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**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, D.C. 20554**

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| In the Matter of | ) | |
| Federal-State Joint Board on Universal Service | ) | CC Docket No. 96-45 |
| | ) | |
| Forward-Looking Mechanism for High Cost Support for Non-Rural LECs | ) | CC Docket No. 97-160 |

# REPLY COMMENTS

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## REPLY COMMENTS

BellSouth Corporation, on behalf of itself and its subsidiaries ("BellSouth"), hereby submits the following Reply Comments on the *Further Notice of Proposed Rulemaking* in the above referenced proceeding.[1]

## I. INTRODUCTION AND SUMMARY

As an initial matter, BellSouth shares the concern of other parties regarding the adequacy of the Commission's Synthesis Model (the "Model") for calculating high cost support for non-rural local exchange carriers ("LECs"). MCI WorldCom characterizes the Model as "a blunt, inflexible, instrument incapable of achieving its stated goals in a rational manner."[2] The

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[1] *In the Matter of Federal-State Joint Board on Universal Service and Forward-Looking Mechanism for High Cost Support for Non-Rural LECs*, CC Docket Nos. 96-45 and 97-160, *Further Notice of Proposed Rulemaking* (FCC 99-120), released May 28, 1999 ("*FNPRM*").

[2] MCI WorldCom, Inc.'s Comments in CC Docket Nos. 96-45 and 96-262, July 23, 1999, at 18.

numerous programming and algorithm errors chronicled in U S WEST's comments prompted that carrier to observe that "...the Commission's Synthesis Model is so completely beyond salvage and the inputs the Commission proposes to use in that model are so utterly afield of reality, that U S WEST has no choice but to withdraw all support for use of this forward-looking cost model."[3] BellSouth, likewise, does not believe that the Model is ready for its intended use; however, on the assumption that this Model or a close facsimile will serve as the prototype for calculating high cost support, BellSouth has devoted the remainder of its comments to an analysis of Model inputs.

Specifically, BellSouth replies to AT&T Corp.'s and MCI WorldCom's Comments ("AT&T/MCI") regarding inputs to the Model.[4] At the request of BellSouth, Georgetown Consulting Group also reviewed AT&T/MCI's Comments. Their reply is attached hereto as Attachment A. AT&T/MCI have readily adopted input values *based on actual LEC* data where such data produced the lower cost results desired by these parties. At the same time, they have rejected other input values similarly based on LEC data when these inputs would produce higher cost results. BellSouth recommends that the Commission return to its third criterion established in the *Report and Order* which requires "an examination of the current cost of purchasing facilities and equipment"[5] and reject AT&T/MCI's unsupported input values.

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[3] U S WEST, Comments in CC Docket Nos. 96-45 and 97-160, July 23, 1999, at iii.

[4] AT&T Corp. and MCI WorldCom, Inc., Comments in CC Docket Nos. 96-45 and 97-160, Public Version, filed on July 23, 1999.

[5] *In the Matter of Federal-State Joint Board on Universal Service,* CC Docket No. 96-45, *Report and Order*, 12 FCC Rcd 8776, 8913 (1997) ("*Report and Order*").

## II. OUTSIDE PLANT INPUT VALUES

### A. Input Value Issues Relating to HCPM

#### *1. Customer Location Data*

AT&T/MCI recommend the use of the PNR data proposed by their consultants, PNR Associates ("PNR"), for customer locations in opposition to the Commission's tentative conclusion to use road surrogate data.[6] AT&T/MCI recommend the PNR data as "more accurate" even though it excludes 82 wire centers from states in its database and completely excludes 4 states/territories.[7] BellSouth continues to support the use of road surrogate data until such time as the success rate of geocoding customer locations increases substantially.[8]

AT&T/MCI suggest that "[a]t this time, no viable alternatives to the PNR geocode data exist or are expected to exist in the near future."[9] However, the BCPM Sponsors filed StopWatch road surrogate data for six states.[10] On page 7, AT&T/MCI state that "Stopwatch's six-state availability nullifies its utility as a data source to a national cost model." The Commission, however, has proposed inputs in numerous instances that are drawn from a limited geographic area. The data provided by the BCPM Sponsors is sufficiently compelling to warrant analysis. Prior to accepting the PNR data as the only source for geocoded data, all available

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6 AT&T/MCI at 2.

7 The PNR data excludes Alaska, Iowa, Virginia and Puerto Rico.

8 *See* MCI Ex Parte letter to Ms. Magalie Roman Salas, dated May 20, 1999, in CC Docket Nos. 96-45 and 97-160 which provides the success rates for all 50 states.

9 AT&T/MCI at 4.

10 *See* FNPRM at n. 87.

sources, including StopWatch Maps and the ILECs' own geocoded data should be evaluated fully.

AT&T/MCI maintain that the PNR methodology "includes the cost of providing service to all currently served households, and therefore is consistent with a forward-looking cost model, which is designed to estimate the cost of serving current demand."[11] As any carrier would attest, the cost of serving current demand includes more than the cost of serving existing households. No efficient carrier, interested in (1) providing outstanding and timely service and (2) developing the customer loyalty which is key to long term competitiveness, would ever consider placing facilities to serve only existing households. If the Commission's intent is to build a model that reflects true costs, such as those all carriers incur in providing service, the model must include facilities to serve all housing units plus some amount of growth; since no carrier places facilities to serve current households only.

### 2. *Optimization*

As expected, AT&T/MCI propose the use of full optimization runs of the Model. BellSouth would agree that run time should not be a deterrent to allowing the Model to produce the best results. However, BellSouth urges the Commission to keep in mind the purpose of the Model. This Model will be used to estimate the cost of providing universal service in high cost areas of the country. While the level of cost should be that which an efficient, least-cost provider of service can attain, computerized models filled with optimization routines may go beyond what is achievable in the real world. If such optimization is overstated, the Commission and the

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[11] AT&T/MCI at 7-8.

industry may be left with a model that builds a hypothetical network with hypothetical expenses no carrier will ever be able to achieve.

