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March 17, 2004

VIA HAND DELIVERY

Hon. Deborah Taylor Tate, Chairman
Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, TN 37238

Re: *Implementation of the Federal Communications Commission's Triennial Review Order (Nine-month Proceeding)(Switching)*
Docket No. 03-00491

Dear Chairman Tate.

Enclosed are the original and fourteen copies of Surrebuttal Testimony from the following witnesses on behalf of BellSouth

Deborah Aron (public)	Christopher Pleatsikas
Randall Billingsley	Jim Stegeman
Kathy Blake	Pam Tipton (public)
Wayne Gray	Al Varner
Keith Milner	

Proprietary exhibits on behalf of Mr. Stegeman, Mr. Milner and Ms. Tipton, and proprietary testimony on behalf of Dr. Aron are being submitted under separate cover subject to the terms of the Protective Order entered in this docket. Copies of the enclosed are being provided to counsel of record

Cordially,

Joelle Phillips

JJP:ch

CERTIFICATE OF SERVICE

I hereby certify that on March 17, 2004, a copy of the foregoing document was served on the parties of record, via the method indicated:

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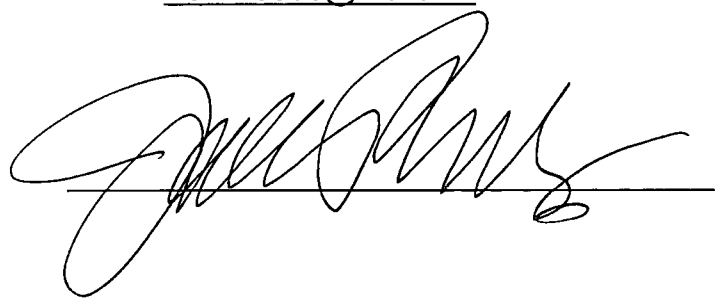


BELLSOUTH TELECOMMUNICATIONS, INC.

SURREBUTTAL TESTIMONY OF DR. DEBRA J. ARON

BEFORE THE TENNESSEE REGULATORY AUTHORITY

DOCKET NO. 03-00491

March 17, 2004

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME.

A My name is Debra J Aron.

Q. ARE YOU THE SAME DEBRA J. ARON WHO FILED DIRECT AND REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. Yes, I am

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. My surrebuttal testimony rebuts the economic arguments made by Mr Wood (AT&T), Dr. Bryant (MCI), Mr. Klick (AT&T), Mr. Brown (CAPD) and Mr Bradbury (AT&T) on a number of topics.

Q. ALL PARTIES HAVE DIRECTED THIS AUTHORITY TO VARIOUS PORTIONS OF THE FCC'S TRIENNIAL REVIEW ORDER ("TRO") AND TO THE RULES IN SUPPORT OF THEIR POSITIONS IN THEIR DIRECT TESTIMONY. WHAT IMPACT DOES THE D.C. CIRCUIT COURT'S ORDER IN ITS *VACATUR AND REMAND* HAVE ON THE USE OF THE TRO IN THIS PROCEEDING?

I'm not a lawyer, but it appears to me that the impact of the Court's opinion on the TRO and the rules is unclear. At the time of filing this testimony, my understanding is that the Court had vacated large portions of the rules in the TRO, but stayed the effective date of the opinion for at least sixty days. I understand that the TRO remains intact for now, but that the TRO and the rules must be viewed warily, especially in light of the Court's harsh condemnation of large portions of the TRO Accordingly, I would like to reserve the right to supplement my testimony, as circumstances dictate, and as the situation becomes clearer.

Q. PLEASE SUMMARIZE YOUR SURREBUTTAL TESTIMONY.

A The arguments that I respond to typically are based on one of several themes. The first reflects a desire to re-write the TRO more to the witnesses' liking, or re-argue some of the positions that were considered and rejected by the FCC in its

determination of its rules. For example, Dr. Bryant and Mr. Wood counsel this Authority to simply ignore the FCC's requirement to examine a "potential deployment" analysis. Mr. Wood argues that if potential deployment indicates "no impairment" in markets that do not pass the triggers tests, the results must be wrong, because we do not observe facilities deployment sufficient to pass the triggers tests, and because we have observed failure in the past. Besides being contrary to the directions provided by the FCC, and totally irrelevant to the task at hand, such arguments fail to consider the economic fact that CLECs select their method of competitive entry, such as UNE-P or UNE-L, *not* solely on the basis of unimpairment, which is the topic of this proceeding, but also on the basis of what is most profitable to the CLEC given the options available. It is therefore unreasonable from an economic perspective (as well as contrary to the plain language of the TRO) to rely solely on actual deployment as a basis for determining unimpairment.

A second set of criticisms involves the structure of the BACE model. For example, there are subjective declarations by one witness that the model is overly sensitive, and by another witness that it is not sensitive enough. Such subjective criticisms are, of course, without merit. In other instances, I believe that the basis of the criticisms is a result of a misinterpretation by the witness of the model structure or how one goes about implementing an assumption change, or some combination of these. Later in my testimony, I will clarify instances where parties have

misunderstood or misinterpreted the model With regard to the various re-runs of the BACE model, I have not been entirely successful in replicating all of the results that have been described in the rebuttal testimonies However, nothing that I have seen, replicated, or attempted to replicate changes any of my conclusions regarding the markets in which we have found that CLECs are "unimpaired" without unbundled local switching, and to a large extent, these runs demonstrate that my results are robust to a variety of assumption changes

The third general area of complaint pertains to the parameter estimates that I provided to the BACE model In determining these estimates, I recognized that the FCC is very clear that the potential deployment analysis should be based on an efficient CLEC using the "most efficient network architecture available" and executing the "most efficient business model." (TRO 517.) The FCC also notes that it is appropriate to "weigh[ ] advantages and disadvantages" (TRO 517) that may be available to the efficient CLEC.

While these requirements provide substantial discretion, my approach is very conservative. We model a generic, new CLEC that seeks to enter the market without any customers or any real-world advantages such as a brand name. My parameter estimates, such as those regarding customer acquisition costs, General and Administrative ("G&A") expenses, and churn are developed from existing ILEC, CLEC, or industry data, which means that these estimates may be more

conservative than what an efficient CLEC could attain Moreover, where appropriate data were available, I based my estimates on averages and midpoints rather than on best-of-class (or better-than-existing) ILEC, CLEC, or industry figures, even though these best-in-class figures might arguably better represent the prospects of an efficient CLEC executing the most efficient business model.

The criticisms of my parameter value estimates either point to actual CLEC performance, or they seek to perversely handicap the hypothetical CLEC, depending on whichever contributes toward a finding of "impairment" For example, several of the witnesses claim that the assumed market penetration in the first year for residential customers is too high. Notwithstanding the fact that they misinterpret how the BACE model uses this data (it essentially cuts the market penetration in half when computing revenues for the year), even a casual glance at reality would demonstrate that real-world firms already have an existing base of UNE-P customers and that they do not start from a base of zero, as the modeled CLEC does. Consistent with the FCC's directions, we could have modeled a CLEC that begins with some level of UNE-P-based customers (and revenues). Instead, we adopted the conservative approach that the CLEC starts with no customers at all Witnesses such as Mr. Wood and Mr. Klick essentially argue that this is not conservative enough for them. As I have noted, the fact that BACE models a startup reflects substantial conservatism on our part. We legitimately could have modeled a CLEC as an existing, going concern with an existing base of

UNE-P customers. That we did not means that there may be more real-world "non-impairment" than what is indicated by our BACE results.

As another example, there are criticisms of my recommended residential customer acquisition costs These costs were developed from *actual CLEC expenses* as reported to investment analysts. Dr. Bryant recommends that customer acquisition costs be developed partly on the basis of what *wireless* companies incur, even though these costs may include the cost of the handset. This is unreasonable. In addition, as I describe later in my testimony, the use of actual CLEC data to determine customer acquisition costs is conservative because UNE-P-based CLECs can have the incentive to spend inefficiently high amounts to acquire customers

There are also criticisms of the prices that I recommend for use in the BACE model. The FCC foresaw that price would be a contentious issue, and instructed us to base the modeled prices on existing prices. I therefore developed prices on the basis of existing CLEC bundle prices and discounts from BellSouth's prices for *a la carte* services. Consistent with the FCC's directions, we kept prices constant over the entire time horizon of the model. Although not required by the TRO, to be consistent, we kept costs constant as well, and did not adjust them downward for any gains in productivity that an efficient CLEC might arguably attain In another example of trying to re-write the TRO, several of the witnesses recommend that we put prices on a downward trend based on speculation about the future (though none

noted or complained about our declining to impose a productivity factor on costs over time)

In sum, the model that we present takes a cautious, conservative approach to switch-based CLEC entry The services that the CLEC is assumed to offer are services that CLECs offer today, and the prices are based on prevailing prices. The costs associated with customer acquisition, G&A, and the like also are based on industry data. Our approach implements the FCC's requirement to consider an efficient CLEC, but it does not come close to testing the limits of that requirement. Our results therefore should provide the Tennessee Regulatory Authority ("TRA" or "Authority") with a reasonable indication of the prospects for successful economic entry by a switch-based CLEC in the BellSouth territory in Tennessee.

Q. HOW IS YOUR SURREBUTTAL TESTIMONY ORGANIZED?

A In section II, I respond to interpretations that other witnesses seek to ascribe to the TRO. In section III, I respond to issues related to competition In section IV, I respond to criticisms and misrepresentations of the operations of the BACE model. In section V, I respond to testimony regarding the implementation of the "efficient CLEC" requirement of the TRO Finally, in section VI, I respond to criticisms of the various parameter values that I provided in the BACE model.

II. REBUTTAL OF ISSUES RELATED TO THE INTERPRETATION OF THE TRIENNIAL REVIEW ORDER

Q. DR. ARON, PLEASE GENERALLY DESCRIBE THE CONTENTS OF THIS SECTION OF YOUR TESTIMONY.

A. Several of the witnesses offer recommendations that amount to re-writing the requirements of the TRO. I will discuss why these recommendations are in error and should be rejected.

Q. MR. WOOD ARGUES THAT THE "POTENTIAL DEPLOYMENT" ANALYSIS CAN IDENTIFY CAUSES OF IMPAIRMENT, BUT THAT IT MAY NOT BE VALID TO DETERMINE WHETHER THERE IS ANY IMPAIRMENT. (WOOD REBUTTAL 17-18.) PLEASE COMMENT.

A. Mr Wood's argument is directly contrary to the express language of the FCC's rules and the intent of its TRO. Mr. Wood repeats a similar erroneous argument that Mr Gillan made in his direct testimony. (Gillan Direct 17-19.) The erroneous argument is that if there is insufficient actual deployment to satisfy the triggers test, any potential deployment analysis that indicates "no impairment" must, in some way, be flawed. As a result, the business case approach can only be used to

identify possible reasons for impairment, and not impairment itself. (Wood Rebuttal 8-9, 17-18.) This is nonsense

A plain reading of the FCC's rule (51.319(d)(2)(iii)(B)) and paragraphs 515 to 520 of the TRO (which describe the factors that the state commission should consider in its potential deployment analysis) shows that there is no support for Mr. Wood's argument. It is clear from those paragraphs and from the rules themselves that the purpose of the potential deployment test is to help the TRA identify markets where CLECs are not impaired without access to the switching UNE precisely in situations where the triggers are not met

There is a valid economic reason that the FCC provided for such a test. A CLEC's decision about switching deployment depends not only on what is feasible, but also on what is most profitable under the relevant market conditions The rational CLEC selects the most profitable method of entry from the set of feasible methods. Thus, while the existence of actual CLEC self-deployment (or wholesaling) of switching clearly demonstrates that there is no impairment in that geographic market, *an observed lack of deployment sufficient to satisfy the triggers test cannot by itself indicate that there is impairment* for two reasons. First, as I explained in my rebuttal testimony, failure to satisfy the triggers test does not mean that there is no facilities-based competition. For example, a market may have two, robust switch-based CLECs serving the mass market and others serving the enterprise

market. Such a situation would fail the triggers test The FCC noted that the existence of such competition is nevertheless relevant to the analysis of impairment. Second, a rational CLEC may select UNE-P, and the use of the ILEC's network, *even if there is no impairment associated with self-provisioning.*

For example, suppose a CLEC could generate a net present value (discounted profits) of $100 using its own infrastructure to enter a market, but that it can generate $200 of value using the incumbent's infrastructure. The positive NPV from self-provisioning means, by definition, that the CLEC is unimpaired without access to unbundled switching. Nevertheless, a rational firm would select the second alternative because it is more profitable

Q. MR. WOOD CLAIMS THAT ACTUAL DEPLOYMENT (OR LACK THEREOF) SHOULD BE A REALITY CHECK TO A POTENTIAL DEPLOYMENT ANALYSIS BECAUSE CLECS WILL DEPLOY THEIR OWN SWITCHES WHENEVER IT IS FEASIBLE. (WOOD REBUTTAL 10.) PLEASE COMMENT.

A Mr. Wood's argument is profoundly mistaken. As I discussed, a CLEC rationally will select its entry method based not only on feasibility but also on relative profitability

Q. DOES THE POTENTIAL DEPLOYMENT ANALYSIS ASK THE TRA TO IDENTIFY AN "AS-YET HIDDEN FORMULA FOR *POTENTIAL* SUCCESS" AS CLAIMED BY MR. WOOD? (WOOD REBUTTAL 18.)

A. No. The purpose of the analysis is to identify situations where it is economic for an efficient CLEC to serve mass-market customers without access to the switching UNE As I explained, in situations where actual deployment is feasible, CLECs may nevertheless use UNE-P if UNE-P is more profitable That is why a simple review of actual deployment is insufficient for determining impairment

Moreover, the existence of UNE-P in markets where there is no genuine impairment can harm switch-based firms, and reduce their survival prospects. One reason (among others) is described in a paper by Hazlett and Havenner, which I described in my direct testimony. UNE-P-based firms that operate in areas where there is no genuine impairment have the incentive to spend inefficiently high amounts of money on customer acquisition. In areas where there is no genuine impairment, UNE-P provides CLECs with the ability to maintain flexibility and lack of commitment to a market because the CLEC need not invest in its own switching. UNE-P-based CLECs have the incentive to dissipate this value by competing against the ILEC and against one another on the only dimension that they fully control, which is marketing and customer acquisition. This inefficiently high spending harms switch-based CLECs that seek to operate in the same market

but which do not have the windfall that is available to UNE-P-based CLECs Accordingly, the market is distorted away from UNE-L-based firms. As a result, the TRA cannot rely on whether switch-based CLECs have exited the market or have become UNE-P firms. It is not a matter of finding any hidden formulas, but rather of accounting for the distortions that exist in markets where UNE-P is offered but where there is no genuine impairment.

