,457 | 5,353 | 3,248 |
| OH | Ohio | 144,914 | 33,863 | 98 | 72 | 46 | 19 | 14 |
| OK | Oklahoma | 178,904 | 120,934 | 73,339 | 51,935 | 37,300 | 22,665 | 8,903 |
| OR | Oregon | 95,876 | 60,856 | 34,000 | 29,736 | 25,472 | 21,207 | 16,943 |
| PA | Pennsylvania | 142,451 | 28,124 | 2,987 | 2,288 | 1,588 | 889 | 443 |
| RI | Rhode Island | 4,285 | 0 | 0 | 0 | 0 | 0 | 0 |
| SC | South Carolina | 93,050 | 23,550 | 2,011 | 1,074 | 201 | 0 | 0 |
| SD | South Dakota | 40,472 | 27,993 | 21,089 | 16,960 | 12,832 | 8,703 | 5,078 |
| TN | Tennessee | 132,111 | 40,574 | 2,785 | 1,464 | 603 | 1 | 0 |
| TX | Texas | 447,053 | 275,750 | 163,804 | 128,836 | 98,617 | 68,530 | 39,086 |
| UT | Utah | 50,331 | 37,573 | 27,790 | 24,559 | 21,570 | 18,582 | 15,594 |
| VA | Virginia | 126,337 | 41,226 | 1,638 | 1,090 | 541 | 68 | 30 |
| VT | Vermont | 23,382 | 7,988 | 712 | 452 | 321 | 201 | 81 |
| WA | Washington | 92,104 | 46,673 | 24,603 | 19,993 | 15,382 | 10,771 | 6,160 |
| WI | Wisconsin | 126,776 | 54,551 | 8,429 | 5,210 | 1,991 | 37 | 0 |
| WV | West Virginia | 87,502 | 39,200 | 6,972 | 3,242 | 1,576 | 95 | 0 |
| WY | Wyoming | 26,434 | 19,477 | 15,827 | 13,829 | 11,831 | 9,833 | 7,834 |
| | National Results | 5,329,391 | 2,652,326 | 1,259,395 | 903,805 | 684,746 | 487,682 | 329,993 |

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*Large LEC and Small LEC Definitions:*

The regulatory reporting requirements group the LECs into the following three categories:

| *LEC Category:* | *Definition:* |
|---|---|
| Tier 1 | Over $100 million annual regulated operating revenues. |
| Tier 2A | Over $40 million annual regulated operating revenues, but under $100 million. |
| Tier 2B | Under $40 million annual regulated operating revenues. These are primarily National Exchange Carrier Association (NECA) companies. |

In the calculations, large LECs are defined as Tier 1 companies.

*NARUC Model*
Spreadsheet and draft report from NARUC with model incorporated into the spreadsheet developed by the Project: NARUC, Staff Subcommittee on Communications, "The Revenue Base for Federal Universal Service Support: A Report to State Public Utility Commissions," Second Draft, December 1, 1996.

*REA Data*
Rural Electrification Administration (REA), *REA Financial and Statistical Reports*, Form 479, 1994 and 1995 data. Used to derive small LEC data.

*TRS Data:*
Federal Communications Commission, Common Carrier Bureau, Industry Analysis Division, *Telecommunications Industry Revenue: TRS Fund Worksheet Data*, February 1996, Tables 2 and 3, 1994 data.