### 3. *Distance Calculations and Road Factor*

AT&T/MCI support the Commission's tentative conclusion that the Model should use rectilinear distance rather than airline distance[12] and that the road factor should be set to 1. BellSouth maintains that cables should be modeled to follow roads by determining the minimum road distance required to get from one point to another. However, if the Commission continues to use rectilinear distance in its Model, further analysis should be done to determine the appropriate road factor.

## B. Cost of Cable

### 1. *Copper*

Several non-rural LECs, including BellSouth, have provided the Commission with copper cable inputs for the Model on the record. In fact, some vendor contracts have been filed with the Commission under the Protective Order in this docket. This data was filed months ago, and all parties have had a chance to review it. The LEC data provides reliable estimates of forward-looking cost inputs that are derived from the actual cost experience of the submitting carriers. AT&T/MCI, on the other hand, filed new cable factors in their comments under protective cover. The factors advocated by AT&T and MCI do not measure up to the LEC standard. AT&T and MCI continue to rely on proprietary data which was submitted at the eleventh hour and

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[12] *Id.* at 12.

consequently, has yet to undergo vigorous public scrutiny to which the BellSouth data has been subjected. The Commission would be ill-advised to reject data submitted on the record, open to public review and based upon LEC operating experience in favor of the factors provided by AT&T and MCI which, because of their recent submission and submission under seal, have not been subject to extensive review and analysis.

While AT&T/MCI disagree with the ILECs on most points, including the remedy to the Commission's faulty use of the NRRI data, they do agree that "[a]s applied to the NRRI data, however, the Commission Staff's methodology (as described in Appendix D to the Further Notice) produces inconsistent and arbitrary results."[13] Furthermore, AT&T/MCI point out that "the RUS data often are inaccurate (especially for underground cable and cable sizes above 200 pairs) and produce systematically anomalous results when used in the synthesis model."[14] Thus, most of the commenting parties, including all of the ILECs and AT&T/MCI, generally concede that the Commission's current methodology using NRRI and RUS data is unacceptable and should be discarded.

### 2. *Splicing Costs*

At page 16, AT&T/MCI state that the "Commission should adopt reasonable values for the costs of placing, splicing and engineering based on the expert opinions submitted in this proceeding" (i.e., the HAI sponsors' recommendations). BellSouth urges the Commission to

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[13] *Id.* at 13.

[14] *Id.* at 14.

look to actual operating data supplied by BellSouth and other ILECs, rather than opinions of the HAI proponents, to find the true costs of placing, splicing and engineering.

In footnote 32 on page 17, AT&T/MCI suggest that splicing costs should be adjusted downward to reflect the "technological advantages that large Tier 1 companies may enjoy." Again, on page 19, AT&T/MCI suggest a "loading factor that is based on the use of modular splicing and that reflects an average value across all cable sizes... should not exceed 4.4 percent." BellSouth provided its real-world, actual costs of splicing labor as a percentage of material price. Those percentages ranged from 125% to 212%. Although BellSouth makes use of the latest technological advances in splicing, its splicing cost is substantially higher than the proposals of the Commission even before the reductions suggested by AT&T/MCI.

### 3. *Cable Fill Factors*

AT&T/MCI's comments regarding fill factors are inconsistent at best. To compensate for the undercounting of customer locations by PNR, AT&T/MCI argue that the Commission's "proposed conservative fill factors" will "ensure sufficient plant capacity."[15] Yet, several pages later, AT&T/MCI state that the fill factors proposed by the Commission are understated.[16] The claim that the Commission's proposed fill factors are too low directly contradicts AT&T/MCI's suggestion that Commission fill factors will compensate for uncounted service needs in PNR data.

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15 *Id.* at 8.

16 *Id.* at 22.

Regarding distribution fill factors, AT&T/MCI can not have their cake and eat it too. In the *FNPRM*, the Commission proposes to adopt the fill factors that AT&T/MCI proposed.[17] Now, however, AT&T/MCI argue that these values are too low "for use in a model intended solely for universal service."[18] It is ludicrous for AT&T/MCI to change their position at this late date by suggesting that their proposed factors were ever intended for anything other than universal service cost development.

*4. Cost of Underground Structures*

BellSouth does not use the Polyethylene Structural Foam Buried Cable Closure recommended in place of manholes in underground distribution.

*5. Distribution Plant Mix*

In arguing for the placement of more aerial cable and less buried and underground cable, AT&T/MCI state, "...cable normally is placed on ***existing*** poles whenever they are available because buried or underground plant typically present more costly alternatives."[19] AT&T/MCI thus contend that the Model should place more aerial plant since aerial is less expensive when poles are existing. AT&T/MCI have apparently forgotten that this Model is a scorched node model for the LECs, accordingly, no LEC-owned poles exist, and there are no LEC facilities on the poles owned by other utilities. In short, AT&T/MCI assume a scorched node approach when it is advantageous to their position and abandon the concept when it is not.

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17 *FNPRM*, ¶ 100.

18 AT&T/MCI at 22.

19 *Id.* at 25 (emphasis added).

It is interesting to note that AT&T/MCI disagree strongly with virtually every recommendation of BellSouth and the other ILECs, and particularly with any proposal for forward-looking costs that are based on historical, or actual, data from the ILECs. However, in one notable instance – the amount of underground distribution cable – AT&T/MCI advocate their position based on actual data and incredibly have concluded that BellSouth's actual data is valid and should be used by the Commission. BellSouth's data is correct and accurate but not just for this one input. BellSouth urges the Commission to give credence to all the data submitted by BellSouth and the other ILECs regardless of whether the data produces costs higher or lower than those proposed by the Commission, rather than to selectively pick only the ILEC data that supports lower costs as AT&T/MCI suggest.

*6. Structure Sharing*

AT&T/MCI characterize non-rural LECs' structure sharing inputs as "embedded sharing practices" based on incentives of a ratebase-regulated utility in a monopoly environment.[20] This characterization amounts to little more than a time worn cliché. AT&T/MCI have apparently forgotten that the vast majority of non-rural companies subject to this docket are not ratebase regulated but under price cap regulation. Indeed, BellSouth has been subject to price regulation in the majority of its states since 1996 and at the federal level since January 1, 1991. Accordingly, BellSouth has every incentive to share structures with other utilities whenever sharing is a viable alternative and can be coordinated with other entities.