Q. DR. BRYANT ARGUES THAT BECAUSE OF UNCERTAINTY REGARDING THE PARAMETER ESTIMATES, THE TRA SHOULD NOT DRAW ANY CONCLUSIONS ABOUT IMPAIRMENT IN ANY MARKET IN TENNESSEE ON THE BASIS OF THE POTENTIAL DEPLOYMENT ANALYSIS. (BRYANT REBUTTAL 38-39.) PLEASE COMMENT.

A This is another example of an attempt to re-write the TRO. The potential deployment analysis necessarily requires judgment in making the estimates of the parameters required for a business case analysis. However, any experienced observer should recognize that this is no different from many other decisions in the real world, including actual investment decisions, which are always based on projections and estimates of an uncertain future. Investors and businesses routinely must make substantial commitments under uncertainty, given the information available Dr. Bryant's contention that the TRA should ignore the FCC's rules because the business case approach can produce different results if different inputs

and assumptions are used is to presume that the FCC failed to understand that business cases are sensitive to their input assumptions. There is ample evidence in the TRO, however, that the FCC fully recognized this fact (TRO 483-485, fn 1600), but it ordered state commissions to consider such analyses nevertheless.

Q. MR. WOOD ARGUES THAT THE COST OF A SWITCH AND THE NEED TO BACKHAUL TRAFFIC CREATE AN ENTRY BARRIER. (WOOD REBUTTAL 15-16.) PLEASE COMMENT.

A. Mr. Wood improperly presumes the outcome of this case. Moreover, Mr Wood's argument is actually nothing more than a reprise of the invalid impairment framework sponsored by Mr. Turner, to which I responded in my rebuttal testimony. (Turner Direct 5-7) Mr. Wood essentially seeks to define an entry barrier as being a cost disadvantage relative to the ILEC (Wood Rebuttal 15-16.) As I explained in my rebuttal testimony, the FCC examined and rejected this interpretation of impairment. (Aron Rebuttal 30-33, TRO 84 and 112.) The economic rationale for the FCC's rejection of this argument is that, despite any cost disadvantage, an efficient CLEC may nevertheless find entry to be profitable without access to the unbundled element. The FCC correctly recognized that the entire issue of whether CLECs suffer cost disadvantages relative to the ILEC is a sideshow that does not address the central economic issue of impairment.

Q. MR. WOOD ARGUES THAT ANOTHER RISK FACING THE EFFICIENT CLEC IS THAT IT STARTS WITH NO CUSTOMERS AT ALL, WHEREAS THE ILEC ALREADY HAS CUSTOMERS. (WOOD REBUTTAL 15.) PLEASE COMMENT.

A. This is not precisely correct Out of an abundance of conservatism, we have *elected* to model the competitive entry of a CLEC that starts without any customers We took this approach to demonstrate that *even if* an efficient CLEC were to start without customers, it nevertheless could profitably enter particular markets. The obvious reality is that CLECs such as AT&T, MCI, and others already have mass-market customers that they are serving using UNE-P According to the TRO, one legitimately could have modeled the efficient CLEC as starting with some level of penetration via UNE-P and then migrating those customers while gaining new ones. The TRA should keep this additional source of conservatism in mind as we discuss the other parameter estimates later in my testimony.

Q. IS IT CONSISTENT WITH THE TRO TO DETERMINE IMPAIRMENT ON THE BASIS OF WHETHER "ALL" CUSTOMERS THAT CAN BE SERVED BY UNE-P ALSO CAN BE SERVED BY UNE-L OR SOME OTHER FORM OF COMPETITIVE SUPPLY, AS CLAIMED BY DR. BRYANT? (BRYANT REBUTTAL 14.)

A The CLEC that we model in BACE offers service to *every* customer in each market (and in each wire center in that market) in which it operates. The model takes customers from every spend category and from every wire center In this way, the BACE model would seem to address Mr. Bryant's concern. However, I will add that Mr. Bryant's proposal to make such an investigation is interjecting an additional layer of analysis that is not required by the TRO The TRO specifically requires consideration of the *most efficient business model*, and not of a particular model, such as UNE-P. Moreover, the TRO does not suggest that switch-based CLECs must serve precisely the same set of customers as are served under UNE-P. Indeed, this would seem to be an impossible standard to implement because it would require a separate, granular analysis of which customers could be economically served via UNE-P. Such an additional layer of analysis is neither appropriate, nor called for in the TRO, and would further burden an already challenging proceeding.

III. RESPONSES TO ISSUES REGARDING COMPETITION THEORY

Q. MR. WOOD SAYS THAT BELLSOUTH'S ABILITY TO REDUCE PRICES TO WIN BACK CUSTOMERS WOULD DISCOURAGE A PRUDENT CLEC FROM MAKING INVESTMENTS IN THE FIRST PLACE AND

WOULD THEREFORE DISCOURAGE ENTRY. (WOOD REBUTTAL 17.) PLEASE RESPOND.

A. While competition may cause some prices to decrease in the market, such price decreases should be applauded by the TRA, and not treated as a reason to discourage competition. I believe it would be perverse public policy indeed if the TRA were to decline to relieve the incumbent of a UNE obligation on the grounds that doing so might unleash additional price competition. While I understand that Mr. Wood is attempting to paint a scenario in which CLEC entry would not occur despite a lack of impairment, I am aware of no evidence, and Mr Wood provides none, that this is a realistic concern. Certainly, if the FCC believed this to be a realistic concern it would not have established the impairment rules it did. Under the FCC's rules established in the TRO, the incumbent's ability and desire to win back customers is not identified as a barrier to entry, except perhaps insofar as it is a component of a CLEC's churn. The BACE model reflects reasonable churn assumptions, and therefore accounts for this concern.

Q. WOULD YOU RESPOND IN THE SAME WAY TO MR. KLICK'S CONCERN THAT BELLSOUTH WILL REDUCE ITS PRICES TOWARD SHORT- AND MEDIUM-TERM COST? (KLICK REBUTTAL 29-30.)

A Yes While competition may cause some prices to decrease in the market, such price decreases should be applauded by the TRA. Of course, Mr. Klick limits his observations about the potential for price decreases to the "short" and "medium" term, perhaps realizing that over the longer term, surviving firms in the industry should be expected to earn their risk-adjusted cost of capital

IV. RESPONSE TO ISSUES REGARDING THE BACE MODEL

Q. PLEASE DESCRIBE THE CONTENTS OF THIS SECTION.

A. In this section, I respond to comments and criticisms regarding the way the BACE model implements the business case analysis that is required under the TRO

A. RESPONSE TO ISSUES REGARDING THE STRUCTURE OF THE BACE MODEL

Q. MR. KLICK CLAIMS THAT THE SUPPORTING WORKPAPERS UNDERLYING THE PREPROCESSED DATA WERE NOT PROVIDED. (KLICK REBUTTAL 16) IS HE CORRECT?

A. No. Sprint's first request for production of documents in Florida requested the supporting workpapers and they were provided in January 2004 along with a

memorandum describing the computations performed. The workpapers are applicable to Tennessee. I understand that the parties have agreed that the documents provided in Florida can be utilized in Tennessee.

Q. MR. KLICK SEEMS TO FIND THAT RESIDENTIAL CUSTOMERS WOULD BE NPV NEGATIVE EVEN IN SITUATIONS WHERE THE OVERALL MASS MARKET HAS A POSITIVE NPV. (KLICK REBUTTAL 42-44.) PLEASE DISCUSS.

A. Even in instances where that may occur, the TRO requires an investigation of the mass market, not of residential and business customers. (TRO ¶¶ 507-508) This is for a good reason When there are economies of scope it may not be profitable to serve either residences or businesses (on a standalone basis), but it may be profitable for the CLEC to serve both. For example, if the CLEC were to serve only SOHO customers, it would have to pay an increased portion of indirect costs. Thus, the only way that the CLEC would lack the incentive to serve residential customers is if the direct costs of serving residences was less than the total expected residential revenues. Mr. Klick has not demonstrated that this is the case in any market

Q. MR. KLICK CLAIMS THAT IN SOME SITUATIONS, THE NPV ASSOCIATED WITH LOCAL EXCHANGE SERVICE FOR

RESIDENTIAL CUSTOMERS MAY BE NEGATIVE EVEN IF THE OVERALL NPV FOR RESIDENTIAL CUSTOMERS IS POSITIVE (DUE TO REVENUES FROM LONG DISTANCE, DSL, AND VOICEMAIL, FOR EXAMPLE). (KLICK REBUTTAL 43-44.) PLEASE COMMENT.

A. This is another instance where Mr Klick ignores the beneficial effect of economies of scope. In this instance, the source of economies of scope is the ability of the CLEC to provide multiple services using certain network assets (and therefore costs) that are shared For example, when a CLEC leases the UNE loop, the CLEC is able to generate revenues from different services that all use the loop, all of which can provide some contribution to the recovery of this shared cost Such services that use the loop include long-distance service, DSL, central office features, and other services such as voice mail. It may be the case that it would not be economic for the CLEC to lease a UNE-L simply to provide one of those services, but in some combination, it can be profitable. A business case should account for economies of scope where they exist. I believe that this is the reason that the TRO requires state commissions to consider *all* revenues when evaluating a potential deployment business case. (TRO ¶ 519.)

Q. IN PERFORMING THE OPTIMIZATION ROUTINE, DOES THE BACE MODEL "OFFSET" THE MASS MARKET WITH THE ENTERPRISE

MARKET NPV AS CLAIMED BY DR. BRYANT? (BRYANT REBUTTAL 30.)

A. Absolutely not. The NPV for the mass market is determined only from the revenues derived from, and costs attributed to, the mass-market customers. A market passes the unimpairment test only if the NPV *for the mass market* is positive. The markets that are listed in Revised Exhibit DJA-02, in my Rebuttal testimony, were all found to have positive mass market NPV The NPV derived from the overall combination of customers (i.e., mass market + enterprise) was not the criterion for impairment. Hence, there is no possible subsidy from the enterprise market to the mass market. Moreover, in determining which markets are NPV positive, the BACE model computes mass market NPV in a very conservative manner by including a portion of joint and common costs in the cost structure for serving the mass market For example, a CLEC rationally would elect to serve both enterprise and mass-market customers even if the mass market covered only its incremental costs (including a normal return to the incremental investments), and no shared or common costs if the enterprise market generated positive NPV on a stand-alone basis. The BACE model nevertheless assigns a portion of shared and common costs to the mass market in the NPV computation

Q. PLEASE COMMENT ON MR. WOOD'S CLAIM THAT THE MODEL STRUCTURE "LOCKS" THE TIME HORIZON ASSUMPTION AT 10 YEARS. (WOOD REBUTTAL 7.)

A Mr. Wood's comments on this topic represent a total lack of comprehension of what a business case is and how the BACE model implements the business case The BACE model is a discounted cash flow model that *explicitly* accounts for a 10-year horizon, but it also accounts for the value of the firm that is generated *beyond* 10 years. It is important to understand that the NPV of a properly constructed business case is completely unaffected by the number of years that are explicitly modeled. That is, the NPV results of a particular business case that uses a 5-year explicit forecast and a terminal value (for the years 6, 7, 8, 9, . . .) will be (or should be) identical to the results of a 10-year explicit forecast and a terminal value (for the years 11, 12, 13, ..). This is because the terminal value represents the NPV of the remaining (unmodeled) years out to, potentially, an infinite horizon. This can be summarized as:

NPV = NPV of Explicitly Modeled Years + Terminal Value

A business case has this structure because the firm's value (i e., NPV) is (or should be) determined on the basis of economic fundamentals of demand, revenues, and costs over the entire potential horizon of the project, not on the basis of the number

of years one explicitly models. In any business case analysis, one cannot appropriately create or destroy value simply by changing the number of years that are explicitly modeled. The number of years that are explicitly displayed should be sufficient to demonstrate that the firm is beyond its start-up phase. Mr Wood is welcome to use a shorter explicit time horizon if he wishes, but he must adjust the terminal value appropriately

Q. MR. KLICK ALSO CLAIMS THAT THE BACE MODEL'S TERMINAL VALUE COMPUTATION IS "CONCEPTUALLY FLAWED." (KLICK REBUTTAL 40.) WOULD YOU PLEASE ADDRESS MR. KLICK'S DISCUSSION?

A Mr Klick argues that (1) the BACE model assumes that the CLEC sells its assets at the end of year 10, and that (2) the terminal value assumes that the CLEC remains profitable after year 10. (Klick Rebuttal 40.)

Mr. Klick's first point is not correct; we do not assume anything about the sale of the firm. In any event, whether or not a firm sells its assets at the end of year 10 or at any other time does not affect the NPV of a firm's business case The NPV of a firm is determined by the discounted cash flows. Indeed, according to finance theory, the price of an asset sale should bear a relationship to (if not determined by) the expected future cash flows. As a result, even if the assets are sold, they still

have value as a going concern business. Indeed, undivided interests in a publicly traded firm's assets (and expected profitability) are sold every day in the stock market. Even when the sales amount to changes in management (as has occurred, for example, when AT&T sold its cable business to Comcast, and as is occurring as AT&T Wireless attempts to sell its business to Cingular), the assets remain in production and continue to generate income for their owners. In sum, the value of the firm is determined from the cost and revenue fundamentals, not who happens to own the rights to the profits.

Mr Klick's second point, that we should "test" whether the firm remains profitable in each year from year 11 to year "infinity," is simple nonsense. (Klick Rebuttal 40.) There is no reason to model every year into eternity to understand whether a business case has a positive NPV. Standard texts on business case valuation do not call for a business case model into eternity, but instead they note that an estimate of terminal value is *essential* to a business case valuation for a going concern. (See, e g., Tom Copeland, Tim Koller, Jack Murrin, *Valuation Measuring and Managing the Value of Companies* (2nd ed.), (1994) (New York: John Wiley & Sons), Chapter 9. Hereafter, *Copeland et al*)

From an economic standpoint, Mr Klick's idea of "excluding" the terminal value implies that the firm operates for 10 years and that, at the close of business on December 31 of the 10th year, everyone puts down his or her tools and walks away

from the business. If the terminal value were zero, this would imply that the business is abandoned and is neither sold for scrap nor anything else In other words, under Mr. Klick's notion, all of the accumulated goodwill and all of the tangible assets invested (some of which are invested in year 9, for example) are abandoned and no economic value is derived at all from them. This is an unreasonable method of estimating terminal value Accordingly, the TRA should reject Mr. Klick's flawed idea

Q. DOES YOUR TERMINAL VALUE ASSUMPTION MEAN THAT THE CLEC NEVER INVESTS IN ANY MORE EQUIPMENT?

A No It simply means that any investment after year 10, of, say $50, will provide (on a discounted basis) exactly $50 in expected return. In this way, expected economic profit after year 10 will be zero (on any incremental investment).

B. RESPONSE TO ISSUES REGARDING MODEL SENSITIVITY

Q. WHAT ARE THE ISSUES REGARDING MODEL SENSITIVITY?

A. Several of the witnesses claim to have re-run the BACE model using their own input assumptions. (Bryant Exhibits MTB-10, and 12, Wood Rebuttal at (e.g.) 31) Based on the runs that I have made to date, it seems that the differences in the parties' positions are primarily the result of different input assumptions, rather than

a quarrel over the validity of the model itself. This general robustness of the results to changes in assumptions should provide the TRA with the confidence that the BACE results are not overly sensitive to any particular assumption Of course, if one were to adopt sufficiently grim assumptions for a sufficient number of inputs, no matter how ill founded, the modeled CLEC would not be profitable in any of his defined markets in Tennessee In a well-constructed model such as BACE, there will always be some set of assumptions under which entry will not be economic in any market. As a result, I have not seen anything that would change my recommendations on "unimpaired" markets that I described in my direct testimony and updated in this testimony

Q. PLEASE DISCUSS THE INCONSISTENCY OF THE VARIOUS WITNESSES' ASSESSMENTS OF THE SENSITIVITY OF THE BACE MODEL RESULTS TO CHANGES IN THE PARAMETER VALUES. (BRYANT REBUTTAL 25-27, WOOD REBUTTAL 20.)

A. Dr. Bryant expressed "surprise" that varying parameter values did "little" to change the NPV (Bryant Rebuttal 26) In contrast, Mr. Wood claimed that "even slight changes" to parameter assumptions cause the analysis to indicate that there is impairment. (Wood Rebuttal 20.) These are, of course, mere subjective conclusions No one has provided a standard or index of the "appropriate" degree

of sensitivity. Accordingly, these remarks provide no probative criticism of the model.

V. RESPONSE TO ISSUES REGARDING THE "EFFICIENT CLEC" REQUIREMENT

Q. PLEASE DESCRIBE THE ISSUES THAT YOU ADDRESS IN THIS SECTION.

A. The TRO requires that the potential deployment analysis investigate the business model of an efficient CLEC. (TRO 517, fn. 1579.) "No impairment" is determined on the economic success of the most efficient business model for entry, not on the basis of a particular CLEC or a particular business plan. (TRO 517.) This section addresses issues related to interpreting these directions.

Q. MR. WOOD CLAIMS THAT THE BACE MODEL'S TREATMENT OF CLEC PRODUCT OFFERINGS IS OVERLY BROAD, AND THE RELEVANT ISSUE IS WHETHER A CLEC WILL SELF-PROVISION LOCAL SWITCHING IN ORDER TO PROVIDE LOCAL EXCHANGE AND EXCHANGE ACCESS SERVICE TO MASS-MARKET CUSTOMERS, NOT WHETHER IT WILL PROVIDE OTHER SERVICES SUCH AS DSL. (WOOD REBUTTAL 47-48.) PLEASE COMMENT.

A. Consistent with the FCC's requirements, we did not design the business case analysis to determine whether a particular CLEC or a particular business plan is profitable, as would be the case if we focused only on a CLEC that sought to limit its portfolio of services to switched services. (TRO 517.) Instead, consistent with the TRO, we designed the business case to determine whether the CLEC with an efficient business model economically could serve mass-market customers in a market without access to the local switching UNE. (TRO 517.) The BACE model assumes that the CLEC will offer a variety of communications services, including vertical features, long distance, voice mail, and broadband internet access, in addition to basic local service (inside wire maintenance is excluded, although an efficient CLEC might offer this as well). Mr Wood may believe that some CLECs might want to offer a narrower range of services or specialize in some way, but that is irrelevant to the directions provided by the FCC. If such a CLEC can do better by specializing than the BACE CLEC, the model is conservative. If such a CLEC would do worse, it has not adopted the most efficient business plan and need not be considered Moreover, Mr. Wood's assertion is contrary to the FCC's direction to consider *all* revenues reasonably available to an efficient CLEC. (TRO 519.)

Q. DOES THE FACT THAT MANY CLECS HAVE GONE OUT OF BUSINESS MEAN THAT THE REMAINING CLECS ARE EFFICIENT (WOOD REBUTTAL 50) OR, IF ANYTHING, THAT THESE CLECS HAVE

REDUCED THEIR COSTS BELOW WHAT MIGHT BE OPTIMAL FROM A LONG-RUN PERSPECTIVE? (BRYANT REBUTTAL 32.)

A. Not at all. A CLEC that has wiped debt off its books via the bankruptcy process may indeed have a lower overall cost structure (in the sense of having less fixed financing costs to recover) than a competitor that did not do so To the extent this is a countervailing advantage of some existing CLECs, we did not incorporate it into the BACE model. Certainly, having undergone bankruptcy (and its effect on the company's balance sheet) does not imply that the CLEC has emerged with efficient customer acquisition practices, churn rates, overhead costs, or business practices, nor that carriers who have avoided bankruptcy are efficient in any of these respects. Moreover, as I described in my direct testimony, UNE-P-based CLECs that offer service in markets that are not truly impaired have the incentive to inefficiently increase their customer acquisition costs, for the reasons I discussed earlier. This is an incentive for inefficient behavior that applies to all UNE-P-based CLECs that operate in "unimpaired" markets, and it has not been resolved by the spate of bankruptcies of other CLECs.

Q. MR. WOOD CLAIMS THAT DR. BILLINGSLEY'S DISCUSSION ABOUT BANKRUPTCIES CONFLICTS WITH YOUR OWN. (WOOD REBUTTAL 49-50, 54-55.) PLEASE COMMENT.

A. There is no conflict Mr. Wood points to a quotation in Dr. Billingsley's direct testimony from a study by New Paradigm, a research group. The study contends that many CLECs took on too much debt and invested in too much infrastructure relative to demand, and succumbed to their debt loads when the expected demand did not materialize. Mr. Wood then cites to a passage in my direct testimony that says that CLECs have gone bankrupt, and my conclusion that, on average, existing CLECs do not have optimally efficient operations.

My comments are in complete concert with the passage from the New Paradigm report cited by Mr. Wood. Overinvestment in anticipation of demand that does not materialize can itself be a form of inefficiency. However, excessive investment is not the only inefficiency exhibited by CLECs Other inefficiencies that have been noted by researchers include having unstable business processes, incomplete databases, incomplete inventories of circuits, overly informal business practices, and inadequate accounting systems. (See, Larry F. Darby, Jeffrey A. Eisenach, and Joseph S. Kraemer, "The CLEC Experiment: Anatomy of a Meltdown," Progress on Point (The Progress & Freedom Foundation), Release 9.23 September 2002, pp. 16-17.) These are the very reasons that would render it untenable to rely on such CLECs for inputs such as customer acquisition costs or overhead costs as being representative of an efficient CLEC There also was, of course, substantial fraud by some CLECs that led to bankruptcy. I understand that Dr. Billingsley also responds to Mr. Wood's argument, from the perspective of finance considerations

Q. MR. WOOD ARGUES THAT "THERE IS NO SUPPORT FOR DR. ARON'S ASSUMPTION THAT CURRENT [ACTUAL] CLEC COSTS NEED TO BE ADJUSTED IN ORDER TO REFLECT EFFICIENT CLEC OPERATION." (WOOD REBUTTAL 50.) PLEASE COMMENT.

A. This is a disingenuous argument In requests to AT&T, BellSouth sought AT&T's business cases that analyze UNE-P and self-provisioned switching. (BellSouth Florida First Set of Interrogatories No. 15.) AT&T objected to providing that information, arguing that the TRO required an examination of the most efficient business model, and not, specifically, AT&T's business models Yet, here Mr Wood essentially claims that actual CLEC costs should be taken as representative of an efficient CLEC Moreover, in addition to taking an opportunistic position, I am not sure that there is any real meaning to Mr. Wood's claim that I made "adjustments." For example, if I base my estimate on the midpoint of several actual CLEC figures, that is not an "adjustment." My customer acquisition cost estimate of $95 for residential customers is higher than the estimated actual expense for Talk America, and it is substantially higher than the $50 goal that Z-Tel management seeks This is not an "adjustment" in the sense implied by Mr. Wood—if anything, it would be an *upward* adjustment I would characterize my estimate as a conservative selection of a point estimate within the range of observed

values after reviewing the evidence. Mr Wood's accusations to the contrary are unsupported.

VI. RESPONSE TO ALLEGATIONS MADE ABOUT SPECIFIC PARAMETER ESTIMATES

Q. PLEASE DESCRIBE THE CONTENTS OF THIS SECTION.

A. In this section, I respond to various arguments made about the parameter estimates that I supplied to the BACE model

A. MARKET SHARE (OR MARKET PENETRATION)

Q. DR. BRYANT CLAIMS THAT THE MARKET PENETRATION RATE IS UNSUPPORTED BY THE EVIDENCE. PLEASE DESCRIBE THE EVIDENCE AND PROCESS THAT YOU USED TO DETERMINE THE MARKET PENETRATION RATE. (BRYANT REBUTTAL 32-34, KLICK REBUTTAL 22-26.)

A. I investigated evidence on market share and market penetration from the academic literature (that is, literature that is published in peer-reviewed professional journals), a review of customer willingness to switch service providers based on

cable telephony, AT&T's successes in other venues, and long-distance successes of Bell Companies after 271 approval, and a consideration of potential future market structure for UNE-L providers

One of my first steps was to review the academic literature to determine whether there were any relevant general principles that I should account for in an estimate of an efficient CLEC. I concluded that research generally demonstrated that successful firms increased rapidly toward their "maximum" market share in early years, and that growth tapered off as the firm approached its maximum share I incorporated this general finding into my analysis (as it pertains to the "p-value," which I discuss in the following subsection).

My second step was to review the success that firms have had in the BellSouth region. As I explained in my earlier testimony, I reviewed hundreds of examples of CLEC entry into BellSouth wire centers and determined that it was not unreasonable to use the general "shape" suggested by the academic literature I also examined the total number of lines (and share of lines) of CLECs in Tennessee and elsewhere in the BellSouth region to determine CLEC successes to date. This analysis provided me with an indication of customer willingness to change providers, and therefore the "take rates" (i.e., the ability to gain share) of CLECs individually and collectively.

Also, I examined the successes that CLECs have had in other parts of the country, including where competition has been attempted by cable telephony providers. I believe that the experience elsewhere in the country generally is an indicator of customers' willingness to change their service provider. Moreover, such analysis provides an indication of the potential opportunities for an efficient CLEC because it demonstrates what has happened in different market environments, not just what has occurred specifically in Tennessee. It also demonstrates the potential for penetration in light of different competitive responses by other CLECs and ILECs. In other words, examining performances in other parts of the country helps ensure that there is robustness to my own estimate. For example, as I mentioned, cable telephony providers have had success in different areas around the country. This indicates to me that customers generally are willing to change their provider and that this willingness is not unique to any particular market or region. I examined the pricing packages offered on the web sites of some of these firms and confirmed that the telephony services and features were reasonably available to an efficient CLEC.

I also note that at least one investment bank expects AT&T to attain penetration rates of 15 percent local penetration in the states where it offers local service (Laura Warner et al , "Reinstating Coverage with Neutral Rating, $31 Target," Credit Suisse – First Boston Equity Research, January 13, 2003, pp. 11-12) The Credit Suisse discussion did not mention any markets in Tennessee, but I believe it

is nevertheless indicative of the willingness of customers to change their service provider, in this case, to AT&T

As I mentioned, the success of the Bell companies entry into in-region long-distance service also provides a useful point of reference for the ultimate market penetration by an efficient CLEC. Like the efficient CLEC, the Bell companies sell bundles of long-distance and local services According to analysts at Banc of America, which I referenced in my direct testimony (at p. 28, citing to David W. Barden, et al., "AT&T Corporation. A Case for Consumer Services," April 30, 2003, p. 6), these companies have attained market shares on the order of 30 to nearly 40 percent within a two-year period. Not only does this suggest that customers are willing to switch providers (which would apply to local service as well), it also suggests that the "p-value," or rate of success in the marketplace, which I will discuss later, is reasonable

As illustrated by my examples, I did not limit myself to primary research. Instead, I also consulted secondary research such as investment analyst reports and other analytical and forecasting reports on the industry's prospects. In formulating my proposal, I also consulted with knowledgeable industry and former CLEC experts on the general factors and issues relevant to CLEC market share, and to the market share proposal itself I presented my findings and responded to their insights, criticisms, and recommendations.

I believe that my approach produces a reasonable, robust, conservative estimate of market share and the "rate" of market penetration. My approach (conservatively) assumes that the market does not grow. In other words, I presume that any share that the efficient CLEC obtains is a result of success with respect to the ILEC's existing base of customers or from other CLECs, or from acquisitions or mergers with other CLECs, and not from additions to the market size itself. Nor does my market analysis incorporate wireless or other services that may be influencing, or could influence, the landline telephone market. I do not presume that the CLEC wins any converts from, e.g., wireless customers.