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[20] *Id.* at 28.

AT&T/MCI attempt to persuade the Commission that there are greater sharing opportunities for ILECs than actually exist. Typically, no substantiation for these claims is offered. Structure sharing merely provides another rationale to artificially lower the costs that the Model produces. Indeed, the sharing percentages posited for use by the Staff for buried and underground structures are unrealistically high (that is, the percent of investment assigned to the telephone company is unrealistically low). They assume an ideal world where all companies place their facilities at the same time. There are real-world barriers to high sharing percentages. The sharing percentages set forth by the Staff are unattainable without a considerable increase in costs associated with coordination, facility utilization and maintenance. The reply comments of Georgetown Consulting Group, attached hereto as Attachment A, further explain why high structure sharing assumptions are unreasonable in a situation in which the telephone companies are using a scorched node assumption, but it cannot be assumed that other utilities also are replacing their outside facilities.

AT&T/MCI, nevertheless, argue that "sharing opportunities already are widely available in all density zones and for all three types of structure, and their availability is increasing even further due to advances in technology and changes in the regulatory environment."[21] Only on an infrequent basis has BellSouth been able to avail itself of opportunities for sharing in buried and underground structures, and experts see little increase in sharing in the future. If these "opportunities" that AT&T/MCI describe were a reality, ILECs would be taking advantage of them today. Those who suggest that there are greater opportunities for structure sharing base

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[21] *Id.*

their claims on unsupported assertions[22] or some isolated instances of structure sharing. As BellSouth discussed in its Comments filed on July 23, 1999, however, opportunities for structure sharing are in fact far more limited. BellSouth, like all companies today, is continually searching for ways to reduce costs. If structure-sharing opportunities were there, BellSouth would be sharing as much cost as possible. A review of the comments from other ILECs reveals that BellSouth's experience with structure sharing is entirely representative of the industry as a whole.[23]

AT&T/MCI identify two cities, Boston and San Francisco, that "require utilities and telecommunications companies to share their structures."[24] BellSouth is not familiar with the requirements of these two municipalities; nevertheless, the fact that two cities may have requirements for sharing does not constitute sufficient justification for the adoption of such a requirement in a national model. AT&T/MCI continue by stating, "[f]urther, builders often provide trenching in new subdivisions for use by cable, electric, and telephone companies to facilitate placement of wires and to minimize cable cuts. In this case, the incumbent LEC pays none of the cost of trenching."[25] While this may occur in other sections of the country, the practice in BellSouth territory is extremely rare and should not be considered when developing input values for universal service.

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22 *Id.* at 31, n. 66.

23 *See* Ameritech Comments in this proceeding dated July 23, 1999, at 24; Bell Atlantic Comments in this proceeding dated July 23, 1999, at 18; and US West Comments in this proceeding dated July 23, 1999, at 29-33.

24 AT&T/MCI at 29.

25 *Id.*

Similarly, AT&T/MCI charge that the Commission ignored "the statement by Anchorage Telephone Utility that it shares trench space with two local electric companies."[26] Again, it would be ill-advised for the Commission to base its input values on the practices of one carrier operating in Alaska.

AT&T/MCI maintain that sharing of underground conduit is increasing.[27] AT&T/MCI confuse structure sharing with leasing of duct space. BellSouth does lease some duct space to utilities and, in turn, leases duct space from utilities. The net rents, rental revenues less rental expenses, are included in BellSouth's recommended plant-specific expense factors for conduit. BellSouth does not "share" the actual investment of underground structures.

7. *Suggested Buying Power Adjustment*

As demonstrated by BellSouth and many other parties in their comments, filed on July 23, 1999, there is no justification for an adjustment based upon "superior buying power" since LEC-provided inputs already capture savings of this nature. AT&T/MCI, with no support whatsoever, oppose the Commission's proposal to take the lower of the aerial and underground cable adjustments for "superior buying power" and use this lower value for the adjustment to buried cable. Instead, AT&T/MCI propose use of the higher downward adjustment with no other justification than it will lower costs a little more.[28]

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26 *Id.* at 31.

27 *Id.*

28 *Id.* at 21.

Additionally, AT&T/MCI argue that the Commission should apply a "superior LEC buying power adjustment" to the proposed structure costs.[29] Another adjustment for "superior buying power" is unwarranted and would move the Commission's proposals even further from realistic cost estimates.

## III. SWITCHING COSTS

AT&T/MCI again attempt to impugn actual LEC switching data.[30] However, when advocating their underground structure cost inputs, AT&T/MCI actually use LEC data to support their arguments for lower input values. AT&T/MCI suggest using actual LEC data only when it serves their purpose. BellSouth continues to support the use of all LEC cost data, as it represents an appropriate starting point for developing forward looking cost inputs into the Model.

AT&T/MCI suggest that the LECs' workshop data is less reliable since it is drawn from fewer companies.[31] However, AT&T/MCI neglect to point out the LECs that provided switching data as a result of these workshops are actual non-rural companies for which this docket was established.

AT&T/MCI argue that BellSouth's switch data provided at the request of the Commission should not be considered, since BellSouth adjusted its switch investments to exclude ISDN-related investments and did not detail how those adjustments were made.[32] In an effort to provide data reflective of basic local costs, BellSouth went further than the Commission

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29 *Id.* at 23.

30 *Id.* at 37.

31 *Id.*

32 *Id.* at 37, n. 73.

requested and did attempt to estimate the appropriate reduction for ISDN costs in the book costs for those offices that have ISDN. BellSouth will readily resubmit the data with ISDN costs included if that will make the data acceptable to AT&T/MCI. Because of the time limits for response, BellSouth used a simple dollar per BRI method to exclude the cost of ISDN. Considering the myriad of manipulations to RUS and NRRI data that are being considered and recommended by various parties, this adjustment is minor.

AT&T/MCI assert that BellSouth "conceded" that the Turner Price Index does not account for technology changes or productivity improvements.[33] BellSouth does not use the Turner Price Index and is not familiar with its development or intended uses. The BellSouth comments which AT&T/MCI erroneously cite specifically refer to the Telephone Plant Index, not the Turner Price Index.