My analysis also is conservative in that it does not incorporate any revenue-enhancing effects that could result from changes to product characteristics, or innovations that a switch-based CLEC might implement that would attract subscribers.

My research process was complex, it was time-consuming, and it was intensive. It entailed reviewing a substantial amount of existing research and primary data in the BellSouth region and throughout the country. My approach was designed to produce a reasonable estimate of an efficient CLEC's market share. I believe that the breadth of my research agenda, and its depth, in the sense of including both

primary and secondary research, and both qualitative and quantitative research, provides a sound, robust basis for my recommendation

Q. PLEASE EXPLAIN WHY MR. KLICK'S USE OF FCC DATA PRODUCES AN UNDERSTATED ESTIMATE OF ACTUAL CLEC PENETRATION. (KLICK REBUTTAL 25-26.)

A. Mr. Klick misuses FCC data and, as a result, he under-estimates CLEC market share in Tennessee. To begin with, his analyses (as shown in Tables JCK-2 and JCK-3) are incorrect because they implicitly and erroneously assume that there is but a single statewide market in Tennessee for local exchange service. Rather, there are *multiple* local exchange markets, each of which may have different levels of CLEC penetration due to, e g., the relative attractiveness of the market and the length of time that CLECs have been competing in the particular market As Dr. Pleatsikas has noted, from an economic perspective, there is no statewide "market share" for local exchange service in Tennessee: indeed, the TRO prohibits such a consideration of the market. (51.319(d)(2)(i).) By improperly using a statewide definition, Mr. Klick's aggregate penetration statistics underestimate CLEC successes in the markets where CLECs choose to compete most intensely and have competed for the longest period of time.

An example may clarify how the FCC's CLEC market share data can be subject to the kind of misinterpretation seen in Mr Klick's analysis. Suppose there are four markets of equal size and that competitors enter them in succession. In the first year the CLEC obtains 8 percent share in market *A*. In the following year, the CLEC obtains 12 percent in market *A* and 8 percent in market *B*. In the third year, the CLEC obtains 16 percent in market *A*, 12 percent in market *B* and 8 percent in market *C*. Penetration in market *D* remains zero throughout.

Calculating aggregate penetration by treating all four markets as one (analogous to the FCC's methodology in its *Local Competition Reports*) the CLEC's first year share would seem to be 2 percent (8/4), its second year share would seem to be 5 percent ((8+12)/4), and its third year share would seem to be 9 percent ((8+12+16)/4). Thus, these aggregated penetrations do not illuminate what is happening in specific local markets—the high rate of growth of CLEC penetration, and the high level of penetration in certain markets. Moreover, the FCC's data are statewide and not confined to the ILEC territory within a state (or to specific markets within that territory). Statewide data do not provide any indication of CLEC market share in BellSouth's markets—or, more specifically, an accurate indication of CLEC market share in BellSouth's Tennessee service territories. If, for example, most of the competitive activity in Tennessee occurs within the BellSouth territory in the state, the statewide average market share would be lower than the average within BellSouth's territory in Tennessee. Moreover, CLECs with

fewer than 10,000 lines in a state are not required to file data with the FCC. The omission of smaller carriers biases the statewide market share estimates low, and could substantially bias the estimates in particular markets My simple example demonstrates why the FCC asked the states to conduct a more granular impairment investigation. Thus, an undisciplined interpretation of the FCC's national data presents an incorrect and biased rendering of what is happening in individual local exchange markets. The FCC's *Local Competition Report* provides no basis for Mr. Klick's declaration that an ultimate penetration rate for an efficient CLEC is in the range of 4 to 5 percent, and Mr Klick provides no other justification for his conclusion. (Klick Rebuttal 27.)

Q. DR. BRYANT CLAIMS THAT "THE ULTIMATE MARKET SHARE THAT AN INDIVIDUAL CLEC MAY ACHIEVE IS UNKNOWN AND UNKNOWABLE." (BRYANT REBUTTAL 33.) PLEASE COMMENT.

A. I agree that the future is unknowable with certainty. However, I disagree with the inferences that Dr. Bryant draws from this unexceptional fact As I noted earlier, Dr. Bryant recommends that, due to this uncertainty, the TRA draw no conclusion about impairment from the potential deployment analysis (Bryant Rebuttal 39) The FCC directed state commissions to assess potential deployment despite the inherent uncertainty of the future, and I believe it is the TRA's responsibility to do

so. Dr Bryant's advice amounts to an attempt to re-write the rules and it should be ignored.

Dr Bryant also recommends that because of uncertainty with respect to parameter estimates such as churn, the TRA should perform sensitivities using different parameter values I have no general objection to the prudent use of sensitivity analyses. However, such an analysis is no substitute for a reasonable initial point estimate. Many of Dr Bryant's estimates, such as his 5 percent market share estimate, are simply unreasonable for the reasons that I discussed in my rebuttal testimony It is pointless to perform a sensitivity analysis on unreasonable point estimates to determine whether there is impairment.

Q. MR. KLICK AND DR. BRYANT CLAIM THAT AN EXAMINATION OF AGGREGATE CLEC MARKET SHARE IN TENNESSEE DOES NOT IMPLY THAT EACH CLEC, OR THAT ONE CLEC, COULD ATTAIN THE SAME MARKET PENETRATION. (KLICK REBUTTAL 24-26, BRYANT REBUTTAL 33.) PLEASE COMMENT.

A. Mr Klick (at Table JCK-3) and Dr Bryant are confounding two separate (though related) issues One issue is the willingness of customers to leave the ILEC and obtain telephone service from an alternative provider; and the second is the structure of the market (e g , the number and relative size of competitors). Both

factors contribute to the market share of any particular firm. My analysis of aggregate CLEC successes in Tennessee (and elsewhere in the BellSouth region) provides information regarding the willingness of customers to change their service provider. There is tangible information in cable telephony, long-distance service in the wake of 271 approvals, AT&T's successes in New York, and in a number of wire centers in the BellSouth region about the *willingness of customers* to switch to alternative telecommunications service providers and, in the alternative, the degree of customer loyalty to or lock-in to the incumbent carrier. Indeed, in a valuation model created by investment analysts at Credit Suisse, the analysts expect AT&T to gain 15 percent of the residential market in the states where it is operating. (Laura Warner et al., "Reinstating Coverage with Neutral Rating, $31 Target," Credit Suisse – First Boston Equity Research, January 13, 2003, pp. 11-12.) Whether one, two, or three switch-based CLECs will each obtain 15 percent of the market is the topic of market structure.

Q. DR. ARON, WHAT IS YOUR VIEW OF THE LIKELY MARKET STRUCTURE THAT WOULD PREVAIL IN MARKETS IN WHICH UNBUNDLED LOCAL SWITCHING IS NOT OFFERED AND WHICH YOU HAVE REFLECTED IN YOUR RECOMMENDED MARKET SHARE ASSUMPTIONS?

A. The current market structure, which is highly fragmented with many very small participants, is not likely to prevail in a market with only facilities-based providers Availability of UNE-P promotes a highly fragmented market, because UNE-P-based carriers need make very little investment in (or commitment to) the market. Because a much greater share of UNE-P CLECs' costs are incremental to the customer, they have much less economies of scale than do facilities-based carriers While a given local area might support a large number of UNE-P players, I believe a typical urban market would support a much smaller number of UNE-L players.

My framework for viewing market structure implies that the market will undergo significant consolidation in the coming years. I believe that this is inevitable if public policy advances the viability of efficient facilities-based competition. Indeed, we are now seeing consolidation in the wireless industry, also a capital-intensive, facilities-based industry, as AT&T Wireless seeks to sell itself to Cingular One should not mechanically extrapolate from today's UNE-P market structure to project the market structure – or market shares – that would obtain in a facilities-based market, as Mr. Klick does (in Table JCK-3). Doing so would ignore the fundamental efficiencies in cost structures that drive market structure. Facilities-based firms with significant scale economies would, in equilibrium, have non-trivial market shares. My approach begins with the understanding that I have articulated regarding market structure, and applies to it the evidence we have about consumers' willingness to switch carriers. I do not believe that a market structure

with numerous firms, especially firms with small penetration rates, is likely as a long-run equilibrium in light of the scale economy issues I just discussed, nor will many geographic markets support numerous facilities-based CLECs (in addition to the ILEC), as Mr Klick's Table JCK-3 indicates. I expect market structure to be more consolidated, as is occurring in the wireless industry, and to reflect the scale economies available to CLECs. Hence I believe my penetration estimate is most consistent with a realistic view of ultimate market structure

Q. PLEASE RESPOND TO THE CLAIM THAT CABLE TELEPHONY IS NOT AN APPROPRIATE INDICATOR OF THE MARKET SHARE THAT CLECS MIGHT ATTAIN. (WOOD REBUTTAL 41-42.)

A. Mr Wood argues that information about cable telephony penetration is not representative of the market share a CLEC might reasonably attain because cable providers do not rely on BellSouth's loops. (Wood Rebuttal 42)

Mr Wood errs in his conclusion because he confuses supply with demand. In rejecting the use of cable television because cable telephony providers do not routinely use ILEC loops, what Mr Wood really is talking about is the hot cut issue, which is a supply-side concern having nothing to do with an investigation into customers' willingness to change service providers (except through the supply-side issue of customer dissatisfaction with the changeover process)

As putative support to his position, Mr. Wood cites to paragraph 446 of the TRO where the FCC is discussing the fact that cable telephony offers competition from a provider that uses both its own switching and its own loop. Of course, the FCC does not say (and is wise not to say) that cable telephony is an inappropriate indicator of the *willingness of customers to switch providers,* or that cable telephony is an inappropriate indicator of the market share that a traditional UNE-L-based CLEC might attain in the future.

Mr Wood does not dispute that cable telephony is equivalent to traditional local exchange service in overall quality. He does not dispute the fact that cable companies have gained substantial numbers of customers and substantial share where they have offered telephone service Mr. Wood also does not dispute the fact that cable companies such as Cox have gained 20 to over 30 percent share in its more mature markets (See, e.g., Simon Flannery et al. "Trend Tracker: Bottom Line Better, But for How Long?," Morgan Stanley North American Equity Research, May 23, 2003, p. 15), and that Cox itself has gained 19 percent share overall where it offers service and 53 percent of its existing cable TV subscribers. Indeed, analysts at Deutsche Bank Securities, Inc estimate that "over the longer-term we expect cable to capture around 15% of the US residential market." (Viktor Shvets and Andrew Kieley, "RBOCs· Initiating Coverage ' . but he's got my switch!'," Deutsche Bank Securities Inc US Wireline Services, November 22,

2002, p 129.) These figures indicate that *customers are willing to change their service providers* in large numbers from the ILEC (or other CLECs) to alternative service providers, in this case a cable telephony provider Such data indicate that it is possible for CLECs to overcome any brand name or other potential goodwill advantage that the ILEC might have and change their providers in substantial numbers. The cable example is especially apt because the traditional structure of cable TV networks is designed to serve homes (rather than large, enterprise businesses) and so cable telephony's successes are good evidence that customers' willingness to change service providers exists in the mass market.

Q. GIVEN YOUR DISCUSSION OF CABLE TELEPHONY, WOULD YOU ALSO SAY THAT THE SUCCESS OF UNE-P-BASED CLECS IN OBTAINING CUSTOMERS LIKEWISE INDICATES CUSTOMER WILLINGNESS TO SWITCH? (WOOD REBUTTAL 41-42.)

A. Yes Again, one should not confuse demand fundamentals (which relate to the customers' willingness to switch providers) with supply fundamentals (which, among other things, relate to the hot cut issue and economies of scope), as Mr. Wood does There is no reason, given the evidence on customer willingness to change providers, that switch-based CLECs would not be able to make the kinds of gains that we have seen in UNE-P. For this reason, the ability of CLECs to attain

market share in the BellSouth region and elsewhere is useful information, regardless of the (supply-side) provisioning method used by the CLECs.

Q. MR. WOOD ARGUES THAT CLEC SUCCESSES ACROSS THE BELLSOUTH REGION ARE NOT REPRESENTATIVE OF HOW WELL CLECS MIGHT PERFORM IN SPECIFIC MARKETS AND WITH SPECIFIC PRODUCTS. (WOOD REBUTTAL 41-42.) PLEASE EXPLAIN WHY YOU BELIEVE THE BELLSOUTH REGION-SPECIFIC DATA ARE SUFFICIENTLY GRANULAR TO INDICATE HOW WELL AN EFFICIENT CLEC MIGHT DO WITH RESPECT TO MARKET PENETRATION.

A. It is reasonable to conclude that an efficient CLEC could learn from what is observed in the marketplace, whether that market is in Tennessee or elsewhere in the United States

With regard to Mr. Wood's "specific products" argument, the range of services that we model in BACE is well representative of the range of services that an efficient CLEC would offer. This might not perfectly match the specific business models of particular CLECs, but doing that would be attempting to model specific CLECs' business plans, contrary to the direction provided by the TRO, as I explained earlier (TRO 519)

Q. WHY IS THE ACADEMIC LITERATURE ON MARKET ENTRY RELEVANT TO THE ISSUE OF MARKET PENETRATION, CONTRARY TO THE CLAIMS OF MR. WOOD? (WOOD REBUTTAL 41-42.)

A The purpose of scientific research is to identify and test generalized principles (which mean principles that may apply beyond the specific data set investigated). Principles that have withstood empirical challenge can provide guidance to researchers and policy makers. Sometimes, as in this instance, the guidance is of a qualitative nature in that it helps establish a general pattern of competitive entry, as I will discuss

As I explained in my direct testimony, the academic literature provided me with guidance as to a reasonable "shape" of the market penetration path. For example, one might suppose that a firm gained market share in an "S-shaped" curve. That certainly was one of the ideas that I considered as I began my research. However, my subsequent research indicated that successful firms tended to grow more quickly upon entry than unsuccessful firms when they are young and small, and that the growth rates of these firms tend to decrease as they become older and larger. The growth of successful firms was more of like the top half of a "C," with fast immediate growth slowing toward an asymptotic level of market share. There

is nothing in the telecommunications industry or local exchange industry that suggests to me that an efficient CLEC would not also follow this pattern.