There is considerable misunderstanding about the cost LECs pay per line to vendors on new switch contracts. In BellSouth's experience these switching equipment contracts are generally for a certain dollar per "equivalent" line and not dollar per line. Omission of the word "equivalent" leads to a serious misinterpretation of the actual costs that LECs will incur. In addition, the price per "equivalent" line is designed only for particular switch configurations. In most cases, actual switch requirements are not exact matches to the contracted switch configurations. This produces additional costs to the LECs which are not properly reflected in the price per "equivalent" line. Another factor often overlooked is that such contracts may only apply to special "lot sales" of digital switches to replace particular analog switches. If a LEC is

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[33] *Id.* at 39.

purchasing a switch for reasons that do not meet the criteria of the sale, a higher price will be demanded. Additionally, vendor prices do not include the capital costs incurred by the LEC for engineering and installation of switches. For these reasons, it is incorrect to assume that quoted charges in vendor contracts represent the actual costs that LECs will incur for switching equipment.

Citing documentation from Bell Atlantic, AT&T/MCI contend that a DLC switch port should cost less than an analog line interface.[34] This statement is only true under specific circumstances and does not accurately describe the cost relationship between IDLC and analog ports. While such a result may be produced in the Bell Atlantic region with its highly dense population, a lower cost is not achieved when the percent line fill on DLC terminations is not as high as on the analog line interface – the typical situation in BellSouth's less densely populated service areas. By using data from Bell Atlantic, AT&T/MCI's argument actually gives credence to BellSouth's argument that using national average input values in the Model does not achieve the correct result. In this case, clearly company-specific, or even region-wide specific, input values would result in more accurate input values relating to DLC switch costs.

AT&T/MCI suggest that the Commission further manipulate already over-manipulated data to get all analog results; then further manipulate those results to achieve an unrealistic digital penetration; then further manipulate these results by using an unsubstantiated average

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[34] *Id.* at 41-42.

from Bell Atlantic which is not representative of the rest of the country either in population density or costs.[35] BellSouth concurs with the Staff that a digital offset is not appropriate.

AT&T/MCI further suggest at this advanced stage of model development that the switch investment be partitioned so line fill can be applied only to line investment.[36] Where partitioning can be accomplished, BellSouth has favored a partitioned approach such as that provided by an engineering program like SCIS. The approach recommended by AT&T and MCI is not, however, appropriate to the method chosen by the Staff. Because the entire switch investment is identified in relation to lines, it is appropriate to use a fill factor on the investment. To partition investment at this late stage of the process is neither practical nor acceptable. With respect to the fill factor to be used, BellSouth recommends that the word "administrative" be removed to properly characterize application of the factor and the value be reduced to an average switch fill of 80%. This fill value should be lowered further as the percent IDLC is increased.

AT&T/MCI state that BellSouth's August 7, 1998 *ex parte* (attachment to Question 1) contains recent data substantially lower than the original HAI inputs and suggests that the Commission adopt those costs.[37] AT&T/MCI again show their true colors. With no analysis and no explanation, AT&T/MCI are ready to put aside their otherwise strong conviction that the Commission should reject BellSouth and other ILEC actual data in favor of the opinions of the HAI "experts". Obviously, if ILEC data suggests lower costs, then AT&T/MCI whole-heartedly

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35 *Id.* at 42-43.

36 *Id.* at 43.

37 *Id.*

endorse that data without question. Conversely, when ILEC data suggests higher costs than HAI, AT&T/MCI argue vehemently against acceptance of that data.

BellSouth concurs with the Staff on use of the LERG database. AT&T/MCI contend that incumbents' historic deployment of switches is now inefficient but do not supply any evidence other than rhetoric to support that contention.[38] To completely redesign the established host/remote relationships would unduly delay resolution to this whole process and accomplish nothing.

## IV. EXPENSES

AT&T/MCI attempt to persuade the Commission to adopt a new standard for evaluating inputs for its cost model.[39] These parties suggest that "[t]he universal service mechanism should be based on the costs that an efficient carrier *could* achieve, not on what any individual carrier *has* achieved." Such an approach is in direct conflict with the third criterion for a cost proxy model as adopted by the Commission, which states that "[t]he study or model, however, must be based upon an examination of current cost of purchasing facilities and equipment..."[40] With this requirement, the Commission has recognized that any forward looking cost model and the inputs thereto must be grounded upon the actual costs a carrier incurs in providing universal service. If AT&T/MCI truly believed that the costs they are proposing were achievable, they would be in every location placing facilities as quickly as possible. The only logical starting point for

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38 *Id.* at 43-44.

39 *Id.* at 45.

40 *Report and Order*, 12 FCC Rcd at 8913.

estimating forward-looking expenses is the current actual expenses of the ILECs. Unlike the inputs recommended by AT&T and MCI, the inputs submitted by BellSouth accomplish the Commission's objectives. The cost levels proposed by the Commission and AT&T/MCI are not achievable and will result in an understatement of the costs of providing universal service.

AT&T/MCI suggest that one-time expenses be excluded from the Model's expense estimates through reference to SEC reports that identify one-time expenses. This suggestion provides yet another example where AT&T/MCI favor the use of actual data as a source of forward-looking data only when it is advantageous to them and oppose such use whenever the data produces higher costs.

## V. DEPRECIATION

BellSouth disagrees with comments submitted by AT&T/MCI and the General Services Administration which support the use of HAI values for depreciation factors. Using an average of lives and future net salvage amounts prescribed in past years by the Commission is inconsistent with the methodology of a forward-looking cost study. BellSouth's analysis showed Commission-prescribed lives to be too long at the time they were prescribed, particularly for the technology-sensitive accounts. They are clearly too long now for forward-looking studies. Depreciation parameters derived from historical experience cannot possibly reflect the impact of today's rapid technological changes, nor be appropriate for use in today's increasingly competitive marketplace.[41]

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[41] The Commission has itself recognized the inadequacy of historical depreciation factors. *See In the Matter of 1998 Biennial Regulatory Review – Review of Depreciation*

It is interesting to note that AT&T/MCI find the Commission's current lives "overly generous". In 1994, when the Commission last prescribed depreciation lives for AT&T, those lives were significantly shorter than the HAI values, particularly for technology-sensitive accounts. For example, the Commission prescribed a 9.7 year economic life for AT&T's Digital Electronic Switching (DESS) account. This prescription is readily comparable to BellSouth's recommended 10-year life for the DESS account. Nevertheless, AT&T/MCI now argue that a 16.17-year HAI life for this account is "overly generous".

## VI. CONCLUSION

As BellSouth demonstrated in its comments, the Commission has adopted many inputs which severely understate what it would cost a real-world carrier, operating in an efficient and forward-looking manner, to build a network capable of providing the supported services. AT&T and MCI continue to urge input changes that will lower costs even further. In general, the inputs they recommend are based on conjecture and not on actual data. BellSouth urges the

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*Requirements for Incumbent Local Exchange Carriers*, CC Docket No. 98-137, *Notice of Proposed Rulemaking*, 13 FCC Rcd 20542 (1998).

Commission to adopt cost inputs that are based on real-world experience. BellSouth and other ILECs have submitted data that provides the basis for developing realistic cost inputs.

Respectfully Submitted,

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Dated: August 6, 1999

## CERTIFICATE OF SERVICE

I do hereby certify that I have this 6th day of August 1999 served the following parties to this action with a copy of the foregoing REPLY COMMENTS by hand delivery or by placing a true and correct copy of the same in the United States Mail, postage prepaid, addressed to the parties listed on the attached service list.

Karen Bullock

Karen Bullock

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* **VIA HAND DELIVERY**

**ATTACHMENT A**

**REPLY COMMENTS OF GEORGETOWN CONSULTING GROUP, INC.**
CC Docket Nos. 96-45 and 97-160
August 6, 1999

## Cost of Copper Cable

1. At page 14 of their July 23, 1999 comments, AT&T and MCI WorldCom properly note that the Staff's methodology for determining underground cable costs is inappropriate. They also note that, left unadjusted, the Staff methodology can produce negative cable costs. This parallels comments filed at paragraph 34 of Georgetown Consulting Group, Inc.'s July 23, 1999 comments in this proceeding. AT&T and MCI WorldCom also note that the Staff altered the underground cable equation with an arbitrary fix. This manipulation by Staff, which lowers the values of copper cable, especially in the critical lower strands which affect the USF, renders the Staff inputs inappropriate. AT&T/MCI WorldCom seek to further manipulate the data to produce even lower and meaningless values for copper cable.

   AT&T/MCI WorldCom also note that the RUS data often are inaccurate "and produce systematically anomalous results." The July 23 Georgetown comments noted that the *FNPRM* proposed numerous fixes to the data, principally in the form of multiple exclusions of data, first by the authors of the NRRI report, and second by the application of the Huber approach. As mentioned, these fixes lower the values for copper cable obtained from the RUS data in the NRRI Study.

   The AT&T/MCI WorldCom solution to this problem of using inaccurate data from the RUS is:

   > In light of the foregoing, AT&T and MCI WorldCom believe that the Commission should determine copper cable *material* costs using RUS data modified, as necessary, according to the logical analysis submitted in this proceeding.[1]

   Therefore, notwithstanding their own admission that the RUS data is often inaccurate and produces systematically anomalous results, AT&T/MCI WorldCom still propose that inputs

[1] Comments of AT&T Corp., and MCI WorldCom, Inc., 15-16 , July 23, 1999.

be based on that faulty data. AT&T/MCI WorldCom's joint willingness to use admittedly inaccurate data to achieve a result they like is in sharp contrast to their position concerning optimization, in which they state:

> The Commission should not be willing to tolerate these inaccuracies, which distort the model's results, merely to shorten run times.[12]

AT&T/MCI WorldCom's recommendations to use RUS data is, of course, contingent on the Commission adopting their proposal to further manipulate and distort that data, which they claim is inaccurate to begin with.

The "logical analysis" to which AT&T/MCI WorldCom refer on page 16 of their comments is omitted from the public version of those comments. The proprietary version is not available to us at this time; accordingly, it is not possible to reply to their "logical analysis," or to even state that it is logical rather than designed to further understate cable costs.

2. On page 14 of their comments, AT&T/MCI WorldCom complain that the RUS data that is the starting point for developing the FCC-proposed inputs consists primarily of small-gauge cables. Georgetown Consulting Group, Inc. has shown that small cables most significantly affect the computation of universal service funding requirements, because small cables are used most often in the high-cost low density areas that create universal service funding requirements. Therefore, the RUS data provides input for the specific cable sizes that are important to the overall determination of the USF.

   As observed at ¶31 of Georgetown's July 23 comments, using Georgia as an example, the FCC's proposed inputs produce a universal service funding requirement of $118.9 million, derived entirely from the first two density zones. Substituting the NRRI values for copper cables of 400 pair and smaller, and for fiber cables of 36 strands and smaller, produces a 68% increase in the funding requirement to $200.2 million. Thus, getting the inputs correct will be of critical performance to a proper determination of the universal service funding requirement; and getting the inputs right for small cables will be especially critical. Using data derived from these smaller cables to derive inputs may, in fact, be a way of ensuring that the critical small-cable inputs are accurate.

   However, as stated in our July 23 comments, Georgetown does not believe that the FCC should adjust the NRRI inputs downward. In fact, when given a choice between using NRRI inputs and using company-specific cost inputs based on costs actually being faced at this time by companies, Georgetown believes that real company data is superior to any

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[12] *Id.*, 10.

other source of information for inputs. Nonetheless, *if* RUS data is to be the source of inputs, then the NRRI's results without downward adjustments by Staff and AT&T/MCI WorldCom should be considered.

3. Notwithstanding their attack on the use of arbitrary inputs when such inputs are not low enough, AT&T/MCI WorldCom then proceed to recommend the use of arbitrary inputs for the costs of cable, splicing and engineering. Page 16 of their comments recommend that these important costs should be based on "expert opinions." This proposal should be rejected, particularly where actual costs for such activities have been made available to the Commission. In effect, AT&T/MCI WorldCom are suggesting that actual, verifiable costs should be replaced with arbitrary assumptions prepared by a group of engineers; the basis for those assumptions has never been provided, in this or any other docket, nor is it based on publicly available information.