As I noted in my direct testimony (though Mr Wood failed to note this in his discussion on pages 41 and 42 of his rebuttal testimony), I analyzed data on every wire center in the BellSouth territory and I examined several hundred examples of entry by different CLECs over time. I found that the pattern of entry into wire centers varied, but that generally, entry followed the pattern found by academic researchers in their more formal studies, that is, entry starts with a bang, and then grows at a decreasing rate as the firm matures toward its ultimate market share This provided me with some assurance that the (qualitative) generalized principle of market entry applied to the local telecommunications industry as well

I believe that this type of thorough research, which considers the established, researched wisdom of market entry, reviews literally hundreds of pages of actual evidence on this entry in the BellSouth region, considers the implications of entry by telecommunications services providers that is observed in other parts of the country, and derives a conclusion based on this analysis, illustrates that my proposal is reasoned and reasonable.

Q. WILL BELLSOUTH'S "WINBACK" EFFORTS REDUCE THE ESTIMATE OF THE EFFICIENT CLEC'S ULTIMATE MARKET SHARE? (BRYANT REBUTTAL 33.)

A. No, it will not reduce it from the 15 percent estimate that I recommend, because this is already accounted for in my estimate. My proposal is based on what we can observe in the marketplace today, such as AT&T in New York and cable television companies where they choose to offer telephone service It is rational for the ILEC in those areas to offer winback programs and these CLECs still have been successful in gaining substantial share. In other words, absent ILEC winback programs in these areas, I would expect these CLECs would have higher market penetration rates than they already do. Thus, making a downward adjustment to my proposed market share because BellSouth offers winback programs would effectively twice-consider the effect of these programs.

Q. DR. ARON, IS YOUR 15 PERCENT MARKET SHARE RECOMMENDATION CONSERVATIVE IN ANY OTHER WAY? (WOOD REBUTTAL 41.)

A. Yes, it is. I assume that the overall market for the services offered by the CLEC does not grow (or shrink) over time This has an important implication for my 15 percent market share recommendation. A market share of 15 percent 10-years out

in a market that does not grow represents approximately the same level of demand (all else the same) as a 12 percent share in a market that grows by just 2 percent per year. (Indeed, a market that grows at 4 percent per year would produce approximately the same level of CLEC-served demand at a 10 percent share as does the 15 percent share with no overall market growth.)

It is reasonable to believe that the overall demand for voice telecommunications services will increase in the future. (Viktor Shvets, RBOCs Initiating Coverage, Deutsche Bank Securities Equity Research, November 22, 2002.) Accordingly, my assumption of zero market growth is conservative

In sum, to be conservative, I have presented a consistent set of assumptions based on a conservative product definition (i.e., I exclude wireless services, and consider only ILEC and CLEC lines and revenues), prices, and penetration rates that assume no growth in the either the number of total customer locations, or in the definition of the market (as CLEC + ILEC lines)

Q. MR. WOOD CLAIMS THAT THE BACE MODEL ASSUMES THAT THE TOTAL MARKET FOR WIRELINE TELECOMMUNICATIONS SERVICES WILL GROW OVER THE TIME HORIZON OF ITS ANALYSIS. (WOOD REBUTTAL 40.) IS THIS TRUE?

A. No, as I just described

B. P-VALUE

Q. DR. ARON, WOULD YOU PLEASE SUMMARIZE THE ISSUE WITH RESPECT TO THE "P-VALUE"?

A.

A. Yes One of the inputs in the BACE model is the trajectory that is assumed for the CLEC's market share. We assume that the CLEC begins with no customers, and adds them over time and ultimately approaches a "maximum" market share. The "p-value" relates to the speed with which the efficient CLEC is able to gain market share and move toward its "maximum." For residential customers, I recommend a p-value of 0.50, which means that the CLEC gains half of its ultimate share (or 7.5 percent, because we assume a maximum share of 15 percent) by the end of the first year, three-quarters by the end of the second year, and so on. Various parties submit that the p-value of 0.50 for residential customers is overly aggressive. I believe that it is conservative, as it is used in the BACE model.

Q. WHY IS A P-VALUE OF 0.50 FOR RESIDENTIAL CUSTOMERS CONSERVATIVE? (WOOD REBUTTAL 43, KLICK REBUTTAL 22-23.)

A. First, the BACE approach models a *de novo* CLEC—that is, a CLEC that enters the market without any customers. However, the FCC's requirement that the TRA consider all the CLECs' various advantages would permit us to model a CLEC (such as AT&T or MCI) that already has a substantial number of revenue-generating UNE-P lines, which, over time, will be migrated to UNE-L lines in those areas where an efficient CLEC is not impaired without access to the local switching UNE. Indeed, Mr. Klick admits that CLECs serve at least 10 percent of switched access lines in Tennessee, and, as I indicated, this is biased low as an indicator of market penetration in particular markets. We opted not to model an efficient CLEC with a base of existing customers, but certainly this illustrates the conservatism of the p-value assumption.

Second, as implemented in BACE, a p-value of 0.50 means that the CLEC obtains half of its ultimate market share at the *end* of the first year. The *average* penetration during the year is 3.75 percent. (Mr. Wood and Mr. Klick completely misunderstand how the BACE model uses the p-value, and as a result, their arguments are wrong.) The revenue assumption for the first year reflects a 3.75 percent penetration rate, not 7.5 percent. We provided a description of the method and data that we used to develop the market entry curves, and other information, to AT&T and Sprint in response to discovery. (AT&T's (Georgia) 2nd Set of Requests for Production of Documents No 44, Florida Sprint's 1st Request for Production of Documents No. 2.)

Third, as I noted earlier, analysts at Banc of America estimate that the Bell companies have attained market shares on the order of 30 to nearly 40 percent within two years of offering in-region long distance service. Moreover, they have attained approximately 25 percent in the first year, which means that the p-value is on the order of 0.625 (i.e., 25 percent / 40 percent) to 0.833 (i.e. 25 percent / 30 percent) I believe that this is relevant information because firms such as AT&T and MCI are large national long-distance providers that can provide local service and local/long-distance bundles, which provides them with the same products that the Bell companies are selling (local and long distance or local/long-distance bundles) The Bell long-distance data therefore are relevant indicators of customer willingness to change service providers.

Finally, it is worth noting that Dr. Bryant's approach uses a p-value of 1.00. In other words, he models a CLEC that obtains its full measure of market share (five percent, in Dr. Bryant's case) on the first day of operations. His average penetration for the first year is 5 percent, which exceeds our assumed average penetration of 3.75 percent

Q. MR. KLICK CLAIMS "RAPID GAINS" BY CLECS ARE LARGELY ATTRIBUTABLE TO THE EXISTENCE OF UNE-P, AND THAT CLECS

MAY NOT ACQUIRE MARKET SHARE AS RAPIDLY USING UNE-L. (KLICK REBUTTAL 27-28.) PLEASE RESPOND.

A. Certainly the first response is that CLECs in Tennessee already have acquired customers, and that, as a result, they will not have to "reacquire" these same customers as they shift the provisioning method from UNE-P to UNE-L As a result, Mr. Klick's concerns about the rate of additions under UNE-L are overblown for that reason alone.

Moreover, Mr. Klick's argument has nothing to do with whether a customer is willing to change service providers, which is the subject of my testimony. Rather, his argument has to do with whether an efficient CLEC can manage its network processes (e.g., establish collocation where necessary, arranging for transport, and hot-cutting customers) to produce the same number of additions (or more) as has occurred under UNE-P. The BACE model accounts for the establishment of collocation and backhaul, and hot cuts. Other BellSouth witnesses describe the ability of an efficient CLEC to establish their network requirements so as to permit the CLEC to add customers as they win them in the marketplace

Q. MR. KLICK CLAIMS THAT YOUR APPROACH TO MARKET PENETRATION "FRONT-LOAD[S]" THE PENETRATION RATES AND THEREBY OVERSTATES THE PRESENT VALUE OF THE REVENUES

THAT A CLEC CAN EXPECT TO RECEIVE OVER THE 10-YEAR STUDY PERIOD. (KLICK REBUTTTAL 28-29.) PLEASE COMMENT.

A My recommended penetration curve shape is derived from my research of the academic literature and the generalized findings of researchers who have investigated the market entry paths of successful firms Mr. Klick does not dispute the findings that I described from my review of the academic literature. indeed, he does not even acknowledge them. Rather, Mr Klick's complaint seems to be that such a pattern contributes to the chances of success for the efficient CLEC that is modeled in the BACE model. This may be so, but simply because the peer-reviewed academic research is instructive or beneficial to the impairment business case does not mean that we should ignore it. The FCC instructed us to consider an efficient firm. I take that to mean that we should model the penetration patterns of successful, rather than unsuccessful firms. It would be foolish to use an entry pattern of *unsuccessful* firms to model the entry patterns of an *efficient* CLEC.

Q. IN HIS REBUTTAL TESTIMONY, MR. KLICK USES A STRAIGHT LINE TO RAMP UP THE MARKET PENETRATION. (KLICK REBUTTAL 28.) IS THIS PARTICULAR PATTERN OF GROWTH SUPPORTED BY THE RESEARCH?

No, it is not. As I discuss in this section of my testimony, the peer-reviewed academic literature does not support a straight-line penetration path and Mr Klick provides no reasoned analysis for this particular "sensitivity" analysis On this point, Mr. Klick clearly is engaging in mere speculation, without legitimate support In contrast, I provided substantial background support for the path that I recommend for use in the BACE model. All of these papers were made available to Mr. Klick, but Mr. Klick said not a word about any of the academic literature that contradicts his recommendation.

Moreover, it is clear that Mr Klick does not understand the relationship between gross CLEC customer additions, net additional, churn, and the penetration rate Mathematically, Mr. Klick's linear penetration rate (i e., a penetration rate that increases linearly until reaching the maximum penetration, and then abruptly flattens out) requires *either* a churn rate of zero (in which case gross adds translates into penetration), or, if churn is positive, it requires exponential growth in the number of monthly gross adds (to offset the monthly churn losses). Neither of these assumptions is realistic, in my view. In contrast, the "concave" penetration curve, such as the one I recommend, is the result of the interplay between churn and gross additions. The concave penetration curve is consistent with a positive, non-zero churn rate and a constant (linear), number of *gross* additions each month

Q. MR. BROWN ARGUES THAT THE BACE MODEL DOES NOT ACCOUNT FOR THE "INCUMBENT'S STRATEGIC BEHAVIOR" TOWARDS ITS COMPETITORS BECAUSE IT DOES NOT ACCOUNT FOR TERM CONTRACTS (AND THE EARLY TERMINATION FEES THAT MIGHT BE ASSOCIATED WITH TERM CONTRACTS). (BROWN REBUTTAL 58-59.) PLEASE COMMENT.

A. Mr. Brown is incorrect for several reasons. First, in determining the BACE model inputs that I sponsor, I explicitly account for term contracts in two ways As I explained in my direct testimony (at page 25), the BACE model accounts for the effect that term contracts could have on CLEC success in the market through the effect on the "p-value," or rate of penetration gain. I specifically recommend p-values that decline with business customer size to 0 25, which is one-half the p-value of the residential customer, to account for the possible effects of term contracts I also explicitly account for term contracts through the revenue estimates that I provide for use in the BACE model. Term contracts provide discounts to customers, which reduce per-customer revenues. My revenue recommendations are based on actual BellSouth data, and so account for the revenue-reducing impact of term contracts. Were term contracts to be prohibited, we would have to increase the revenues to account for the lack of term discounts. In any event, Mr. Brown appears to have identified an issue that is empirically trivial in Tennessee According to Ms. Blake's rebuttal testimony at p.26, Mr. Brown's own data

demonstrates that less than 1 percent mass-market customers avail themselves of term contracts in Tennessee. This simply does not rise to the level of an "entry barrier," as Mr. Brown erroneously believes. Third, CLECs already have had successes in Tennessee, indicating that term contracts have not been an entry barrier.

C. PRICE LEVELS

Q. DR. ARON, PLEASE SUMMARIZE THE ISSUES THAT YOU ADDRESS IN THIS SECTION.

A. In this and the following section, I address criticisms leveled by various CLEC witnesses regarding the prices that I recommended for use in the BACE model. This section discusses criticisms of the prices themselves The following section discuses issues related to trends in the prices over time (Consistent with the TRO, my estimates for prices, and costs, are not trended) The BACE model incorporates prices for service bundles (e.g., aggregations of services consisting of local voice service, vertical features, and long-distance and/or DSL services) and for what I call "*a la carte*" services.

In both cases, the main complaint seems to be that I relied on the use of existing CLEC service prices for bundles and on actual BellSouth billing data for the *a la*

carte services. Various theories are advanced for the use of other data and for adjusting these data over time. My main response is that the FCC clearly foresaw that prices would be a contentious issue. It reasonably determined that rather than bogging down the impairment analysis process in controversy, it would require that the potential deployment analysis use existing prices. Many of these criticisms simply seek to rewrite or ignore the TRO's direction and use prices that are not reflective of prices that are effective in the market today

Q. MR. WOOD CLAIMS THAT YOU DID NOT SUFFICIENTLY DISAGGREGATE BELLSOUTH'S CURRENT *A LA CARTE* PRICES AND, AS A RESULT, CLEC REVENUES CANNOT BE ESTIMATED WITH ANY DEGREE OF ACCURACY. (WOOD REBUTTAL 27.) PLEASE COMMENT.

A. By any objective standard, the BACE model is a highly granular model. It is, in fact, the most granular business case analysis I have ever seen I believe that Mr. Wood resorts to the (unfounded) criticism that the BACE data lack granularity whenever his imagination flags. In any event, Mr Wood has absolutely no basis for this claim. In determining the revenues reasonably available to the CLEC for its *a la carte* services sold to mass-market customers, we processed millions of individual BellSouth customer billing records. For residential customers, we consolidated those billing records into five "spend" groups at the wire center level

(for businesses, we grouped the records into four business segments that varied by the number of lines served and three spending groups for each business segment). In so doing, we provided abundant granularity on the numbers of lines, the services, and the spending levels that reasonably would be available to an efficient CLEC. Our methodology produces different, granular average revenue estimates for each product, customer segment, and spend group by state These estimates are based on the specific mix of customers in each wire center. Each wire center has a different profile of customers delineated by spend categories. Therefore each wire center has a different effective average revenue per residence and each of the four business customers segments This process addresses the point that Mr Wood makes without the additional (and pointless) complexity that Mr. Wood seeks

Q. MR. WOOD CLAIMS THAT YOUR PROCESS OF AGGREGATING CUSTOMERS FAILS TO SEPARATE HIGHER SPENDING THAT RESULTS FROM BEING IN A HIGHER-PRICED RATE GROUP FROM HIGHER SPENDING THAT RESULTS FROM BUYING MORE SERVICES. (WOOD REBUTTAL 32-34.) PLEASE COMMENT.