**Idealized Assumptions**

4. On pages 16 through 19, AT&T/MCI WorldCom set forth a transparently false argument for why the loading factor for copper cable splicing should be no more than 4.4%. They urge the FCC to adopt a splicing component method based on a splicing rate of 250 pairs per hour.

5. On page 17 of their comments, AT&T/MCI WorldCom criticize the use of RUS data for splicing, by noting that this data contains 160 observations of individual mechanical splicing and only 30 observations using modular splicing. They note that modular splicing is the most forward-looking splicing method. In footnote 34, they also observe that:

   > [T]hese carriers may not have set up a splicing machine to splice the small number of pairs that these (small) cables require.

   The carrier's actions may be reasonable, depending on the overall number of splices to be accomplished and the time required to setup and use a splicing machine. There is a cost attendant to setting up modular splicing machines to handle small cables, and therefore it often makes more sense to splice small cables using mechanical splicing techniques. Accordingly, the Commission should look beyond AT&T/MCI WorldCom's facile comments to understand that, quite often, there are sound, economic reasons for carrier's actions.

6. While it may be possible in isolated instances to achieve splicing rates of 250 pairs per hour, what is missing from the AT&T/MCI WorldCom recommendations and, indeed, from the FCC proposed inputs, is the practical reality that real-world situations are rarely as clean and organized as instances in which a worker can, in a short demonstration mode, splice 250 pairs per hour or more.

   There are many reasons why the FCC should not anticipate that the splicing rates recommended by AT&T/MCI WorldCom can be achieved in the real world. These reasons, which need no explanation, include: setup time, problem identification and resolution, re-work, transportation time and fatigue.

   In addition, the FCC should have some understanding of the work that is required in splicing, for example, a 300 pair cable. It is our understanding that 300 pair cables are bundled into twelve bundles, each of 25 pairs or 50 wires. In order for these to be spliced, each of the 50 incoming wires in a bundle has to be separated and matched *perfectly* to each of the 50 outgoing wires. Insulation has to be stripped from the wires, sleeves have to be placed over them to protect the final splice, and the splicing has to be performed. This process has to be performed twelve times to complete the splicing of a 300 pair cable.

   While there are ways to improve the speed with which all of these functions occur, the plain fact is that accomplishing this task for 300 pairs in one hour, the rate recommended by AT&T/MCI WorldCom, requires matching up one wire to its matching wire in less than six seconds. That may be possible for short amounts of time, but not in the long haul. And certainly not, when it is recognized that the worker either has to climb the pole or be raised to the wire level using a bucket truck, and workers have to move from site to site during the course of the day.

   Rarely is it possible to accomplish tasks in the real-world in the same way, and with the same efficiency, that can be achieved in idealized situations for short periods of time. AT&T/MCI WorldCom, both of which would benefit substantially from an understatement of costs, assume conditions that are not realizable. As a result, the "cost" of universal service that they would have the Commission compute will be nothing if not understated.

7. On page 18, footnote 36 of their comments, AT&T/MCI WorldCom correctly observe:

   > [S]ince the RUS data are based on more costly 24-gauge material, rather than 26-gauge material, utilizing a splicing cost as a percent of material investment improperly represents the cost of splicing 26-gauge cable, because splicing productivity is not affected by wire gauge.

We agree that, "utilizing a splicing cost as a percent of material investment improperly represents the cost of splicing 26-gauge cable." If, as AT&T/MCI WorldCom state, "splicing productivity is not affected by wire gauge," then splicing 26-gauge cable should have about the same dollar cost as splicing 24-gauge cable. The splicing cost, as a percent of the cable cost, would therefore be *higher* for 26-gauge cable than for 24-gauge cable, since 26-gauge cable is less costly than 24-gauge cable.

**Cost of 26-gauge Copper Cable**

8. On page 20, footnote 41 of their comments, it appears that AT&T/MCI WorldCom at the same time both accept and reject Sprint's cost data for 24 and 26-gauge copper cable.

AT&T/MCI WorldCom *accept* Sprint's costs of 24-gauge cable, noting that:

> 2400 pair 24-gauge cable costs $19.14, and a 600 pair 24-gauge cable costs $4.66. *Id.* Thus, increasing the number of cable pairs by fourfold increases cable costs by approximately fourfold.

They also *accept* Sprint's costs for 26-gauge cable:

> Similarly, Sprint's data show that a 2400 pair 26-gauge cable costs $15.33, and a 600 pair 26-gauge cable costs $3.73. *Id.* Thus, increasing the number of cable pairs by fourfold once again increases cable costs by approximately fourfold.

However, having twice *accepted* Sprint's cable cost estimates for purposes of an argument that, *within a particular gauge*, the weight of cable is an important variable explaining differences in cable costs, AT&T/MCI WorldCom then proceed to *reject* Sprint's cable cost estimates because they don't reflect AT&T/MCI WorldCom's belief that cable weight should support cost differences *between gauges*. AT&T/MCI WorldCom state that the proposed costs for 26-gauge cable are too high *relative to* the proposed cost of 24-gauge cable.

The Commission should not let AT&T/MCI WorldCom have things both ways - if the Sprint values are reasonable and accurate, then they should be used for two reasonable propositions: (1) that weight is an important consideration explaining price differences within a particular gauge of copper cable, but (2) weight is not the sole driving variable explaining price differences between gauges. Instead, AT&T/MCI WorldCom would reach the illogical conclusions that: (1) weight is an important consideration explaining price differences within gauges, as shown by the Sprint data, but (2) the Sprint data is wrong,

because it does not support AT&T/MCI WorldCom's theory that weight drives cost differences between gauges.

**Buying Power Adjustments**

9. In the July 23 comments filed in this docket, Georgetown Consulting made a number of criticisms of the large buying power adjustment proposed by the FCC. Instead of being increased, as AT&T/MCI WorldCom propose, the large buying power adjustments proposed by the FCC for buried fiber and copper cable should be eliminated because they are duplicative. The removal of "outliers" through the Huber Adjustment, and other adjustments made in developing the FCC proposed inputs, produce cable costs that are significantly below actual data that verifies the high costs that are experienced in the rural areas, which are the primary high cost areas requiring universal service support.

10. As noted above, AT&T/MCI WorldCom have employed a selective approach to criticizing the arbitrariness of the Commission's proposed inputs. They carry this to an extreme in their comments concerning buying power adjustments.

    The Commission has noted that the NRRI Study made no recommendation concerning buying power adjustments for buried fiber cable or buried copper cable. However, the buying power adjustments proposed by the Commission are:

| | Copper | Fiber |
|---|---|---|
| Aerial | 15.2% | 33.8% |
| Buried | 15.2% | 27.8% |
| Underground | 16.3% | 27.8% |

    Rather than conclude that, because of lack of data, no buying power adjustment is appropriate for buried copper and fiber cable, the Commission proposed to apply the aerial copper buying power adjustment buried copper cable, and the underground fiber adjustment to buried fiber.

    Not satisfied with this Commission-proposed arbitrary adjustment, AT&T/MCI WorldCom suggest that, instead of utilizing the lower of the available buying power adjustments, the Commission should have used the higher of the available adjustments. In other words, that buried copper should be reduced by 16.3% and buried fiber should be reduced by 33.8%.

The AT&T/MCI WorldCom approach, while arbitrary, reflects a certain consistency in that, whenever arbitrariness is applied, it is applied with the goal of reducing cost inputs and the measurement of the cost of universal service.

## Cable Fill Factors

11. AT&T and MCI WorldCom both seek to renounce the cable fill factors that they have supported innumerable times in state proceedings in which they sponsored the HAI default inputs. On page 22 of their July 23 comments, they claim that the cable fill factors that they supported in these other cases "are too low for use in a model intended solely for universal service."

    We disagree. First, as Georgetown has testified, on average, the input fills necessary to produce an output fill in the HAI Model that approximates BellSouth's actual operating fill rates, are essentially equal to the HAI Model default values. Second, the appropriate fills, which are close to the HAI Model default values, should be based on satisfying current demand, which is estimated at 1 to 2 lines per household, and on sound long-term economics.

12. It would be inappropriate to adopt higher cable fill factors, as recommended by AT&T and MCI WorldCom. High fill factors assume the totally imaginary situation in which cable sizes always are instantaneously correctly engineered and there is never a need to go back to install extra cables. If the Commission *assumes* high cable fill factors, then it should also *recognize* higher costs because the high cable fill factor assumption would require telephone companies to be constantly re-engineering their network as growth occurs. Alternatively, if the Commission wants to take advantage of the reduction in costs that occurs from sizing cables correctly in the first place, with reasonable allowances for growth, then it should also recognize that such economic placements require cable fill factor assumptions that produce output fills that approximate today's actual achieved fills.

    It is universally agreed that it is more economic for the telephone company to install extra cables, thereby providing for a reasonable amount of future growth and cable malfunctions, than to install only the precisely needed amount of cables, thereby creating a requirement to come back in the very near future to augment the entire cable system. By proposing high fill factors and every possible adjustment to minimize the measured cost of universal service, AT&T/MCI WorldCom are proposing a system that no one, including competitors, would want. It is a system that provides universally bad service at prices that are above the economic level. The Commission should reject AT&T/MCI WorldCom's recommendations to use high cable fill factors.

**Structure Costs**

13. On page 23 of their July 23 comments, AT&T/MCI WorldCom criticize the structure costs proposed by the FCC, claiming that these should be reduced by the same large-LEC buying power adjustments used to reduce the proposed inputs for fiber and copper cable. Claiming this to have been an "oversight" on the part of the FCC, AT&T/MCI WorldCom recommended reducing all structure costs by at least 16.3%.

    In so doing, AT&T/MCI WorldCom are asking the Commission to "throw out" all the data and make up the numbers, so long as the numbers are small. They have raised arbitrariness to a new art form, while ignoring factual data that is directly contrary to their proposed position.

14. "Aerial structure consists of telephone poles, and associated hardware, such as anchors and guys." *FNPRM* ¶104. At ¶107, the Commission notes:

    > The NRRI Study reports that the average material price for a 40-foot, class four pole is $213.94. We note that this estimate is very close to results obtained from the data submitted in response to the *1997 Data Request*. According to the Commission staff's analysis of these data, the unweighted average material cost of a 40-foot, class four pole is $213.97, and the weighted average, by line count, is $228.22.

    Notwithstanding this consistency between the NRRI data and the Commission's Staff's analysis, AT&T/MCI WorldCom propose to use a pole cost that is reduced by more than $34 to reflect the effect of a totally arbitrary 16.3% large buying-power adjustment.

15. On page 24 of their July 23 comments, AT&T/MCI WorldCom recommend that the Commission adopt an installation cost of $220.00 for distribution manholes. While the particular placement of the footnote in their recommendation suggests that this installation value was obtained from PenCell's website, a search of that site indicates that PenCell has provided no information concerning installation costs. Therefore, the AT&T/MCI WorldCom installation recommendation is unsupported.

## Distribution Plant Mix

16. On page 27 of their July 23 comments, AT&T/MCI WorldCom observe that BellSouth provided "data showing that the *maximum* percentage of underground distribution plant in any of its 9 states was a mere 2 percent." Accordingly, AT&T/MCI WorldCom urge the Commission to reduce the underground structure input.

    The Commission should reject this proposal. AT&T/MCI WorldCom seek to use embedded data - BellSouth's embedded overall percentage of underground distribution facilities - in a forward-looking cost study. The Commission has repeatedly stated its intention to use forward-looking assumptions. Oftentimes, these assumptions produce costs below the actual costs incurred by the telephone companies. For example, with regard to DLC, in many of BellSouth's states, approximately 15% of the lines are served using DLC. Nonetheless, usually, over one-half of the lines in a forward-looking cost model are served using DLC.

    Just as the Commission rejects the use of embedded data by allowing the forward-looking cost model to reflect high levels of DLC - levels that don't exist in the real world and are not likely to exist for years to come, the Commission should also reject the use of embedded data for distribution plant mix.