A. Mr. Wood expresses a concern that because Tennessee has several retail price groups, the BACE model's treatment of customer segmentation is "incorrect" and "biased" the results toward a showing on no impairment (Wood Rebuttal 34) Mr

Wood's testimony is unclear and somewhat confused on this point, but his conclusion appears to be without merit.

Mr Wood's concern seems to pertain to his observation that some customers spend a lot on telecommunications because they buy a lot of services at relatively low prices, while others spend a lot despite buying fewer services because they pay higher prices While in principle this is a true statement, it does not lead to any realistic concern with the results of the BACE model. First, as a practical matter, regardless of whether there were any merit to his concern in theory, the fact is that the only BellSouth prices that vary by rate group in Tennessee are the basic local access line rates Based on the design of the rate groups, only a relatively few residential customers will pay prices that differ by as much as $4.67 from the highest to the lowest rate group. Instead, over 70 percent of BellSouth's residential customers will face local access line rates that are within $0 31 of one another, and almost half will have the same local access line rates In the context of total spend levels, this difference would have minimal effect on the model and so Mr. Wood's convoluted discussion is actually much ado about nothing

In fact, there are many reasons that customers vary in their spend levels. One customer might spend more than another because she is in a higher rate group for the local access line; or it might be that she is in the same or lower rate group, but purchases more vertical features, purchases DSL, purchases voice mail, has more

long distance usage, or spends more on other services A customer's spend level reflects all of these factors. The BACE model captures all of these factors because customers who, for whichever set of reasons, spend more, are placed in a higher quintile to reflect that spend level. All else equal, wire centers in higher rate groups will have larger numbers of customers in high spend quintiles This is not a bias in the model but rather is a strength of the model because it enables the modeled CLEC to target geographic markets with high-spend customers. To the extent that costs differ from wire center to wire center, this is also captured in the cost architecture of the model. Hence, there is no bias.

While Mr Wood asserts that his observation about the different reasons that customers might be in a high spend category would lead to some bias or systematic inaccuracy in the model, he does not explain what the mechanism leading to such inaccuracy would be, and he certainly does not demonstrate any bias. *Any* model will aggregate and summarize different individual observations into averages or groups in some way, and this will always obscure some individual differences and characteristics. Short of modeling competition for each individual customer, an unreasonable and unrealistic standard, some individual-specific factors will not be accounted for. This in no way creates a bias or constitutes a weakness.

The fact is that in the BACE model, the costs of serving a given customer profile in a wire center are specific to the characteristics of that wire center, and the numbers

of customers in each spend quintile are specific to each wire center I believe that the level of granularity of the model is extremely high, and any attempt to discredit it or level unsupported claims of purported bias for failure to model still greater granularity should be rejected.

Q. MR. WOOD CLAIMS THAT THE PRICES FOR SERVICE BUNDLES WERE NOT DESCRIBED IN YOUR TESTIMONY. (WOOD REBUTTAL 28-29.) PLEASE COMMENT.

A. These prices were provided in response to Florida Sprint's First Request for Production of Documents No. 1, and Florida Staff's 5th Request for Production of documents No. 31 and Interrogatory 82. I understand that all of these responses have been made available to all parties in each of the BellSouth states.

Q. DOES DR. BRYANT CRITICIZE YOUR REVENUE ESTIMATE FOR RESIDENTIAL CUSTOMERS? (BRYANT REBUTTAL 37.)

A No, not directly. Instead he runs his own sensitivity using a monthly revenue estimate of $49.52. He does not comment directly on my revenue estimates.

Q. PLEASE COMMENT ON DR. BRYANT'S USE OF THE $49.52 IN HIS SENSITIVITY ANALYSIS.

A. In my rebuttal testimony, I have already addressed Dr. Bryant's use of TNS telecom data for developing a revenue estimate. As Dr. Bryant has failed to address any of my criticisms, I stand on my previous testimony that the use of this figure is inappropriate.

D. PRICE TRENDS

Q. DO YOU HAVE ANY GENERAL COMMENTS ABOUT THE WITNESSES' ARGUMENTS REGARDING PRICE TRENDS?

A. Yes. It is critically important to design a financial model so that the various assumptions correspond to one another in logical fashion. Witnesses Wood and Klick advance arguments about future price trends (they forecast declining prices) that are disassociated from any coherent worldview. For example, these parties describe how competition and technological change may affect prices, but they fail to even mention, let alone forecast, how competition and technological change may affect, e.g., cost reductions and product innovation By conducting a one-sided analysis, they create an unrealistic worldview where prices decrease, but costs stay the same, and no one innovates I find this an implausible set of circumstances.

A more comprehensive analysis would consider how the technological changes that may permit, in some circumstances, price decreases do so because they drive cost decreases, and which (all else the same) will keep NPV the same A more comprehensive analysis would also consider how the same competition that may spur some price decreases may also spur product innovation, with the net effect being *higher* per-customer spending, rather than lower spending, and a higher NPV rather than a lower NPV While Mr Wood and Mr. Klick eagerly speculate about the effects of competition and technology on the prices of the existing portfolio of services, they totally neglect to consider the countervailing effects that competition, technology, and product innovation can have on the total business case and they thereby present a biased view of the future

I do not recommend trying to forecast any of the effects of these various forces. I believe (and I believe that the FCC supports me (TRO ¶ fn. 1588) that the result would be unending controversy about the effects that competition and technology would have on prices, costs, innovation, and total spending Instead, because of the complexities in forecasting technology, competition, and innovation, I conclude that it is more appropriate to (1) assume a given portfolio of existing services (rather than speculate on the availability and diffusion of new services); (2) assume that the prices for this portfolio neither increase nor decrease over time; and (3) assume a constant level of technology so that costs neither increase nor increase over time This is the coherent worldview that is consistent with the TRO. This

coherent worldview contrasts with the biased view offered by Mr Wood and Mr. Klick in which competition and technology lead to reduced prices but not to reduced costs nor to the kind of product innovation that would contribute to increased spending per customer.

Q. MR. KLICK CLAIMS THAT PARAGRAPHS 157 AND 518 OF THE TRO PROVIDE SUPPORT FOR MODELING PRICE DECREASES AS A RESULT OF COMPETITION. (KLICK REBUTTAL 29-30, 35-36.) DOESN'T THIS DEMONSTRATE THAT SUCH PRICE DECREASES SHOULD BE MODELED?

A. No, it does not. Mr. Klick cites as his authority two paragraphs in the TRO (157 and 518). In doing so, Mr. Klick relies on a discussion that is entirely off-topic (having to do with universal service rather than price forecasts) and, in any event, it is a discussion that was roundly criticized by the D.C. Circuit Court in its *Vacatur and Remand*. Moreover, in clutching at these off-point, criticized discussions, Mr. Klick ignores a direct, on-point discussion that FCC has regarding prices and revenues, in footnote 1588

As I noted, paragraphs 157 and 518 of the TRO do not discuss the merits of forecasted prices. Instead, these paragraphs discuss the sometimes "complex" effects that implicit price supports—such as may exist in local service rates as a

result of universal service considerations—may have on competitive entry. The FCC's ruminations on implicit price supports are hardly clarion calls to engage in price forecasting, as Mr Klick seems to conclude Indeed, they have nothing to do with forecasting at all. The FCC merely observes that entry may be accelerated in areas that provide subsidies, and retarded in areas that receive implicit subsidies, and that such implicit subsidies ultimately cannot withstand competitive forces. Indeed, the FCC's vacillations and inconclusive arguments on implicit subsidies were met with especially scathing comments from the D.C. Circuit Court. The Court concluded that the FCC's discussion was essentially vacuous because the FCC made no attempt to connect the discussion to any relevant economic entry barrier that had anything to do with "impairment " According to the Court:

> The interesting case is the one where TELRIC rates are so low that unbundling *does* elicit CLEC entry [despite below-cost retail rates], enabling CLECs to cut further into ILEC revenues in areas where the ILECs' service is mandated by state law—and mandated to be offered at artificially low rates funded by ILECs' supracompetitive profits in other areas. If the scheme of the Act is successful, of course, the very premise of these below-cost rate ceilings will be undermined, as those supracompetitive profits will be eroded by Act-induced competition. In competitive markets, an ILEC can't be used as a piñata The Commission has said nothing

> to address these obvious implications, or otherwise to locate its treatment of the issue in any purposeful reading of the Act.(Vacatur and Remand, p. 26. Emphasis in Original.)

In other words, according to the Court, the FCC appears to recognize that competition can erode implicit subsidies, but the FCC said nothing to address the "obvious implications," nor did the FCC explain how implicit subsidies affect an "impairment" analysis. From my reading of those paragraphs, I conclude that the FCC made no conclusions about the efficacy of price forecasts.

Indeed, as I noted earlier, the single, unambiguous place that the FCC actually addressed the issue of price forecasts is footnote 1588, where the FCC said (in straightforward language):

> [W]e expect states to consider prices and revenues prevailing at the time of their analyses. We believe that these are reasonable proxies for likely prices and revenues after competitive entry and will result in a more administrative standard." (TRO, fn. 1588.)

The FCC instructs state commissions to use existing prices and revenues because they are "reasonable proxies" for the prices and revenues after competitive entry and will be simpler to administer (which would require considering the effect that

innovation and technological change might have on prices, costs, and revenues) Mr. Klick inappropriately clutches at the "rates are likely to change" language in paragraph 518 of the TRO that has to do with the erosion of implicit subsidies in the context of universal service, rather than any directions by the FCC to try to forecast prices (and, one would infer, directions that would likewise require forecasts of costs and innovation as well, in order to shape a coherent worldview).

Because a fair, full analysis requires consideration of all of the factors that can affect prices, costs, innovation, and revenue, and because such an analysis would be fraught with controversy, it is most appropriate from a modeling perspective to stay with the existing portfolio of services, existing prices, and existing costs rather than attempting to forecast changes in all three of these, as would otherwise be required.

Q. DO MR. KLICK'S EXAMPLES OF PRICE DECREASES AROUND THE COUNTRY PROVIDE ANY EVIDENCE THAT ONE SHOULD FORECAST CONTINUED PRICE DECREASES? (KLICK REBUTTAL 31-34.)

A. No. First, the prices that I recommend for use in the BACE model are based on market prices To the extent that competition already has resulted in price decreases in Tennessee, these are incorporated in the model Second, as I noted, one should not model a firm whose prices continually decrease as a result of competition and technological change without also considering the effect that these

forces will have on costs, product innovation, and total customer spending, which Mr. Klick fails to do. Considering one outcome (decreased prices) while failing to consider others (increased revenues due to an expanded product portfolio and decreased costs) biases the business case, perhaps substantially. Because of the speculative nature of making forecasts of prices, technology, and competitive responses it is more appropriate to follow the FCC's directive to consider prices and revenues prevailing at the time of the analysis, as I recommend

I also will note that Mr. Klick's citations to advocacy papers (that he characterizes as "academic literature," but which, to my knowledge have not been published in academic or "peer reviewed" journals) that claim to demonstrate that competition has reduced prices provide no academic consensus that would direct the use of price forecasts in the potential deployment model. For example, the paper by Dr Braunstein simply recites some price decreases. The topic of his paper has to do with UNE costs, not with price forecasting or the *future* of telecommunications prices, costs, technology, and innovation The paper by Hassett, Inova, and Kotlikoff creates a simulation model that the authors say describes the effects that competition has on the prices and investments by an *unregulated* monopolist. They find that additional competition will cause an unregulated monopolist to increase output and reduce prices. But, this basic economic model hardly characterizes the circumstances in the telecommunications industry generally or in Tennessee in particular, where regulation of retail prices is the norm. In my view, the model is

not suited for assessing real world price performance or investment in the future in the current context. As I noted, since I base my price recommendations on existing BellSouth and CLEC prices, my price recommendations account for the price reductions that have occurred in Tennessee to date. Finally, again, *revenues* are more important in a business case model than are *prices*. Indeed, prices may be declining while revenues per customers are increasing.

Q. DOES MR. KLICK PROVIDE ANY EVIDENCE THAT THE CHANGE FROM UNE-L TO UNE-P WILL PRODUCE A 15 PERCENT DECREASE IN PRICES IN YEAR 1, WITH NO PRICE DECREASES THEREAFTER? (KLICK REBUTTAL 36.)

A. No, none that I saw. Of course, if such a price decrease were to occur merely as a result in the shift from UNE-P to UNE-L, it seems that TRA would seek to *encourage* UNE-L over UNE-P wherever possible, rather than maintain UNE-P and the 15 percent premium that Mr Klick seems to believe exists. If, on the other hand, Mr Klick is arguing that prices will decrease by 15 percent as a result of CLEC entry into a market that heretofore had no competitive entry would appear to be a pointless hypothetical because CLECs already compete in numerous markets in Tennessee. In addition, as in other instances, Mr Klick's discussion focuses on price and fails to account for the additional competitive pressure, opportunity for

technological differentiation and cost reduction, and product innovation would occur as a result of switching from UNE-P to UNE-L

Q. MR. WOOD CLAIMS THAT PRICES WILL CHANGE IN THE FUTURE BECAUSE AREAS WHERE PRICES ARE HIGH AND COSTS ARE LOW ARE LIKELY TO ATTRACT COMPETITIVE ENTRY. (WOOD REBUTTAL 26.) PLEASE COMMENT.

A As I mentioned, the FCC directs us to use prices that are based on those currently in the market because there would be no end to the disputes about future price trends Our approach, which keeps prices, product portfolio, *and costs* constant over the forecast period, is more reasonable, and more consistent with the TRO, than is engaging in insoluble debates about price and cost trends.