## Structure Sharing

17. Page 29 of the July 23 comments of AT&T/MCI WorldCom urge the Commission to adopt unreasonable and unachievable levels of structure sharing, thereby eliminating much of the cost of providing a forward-looking telecommunications network by assuming that such cost would be borne by electric, cable and other utilities. AT&T/MCI WorldCom point to three reasons why sharing should be greater than the level reflected in the Commission's proposal:

    > Congress believed at least three parties would use the incumbent LECs' outside plant structures, and thus provides for compensation on that basis. In addition, more and more municipalities are adopting similar regulations that require utilities and telecommunications companies to share their structures. Further, builders often provide trenching in new subdivisions for use by cable, electric, and telephone companies to facilitate placement of wires and to minimize cable cuts.

    Contrary to AT&T/MCI WorldCom's collective belief, none of these reasons supports an assumption of high levels of structure sharing for universal service purposes.

First, even if Congress believed that there would be at least three parties sharing outside plant structures, that does not mean that there will actually be such sharing. Congress' position concerning the actual number of entities that would be sharing such structures is not stated in the Act. Nonetheless, even if Congress' position were stated, that position would be an unsupported assumption, which is, as AT&T and MCI WorldCom have stated in their comments, is an inappropriate basis for establishing the universal service fund.

Second, the references to municipality requirements and builder actions in new subdivisions says nothing about the requirements in the vast majority of developed areas in the United States. While the Commission has adopted a forward-looking scorched-node approach to determining the costs of providing universal service, the electric and cable utilities, and anyone else who might want to share outside structures, are not preparing to tear out their facilities and start over.

18. The Commission should pause to consider what would happen if its assumptions concerning the forward-looking scorched-node approach actually were implemented.

    In such a scenario, the telephone companies would be faced with the massive task of constructing all of their existing feeder and distribution systems, in physical environments in which the cable and electric utilities are already installed. Therefore, if the telephone company were placing underground facilities in a location in which electric facilities already were underground, the telco would face increased costs in having to avoid and route its facilities around those of the electric company. There would be little opportunity for sharing, except in those relatively rare instances in which the electric utility would be interested in replacing its already-existing facilities.

    While there might be some sharing in new subdivisions and areas - and even there, the opportunities for sharing are limited and do not come without increased costs of coordination and securing open trenches - there would be virtually no sharing in already-developed areas.

19. Instead of making the wholly unreasonable assumption that *all utilities* will be replacing their facilities at the same time, the cost of universal service should be based on the real-world reality that the forward-looking telephone network has to be constructed in an environment in which there will be very little opportunity to share with other utilities. Placing telephone facilities where other utilities already exist does not provide an opportunity for sharing, regardless of what might happen in new areas.

    The statement at page 30 of the July 23 AT&T / WorldCom comment that "cable plows bury more than one cable simultaneously," even if true, is irrelevant. A cable plow that

buries several types of cable at one time is only going to bury one cable - the telephone cable - in an existing subdivision. At a minimum, it would be necessary to incur additional costs of locating and marking existing buried cables of other utilities. It may not even be possible for the forward-looking scorched-node telephone utility to use a cable plow - it may have to hand dig in order to avoid disrupting the existing service of the other utilities! Thus, instead of being less expensive, the forward-looking scorched-node assumptions, in an environment where other utilities are not also replacing their facilities, likely will lead to increased costs.

20. At page 31 of their July 23 comments, AT&T/MCI WorldCom state:

> Indeed, the decision of a utility to place expensive underground conduit frequently is driven by the expectation that this extra cost will be recouped through increased opportunity to lease ducts to other users.

While this may be true in the future, it is not true at this time. Utilities generally do lay extra conduit. They do so, however, not in anticipation of future rentals, but to avoid higher future maintenance costs. Plainly, it is less expensive to install extra conduit when conduit is being installed, and then to utilize that conduit when needed rather than to dig up the street, remove existing conduit, and replace it with additional conduit space when such space is needed.

In addition, it is ironic that AT&T/MCI WorldCom would be pointing to the business opportunity of leasing conduit space, which is an opportunity that they have consistently foreclosed in their application of the HAI Model. That model provides for 1 spare tube per route, which is far fewer spare tubes than normally are constructed by telephone utilities. Now, after they have consistently assumed implementation of conduit with limited future opportunities for leasing conduit space, AT&T and MCI WorldCom ask the Commission to assume that utilities are placing extra conduit for the very opportunities that have been precluded! AT&T/MCI WorldCom should not be allowed to have it both ways - if they want the Commission to assume that no extra cost is being laid in determining costs, then the Commission should also make that assumption for purposes of structure sharing.

**Switch Port Administrative Fill Factor**

21. On page 43 of their comments, AT&T/MCI WorldCom attempt improperly to "correct" the Commission's application of the 94% switch port administrative fill factor. Specifically, they claim that it is inappropriate to apply this fill factor against the entire switch investment. They recommend that the Commission adopt a 98.2% factor, based on the following computation:

$$30\% \times 94\% + (100\% - 30\%) \times 100\% = 98.2\%$$

where 30% is portion of the switch that is port-related. AT&T/MCI WorldCom also state:

> The switching and interoffice module formulas currently apply the fill factor input against the entire switch investment.

While we cannot comment on that claim, we can state an appropriate position for the Commission's consideration. The switch port administrative fill factor should be divided into the number of working lines to be served by a switch to compute the number of equipped lines to be provided in the switch. The total switch investment should then be predicated on the total number of equipped lines. Failure to do so will understate the number of spare lines available in a switch, leading to inadequate investment and decreased quality of service.

The AT&T/MCI WorldCom proposal would not achieve that result. For example, if an office services 940 working lines, the installed switch should be capable of serving 1,000 equipped lines [940 / 94%]. The AT&T formula would provide a switch capable of serving only 957 lines [940 / 98.2%], which means that only 17 lines would be spare. In total, AT&T/MCI WorldCom would allow for only an additional 1.8% of lines [17 / 940] to handle all of the purposes for which spare lines are needed: churn, number changes, dual service and bad plug-ins. This 1.8% is simply inadequate, as shown by historical records. There is nothing about a forward-looking regime that is going to reduce the requirements for spare lines to be used for administrative purposes. Accordingly, the Commission should reject the AT&T/MCI WorldCom proposal that the switch port administrative fill be increased to 98.2%.