Q. ISN'T IT TRUE THAT THE COMPETITIVE PRICES WILL DRIVE REVENUES DOWN? (KLICK REBUTTAL 35-36.)

A. No. Mr Klick inadequately describes the nature of the competitive process Even if competition results in lower prices in some instances (such as where prices exceed costs due to implicit subsidies of other prices), other prices may increase. Moreover, competition does not necessarily imply that the *revenues per customer* will decrease over time. While one outcome of competition can be lower prices

when prices are substantially above cost, price decreases cannot be expected if prices already are below the competitive level. In fact, competition will undermine any existing cross-subsidies and cause below-cost prices to rise to an economically rational level Moreover, there is a countervailing factor that these arguments completely overlook, and that is the effect, in a competitive market, of product innovation that entices customers to spend more on existing and new products than had been the case before This will contribute toward *increased revenue per customer* over time, which will, in turn, will contribute to an increased net present value of the business case, and possibly more "unimpaired" areas.

Out of conservatism, the BACE model does not assume that the efficient CLEC will create innovative new products or that it will derive increased revenues per customer from newly developed products (except through the upward penetration of DSL in the initial years). Instead, we draw from a *fixed portfolio of existing products* that are available today to customers Mr. Klick's proposal to trend prices downward over time takes a one-sided view of competition because it ignores circumstances where some prices may increase and ignores product innovation that would result in higher total spending per customer Because there is no way, in my mind, to resolve the issue of whether customers of the efficient CLEC will in the future spend more or less on telecommunications services as a result of product innovation and price competition, I conclude that there is no reason to diverge from the FCC's requirement that we base prices on existing prices and not adjust them

(or adjust spending per customer) upward or downward in an attempt to reflect the various factors that influence customer spending. It is more principled to determine spending based on existing prices rather than try to project which factors will dominate among the countervailing influences on spending per customer.

Q. MR. KLICK ALSO ARGUES THAT PRICES WILL DECREASE BECAUSE TELECOMMUNICATIONS IS A "DECLINING COST INDUSTRY". (KLICK REBUTTAL 30-31.) PLEASE COMMENT.

A. Mr Klick uses the term "declining cost industry" in the lay sense of productivity improvements over time that reduces a firm's costs The proper economic definition of "declining cost industry" refers to an evaluation of average costs at different levels of output (when time is invariant) I will respond to Mr. Klick's depiction

Mr. Klick argues that the efficient CLEC's costs will decrease over time. He concludes, "As costs fall in a competitive market, all other things being equal, prices fall as well " (Klick Rebuttal 31.) While this is true, I see nowhere in Mr. Klick's testimony where he recommends that the same productivity that he claims will reduce *prices* also will reduce *costs* in the model. Mr. Klick's recommendation therefore is biased· he would have us reduce prices to reflect

productivity; but he would not have us reduce costs to reflect that same productivity

Rather than engage in fruitless debates about future productivity rates for the efficient CLEC, our approach is to follow the TRO and use prices that are based on currently prevailing prices Our cost analysis likewise is based on existing, standard technologies and is not trended downward to reflect gains in productivity.

Q. MR. WOOD CLAIMS THAT IT IS "NONSENSICAL" TO COMBINE CONSTANT PRICES WITH A 10-YEAR MODEL. HE CLAIMS THAT CONSTANT PRICES IMPLIES A SHORT-TERM TIME HORIZON FOR THE ANALYSIS. (WOOD REBUTTAL 29.) PLEASE COMMENT.

A. This is nonsense. First, as I indicated, there really is no "short term" modeling approach for a going-concern business. Mr. Wood fails to understand what a business case entails. A going concern generates a residual, or terminal value, which represents the discounted net value of the firm for the years beyond the explicitly modeled period The firm's total value is the sum of the explicitly-modeled part and this terminal value A shorter explicitly-modeled time horizon does not increase the certainty of the estimates; it simply pushes the uncertainty into the terminal value estimate Any reduction in the number of years that are explicitly modeled requires an offsetting adjustment on the terminal value for the

simple reason that value is neither created nor destroyed simply by the number of years that one chooses to explicitly model.

Second, there is no economic reason (and Mr Wood has provided no such reason) that a constant price assumption implies that a shorter-term explicit model should be used As I indicated, the total value of the firm should not change simply because the number of explicitly-modeled years is reduced

The fact that Mr. Wood failed to express his views on the interaction of explicitly-modeled years and the terminal value leads me to conclude that, possibly, he is uninformed of the role that the terminal value plays in a business case analysis. There is no credible economic theory or process that would change the NPV of a project or going concern simply by lopping off some of the years where value is created.

Q. MR. WOOD CLAIMS THAT INTERSTATE TOLL PRICES HAVE DECREASED BY 5.1 PERCENT PER YEAR DURING THE 10-YEAR PERIOD FOLLOWING DIVESTITURE. (WOOD REBUTTAL 29.) IS THIS USEFUL INFORMATION FOR THE POSSIBLE PATH OF LOCAL SERVICE PRICES?

A. Absolutely not. Many will recall that over the past decades, access charge reform changed the way common line costs were recovered, and that this reduced toll costs and prices. Access reform entailed the movement from a per-minute-of-use charge levied on long-distance carriers to a monthly recurring end user common line charge ("EUCL") directly paid by local service end users (as well as a flat-rate charge charged to the carriers) Access charge reform was a regulatory exercise that removed cost recovery from long-distance service variable costs. According to the FCC, from 1984 to 1994, interstate switched access charges decreased by nearly 9 percent per year. Access charges account for a substantial portion of long-distance costs (by one estimate about 40 percent of AT&T's consumer long-distance division's costs), so the access charge decreases made a substantial contribution to overall cost and price decreases. Mr. Wood does not appear to consider access reform, and so their claims about long-distance pricing are inapplicable indicators of what might occur for local exchange services.

In sum, there is no probative value to the quantitative historical trend of long-distance prices, as presented by Mr Wood, relative to the future price path of local exchange services at issue in this proceeding. The fact that Mr Wood finds that NPVs are "significantly reduced" if a 5.1 percent annual price decrease is applied over the 10-year horizon of the BACE model should come as no surprise (Wood Rebuttal 31.) However, Mr. Wood's number is based on an inapplicable comparison and has not been shown to apply to local exchange service Moreover,

while Mr Wood seeks to reduce prices, he does not make any corresponding adjustment for costs that reasonably might decrease over the 10-year time horizon.

E. SERVICES OFFERED

Q. MR. WOOD ARGUES THAT THE RANGE OF SERVICES CONSIDERED IN THE BACE MODEL SHOULD BE WHAT THE CLEC SEEKS TO OFFER, NOT WHAT BELLSOUTH THINKS CLECS SHOULD OFFER. (WOOD REBUTTAL 12-13.) PLEASE COMMENT.

A. At pages 48 and 49 of his rebuttal testimony, Mr Wood claims that it is inappropriate to consider "non-switched services" (or donuts) that might be used "in order to help pay for the switch." I take it that Mr. Wood is referring to DSL service, which is a non-switched service that can be provided over the same loop that provides switched voice services. The TRO itself provides clear guidance as to what services, including data, should be considered potential revenues in a potential deployment analysis. "The state must also consider the revenues a competitor is likely to obtain from using its facilities for providing *data* and long distance services and from serving business customers." (TRO 519, emphasis added)

In any event, a simple example will show the error of Mr Wood's argument Exhibit DJA-09 illustrates that a CLEC may find it uneconomic to offer either

voice service or DSL service alone, but may find that it is economic (i e , the CLEC can earn zero economic profits) if it offers both. The reason is that there may be *economies of scope* in offering switched and unswitched services. As shown in my example, these economies are the result of the common use of the local loop.

The example shows that the profitability of both services benefits from the existence of, and the CLEC's recognition of, scope economies. An efficient CLEC will recognize instances where economies of scope exist, and it will take advantage of them. There is no reason to artificially crimp the potential deployment analysis by failing to recognize the scale and scope economies and any other advantage available to an efficient CLEC. Mr Wood pejoratively scoffs at the notion that the CLEC should engage in a fundraiser by selling donuts on a street corner to help pay its switching costs. Of course, this absurd example illustrates an instance where there are no economies of scope (one presumes) between providing telecommunications services and providing donuts.

Mr. Wood plays lightly with the TRA's time by creating a misleading example and by failing to address the genuine issue of economies of scope that should be considered when evaluating the profit opportunities open to an efficient CLEC. My simple example demonstrates the power that such economies can have. Economies of scope can provide a way of changing the results of a business case from one that appears to have no promise in *either* voice or DSL service, to one that appears to

offer an economic return if *both* are offered. This is the issue that this Authority should consider, and not examples that treat this proceeding as a farce

F. CHURN

Q. PLEASE COMMENT ON DR. BRYANT'S CLAIM THAT ANY INPUT TO THE BACE MODEL (REGARDING CHURN) THAT RELIES EXCLUSIVELY ON THE ACTUAL EXPERIENCE OF UNE-P FIRMS WILL BE UNDERSTATED. (BRYANT REBUTTAL 34.)

A Dr. Bryant claims that churn based on the experience of UNE-P-based carriers will be understated for the same reasons that he provided in his discussion of market share. These reasons were (1) BellSouth winback programs; (2) CLEC service prices; (3) CLEC service quality; (4) the availability of hot cuts; (5) the ability of the CLEC to bring new services to market, (6) the costs of those new services, and (7) the ability or inability of the CLEC to offer broadband using the ILEC's new infrastructure capabilities. (Bryant Rebuttal 33-34) However, Dr. Bryant actually engages in mere hand waving because he does not discuss these factors at all as they relate to churn, and he certainly does not explain why *all* of these factors would lead to an understatement of churn that is based on the experience of UNE-P providers A closer examination shows that this claim has no basis

For example, there is no reason to believe that ILECs' winback offers affect a switch-based CLEC any differently than it affects a UNE-P-based CLEC (and Dr. Bryant fails to explain why it would). Indeed, this would conflict with Dr. Bryant's argument in his direct testimony that a switch-based CLEC would have the incentive to reduce its price below that of a UNE-P-based CLEC in order to retain customers. (Bryant Direct 80-81.) The theory is flatly inconsistent with his discussion on churn.

It also appears that a number of the other factors cited by Dr Bryant may be associated with *lower*, not *higher*, churn for a switched-based CLEC than might be observed with UNE-P providers For example, a switch-based CLEC has more control of its own service quality than does UNE-P CLEC simply because it has a reduced reliance on the ILEC network. The switch-based CLEC also has the incentive and ability to manage its switching resources so as to reduce costs, perhaps by investing in a newer generation of technology. (Although the BACE model considers a CLEC that uses traditional circuit switching technology, a real-world CLEC may elect to use more advanced packet switches, if these are less costly.) Finally, a switch-based CLEC can implement new products without working through a third party (i e., the ILEC) to do so. In sum, a switch-based CLEC has more control of quality, better ability to manage costs, and an enhanced ability to offer new services than does the UNE-P-based CLEC, which reasonably would suggest lower, not higher churn.

Q. MR. WOOD ARGUES THAT YOUR USE OF AN "INDUSTRY-WIDE CHURN RATE" REFLECTS THE EXPERIENCE OF ILECS (AS WELL AS CLECS) AND IS THEREFORE BIASED LOW BECAUSE THE ILEC BASE OF CUSTOMERS IS UNLIKELY TO CHANGE PROVIDERS. (WOOD REBUTTAL 46.) PLEASE COMMENT.

A. Mr. Wood's argument is incorrect First, I do not base my churn assumptions on any one report, but on the reported churn rates for a variety of CLECs, as I explained in my direct (and rebuttal) testimonies Moreover, with respect to the one report to which Mr. Wood refers, his discussion is misleading because he fails to tell the whole story. Mr. Wood cites to page 33 of my direct testimony as using an "industry-wide churn rate." A casual reading of that paragraph shows that I am discussing the results of a Morgan Stanley survey of *business customers* Thus, Mr. Wood's (unsupported) conclusion that my proposed churn rates are understated because of "the presence of a base of [ILEC-served] customers who are unlikely to change providers in response to competitive alternatives," (Wood Rebuttal 46.) fails to note that these are *business customers* that he is talking about.

This is an important omission because business customers are unlikely to have an irrational bias against changing providers. Businesses can be expected to make a rational evaluation of a CLEC's service offering, and it is safe to assume that they

generally are among the more savvy telecommunications services end-users. Businesses have the incentive, especially in this economy, to aggressively manage their costs and resource use. Any churn rate related to business customers is not biased either way by including the ILEC experience with its business customers. Moreover, the *efficient* CLEC should be able to reduce its churn rate to that of the ILEC for business customers through, e g., term contracts, superior service, and the like. Indeed, recent statistics I have seen suggest that in the business market, ILEC churn may exceed CLEC churn.

Q. DO YOU HAVE ANY COMMENTS REGARDING MR. WOOD'S DISCUSSION OF YOUR ESTIMATE FOR "CHURN"?

A Yes. My recommended churn rate for residential customers is 4 percent, which is the same rate that Z-Tel experienced, according to investment analysts, and it is also the same rate that Z-Tel told the FCC that it experienced (TRO 471.) Moreover, according to the FCC, Z-Tel claims that "carriers in a competitive market cannot expect to keep any particular customer for more than 18-24 months," (TRO 471) which implies a monthly churn rate of 2.9 to 3.9 percent. In my direct testimony, I also noted an investment analyst report by Banc of America. This report estimates that AT&T's own local experience is on the order of 4 6 percent It is entirely disingenuous to suggest that an efficient CLEC cannot attain a 4 percent churn rate for its residential customers

Q. MR. WOOD CLAIMS THAT RELIANCE ON WIRELESS CHURN RATES IS "MISPLACED" BECAUSE THE WIRELESS INDUSTRY HAS (TO THIS POINT) HAD NO NUMBER PORTABILITY AND BECAUSE IT USES TERM CONTRACTS. (WOOD REBUTTAL 46.) PLEASE COMMENT.

A. I specifically examined the issue of number portability in my direct testimony (although Mr. Wood does not acknowledge this in his rebuttal testimony). On pages 32-33 of my direct testimony, I explained that analysts at Banc of America Securities held the view (with which I agree) that wireless churn was indicative of local churn, though local churn may be higher due to number portability. Wireless churn is on the order of 2 6 percent I recommend a residential churn rate of 4 percent, or some 54 percent higher than the wireless churn rate This is in line with the 4.6 churn rate that Banc of America estimates for AT&T's own local services (which may not be an efficient CLEC). It is also in line with the estimate of a Morgan Stanley investment analyst report that I noted (page 33) in my direct testimony Finally, I noted in my testimony that at least one analyst estimates that wireless number portability will increase wireless churn rates by about 50 percent, which will put them at about 4 percent, or, in other words, about the same as my estimate for an efficient CLEC serving its residential customers.

The efficient CLEC can reduce churn by introducing attractive, useful new services, pricing plans, billing options, and the like that the ILEC does not offer. Thus, churn is at least in part a management issue—it is a cost that a carrier actively must try to manage. I find it very disingenuous, and smacking of a defeatist self-pitying attitude to argue, as Mr. Wood does, that the ILECs "effectively dictate CLEC churn rates" going forward. (Wood Rebuttal 46)

G. SALES COSTS

Q. MR. WOOD CLAIMS THAT THERE IS A MISMATCH BETWEEN CUSTOMER ACQUISITION COSTS, WHICH APPLY TO A NARROW RANGE OF SERVICES, AND THE BROAD RANGE OF CUSTOMER SERVICES THAT THE MODELED CLEC IS SAID TO OFFER. (WOOD REBUTTAL 51.) PLEASE COMMENT.

A. I disagree. This argument does not apply to business customers, because my recommendation for customer acquisition costs is derived from a multiple of first-month's revenues. Thus, the broader or more expensive the services, the higher is the implied customer acquisition cost For residential customers, however, I propose a flat $95 per customer location. My recommendation of residential acquisition costs of $95 is sufficient to accommodate the entire portfolio of services. My parameter value is based on the experience of existing UNE-P-based

firms such as Z-Tel (which has a target of $50) and Talk America (whose actual costs are estimated to be $80) My parameter value of $95 is substantially higher than either Moreover, as I explained in my direct testimony, Hazlett and Havenner describe why existing UNE-P-based firms that operate in areas that legitimately are unimpaired have the incentive to inefficiently increase their customer acquisition costs. Therefore it may be the case that Talk America's customer acquisition costs are inefficiently high.

I can demonstrate that my proposal is sufficient to accommodate customers who order DSL as well as voice services. Consider the example that I show in Exhibit DJA-10. This exhibit shows that customer acquisition costs, based on the Z-Tel and Talk America figures, are on the order of $50 to $80 I compute an incremental customer acquisition cost associated with DSL from data provided by Dr. Bryant. For those customers who obtain *both* voice and DSL service from the efficient CLEC, customer acquisition costs should be on the order of $150 to $180. In the BACE model, this represents approximately 15 percent of a CLEC's customers. The other 85 percent obtain voice services only Thus, the weighted average customer acquisition cost for the portfolio of services should be on the order of $64 to $95 for the average customer, yet the BACE model applies $95 to *every* customer

Q. PLEASE RESPOND TO DR. BRYANT'S ADDITIONAL CRITICISMS OF YOUR CUSTOMER ACQUISITION COSTS. (BRYANT REBUTTAL 35-36.)

A. Dr. Bryant makes several claims. He says that my customer acquisition costs are, at the low end, based on the Z-Tel experience. (Bryant Rebuttal 35.) This is only partly true I considered customer acquisition costs for Z-Tel, Talk America, and AT&T as shown in Revised Exhibit DJA-06 in my Rebuttal testimony, all of which are wireline, local exchange providers. (Moreover, this applies only to residential acquisition costs)

Dr. Bryant then claims that his sources range from $80 to $400. He says that these are from the "same types of sources" that I used. (Bryant Rebuttal 35.) That is not true. According to Dr. Bryant, the $400 estimate is for a *wireless provider*. I did not consult wireless providers to create my estimate because the differences between the wireline and wireless industries on this particular dimension invalidate any simplistic comparison of customer acquisition costs. As should be well known, wireless providers often underwrite the cost of the handset Neither Dr. Bryant nor Dr. Gabel appears to make any adjustment for that. This invalidates any simple, direct use of wireless providers as indicators of customer acquisition costs for an efficient wireline CLEC Moreover, as I indicated, wireless churn is on the order of 2 6 percent per month, which is substantially less than the 4 percent for residential

customers that the BACE model uses. Accordingly, wireless providers reasonably can afford to spend more on customer acquisition, since their average customer stays with them half-again as long as does the efficient CLEC's customer (i.e., 27 months versus 17 months)

The one item of Dr. Bryant's that corresponds to some of my data is the claim that Z-Tel's customer acquisition costs are on the order of $80. This is reasonably consistent with the estimate that I obtained for Z-Tel of $60-70, with a management goal of $50. (See Revised Exhibit DJA-06 in my Rebuttal Testimony) I will note that this is about the same as the Talk America experience, and it is about 15 percent less than my recommendation. But, Dr. Bryant is recommending $130. *None* of the CLEC data that Dr. Bryant considers (Dr. Gabel's or my own) provides him with any legitimate support for his $130 customer acquisition cost It is only by misapplying the wireless experience that he is able to "justify" his recommendation.

Q. DR. BRYANT CLAIMS THAT CUSTOMER ACQUISITION COSTS ARE "UNKNOWABLE" IN A POST UNE-P MARKET. (BRYANT REBUTTAL 35.) PLEASE RESPOND.

A. As I noted earlier in this testimony, complete and absolute certainty is not required to make a reasoned and reasonable estimate of customer acquisition cost, or any

other variable required for the potential deployment analysis. Dr Bryant returns to this argument to advocate running "scenarios" where the customer acquisition costs in a post-UNE-P market substantially exceed those for UNE-P-based firms (Bryant Rebuttal 36, MTB-10 and MTB-12.) In making this argument Dr. Bryant does not try to rebut, nor does he even mention, the Hazlett and Havenner discussion. Because he does not address this, he cannot legitimately claim that customer acquisition costs for a switch-based CLEC will "substantially exceed" those of UNE-P-based firms.

Moreover, the CLECs themselves do not appear to support Dr. Bryant's claim MCI submitted to the FCC an *ex parte* study that purported to compare the incremental cost of the change from serving residences via UNE-P to UNE-L. The study excluded marketing and customer service costs, which indicates that the modelers did not see fit to change them (i e., increase them for a UNE-L provider).

H. G&A

Q. DR. ARON, YOU RECOMMEND THAT G&A EXPENSES BE MODELED AS A PERCENTAGE OF REVENUE, AS DETERMINED FROM AN ANALYSIS OF ILEC DATA. PLEASE DESCRIBE WHY SUCH AN ANALYSIS SHOULD APPLY TO THE G&A COSTS OF AN EFFICIENT CLEC. (WOOD REBUTTAL 51.)

A There are two important countervailing advantages that suggest that the G&A expenses associated with an efficient CLEC can reasonably be equal to or even less than those of ILECs First, as I have noted, the CLEC that we have elected to model is a new entrant into the market. This provides us with a very conservative starting point because, in reality, CLECs are not new entrants, they have an existing base of operations and some, such as AT&T and MCI, are substantial firms in their own right. These firms have the ability to serve multiple markets and to adjust their G&A resources accordingly. It is reasonable that they should be able to at least meet the traditional cost structure of the ILEC. An evaluation of an estimate of G&A expenses should keep in mind the reality that the efficient CLEC reasonably could be modeled as part of a much larger firm, such as AT&T or MCI, and that these larger firms should be able to efficiently adjust the resources that they devote to G&A in the various markets that they serve. I would also note that my analyses included many large and small ILECs, not only the four major ILECs.

Moreover, from an entirely different perspective, there are countervailing advantages that are open to a smaller CLEC. A smaller, efficient CLEC that does not bear the regulatory burdens of an ILEC may be able to implement a more streamlined organization than the ILECs traditionally have had. Thus, providing the efficient CLEC with G&A expenses that have the same percent of revenue as the ILEC's is reasonable

In addition to these countervailing advantages, I will also add that the method of analysis that I used to determine the appropriate ratio for the efficient CLEC was based on the accounts from the ILEC data that CLECs normally include in their own G&A expenses In this way, I ensured that there was comparability between the type of G&A expenses that were being measured and their applicability for the efficient CLEC.

I. CREAM SKIMMING

Q. PLEASE RESPOND TO MR. WOOD'S DISCUSSION ON CREAM SKIMMING. (WOOD REBUTTAL 34-39.)

Mr. Wood devotes considerable attention to the issue of cream skimming. Remarkably, he claims that CLECs do not engage in cream skimming. He tries to draw a meaningless distinction between what he would call cream skimming (which he says refers to the results of, e g , marketing programs to draw the most profitable customers) and customer self-selection, which, as I will describe, is simply another way of implementing cream skimming In any event, in a separate docket in Texas, one of AT&T's witnesses, Phillip L. Gaddy, admitted the obvious, that cream skimming (or what Mr Gaddy referred to as "cherry picking") is "simple business common sense." (Gaddy Rebuttal Testimony before the Public

Utility Commission of Texas, Docket No. 28600, January 5, 2004, p 20) Indeed, AT&T's Chief Executive Officer, David Dorman has admitted to customer targeting. At a recent investors conference AT&T Chairman and CEO David W. Dorman stated·

> We continue to take a targeted approach to attract and retain high-value customers to our bundled services offerings, allowing us to drive profitability in this area of our business. (AT&T Press Release, "AT&T Chairman Outlines Aggressive Competitive Strategy at SCFB Conference," (December 11, 2003). Downloaded from http.//biz yahoo.com/prnews/031211/nyth130_1 html (quoting AT&T Chairman and CEO David W. Dorman) on December 15, 2003.)

On page 36 of his rebuttal testimony, Mr. Wood presents a discussion of marketing activity that he claims is not cream skimming He argues that a disproportionate number of the more profitable long-distance customers "self-selected" themselves and left AT&T, because they could obtain greater savings elsewhere. (Wood Rebuttal 36) This admission succinctly describes the use of pricing plans to skim the cream Pricing plans are a very common, powerful, and efficient way to cream skim Indeed, if Mr. Wood had more carefully read my direct testimony he would have seen that in discussing the issue of "countervailing advantages" that are

available to CLECs, I described precisely the situation that Mr Wood observed in the long-distance businesses

> The ability to target attractive customers selectively is one such advantage that CLECs have exploited in reality and is highlighted in the TRO (. .). For example, suppose a CLEC determines that it is only profitable to sell to customers who spend at least $60 on local service, features, and long-distance service. The CLEC would then enter the market with a $60 service bundle so that, by self-selection, most of the customers acquired would be profitable (Aron Direct 22.)

These price plans skim the cream because they are meant to discourage customers that spend substantially less than $60 on local service, features, and long-distance services from subscribing with the CLEC In other words, the CLEC in my example did not seek to "identify" customers in the normally-understood sense of that term (e.g , actively calling them or looking for them), nor did it create a "marketing plan" in the sense of hailing high-spending customers. The CLEC simply designed its prices to attract high-profit customers (those that spend at least $60) and discourage low-profit customers (those that spend far less than $60) and let the customers skim themselves. This is cream skimming, and Mr. Wood admits to this strategy Mr Wood apparently seeks to draw some type of distinction

between marketing to higher-spending customers and customers "self-selecting," based on the design of the offer's price, as if there were some type of meaningful difference between the two. For purposes of the BACE model, there is no meaningful difference.

Q. HOW CAN MR. WOOD ARGUE THAT CLECS THAT SELF-PROVISION SWITCHES DO NOT HAVE AN INCENTIVE TO CREAM SKIM? (WOOD REBUTTAL 37-38.)

A. The argument is obviously incorrect. Mr. Wood argues that a CLEC has the incentive to "obtain all customers served by [a] wire center." (Wood Rebuttal 37.) Mr. Wood also claims that a CLEC will seek to serve as many customers as it can as quickly as possible Both of these reasons are nonsense

Quite plainly, a CLEC has absolutely no incentive to serve customers that do not provide the CLEC with a positive contribution over their expected lifetime of service Moreover, the prices of packages that I observed marketed on web sites indicates that the CLECs offered bundles on the order of $50 rather than bare-bones local service The higher-priced bundled packages may be offered to everyone, but the packages are *specifically designed to dissuade* those who only wish to purchase bare-bones local service, and instead they are specifically designed to appeal to those who spend substantially more. (They may also attract those who, on average,

currently may spend somewhat less than the offered price, but want the assurance and safety of a flat rate, or value the additional services more than their incremental price.)

Q. BUT, IS IT NOT TRUE, AS MR. WOOD ARGUES, THAT A LOW-SPENDING CUSTOMER IS BETTER THAN NO CUSTOMER AT ALL? (WOOD REBUTTAL 39.)

A Not necessarily If it costs $50 to acquire a new customer, but that customer contributes only $40 in margin (i.e., revenues less variable costs) over his or her tenure with the CLEC, then it is more costly to the CLEC to obtain that customer than to have no customer at all Such a customer does not help the CLEC contribute to the recovery of large fixed costs, instead, that customer becomes a cash drain on the firm and contributes negative value (or NPV).

J. DSL CROSS-PENETRATION

Q. MR. BRADBURY CLAIMS THAT YOUR PENETRATION RATES FOR DSL FOR RESIDENCES AND FOR SMALL ("SOHO") BUSINESSES ARE TOO HIGH. (BRADBURY REBUTTAL 23-24.) PLEASE COMMENT.

A. First, I assume 5 percent penetration in year 1 and that increases to 15 percent in the third year for residential customers Similarly, I assume that DSL penetration for SOHO customers increases from 10 percent in year 1 to 25 percent in year 3 Also, my DSL penetration rate is *contingent on* the CLEC winning the voice line Accordingly, a 15 percent DSL penetration in year 3 translates into about 2 percent of the total residential customer locations in the market that are obtaining DSL service from the CLEC, and about 3.3 percent of total SOHO customer locations obtaining DSL service from the CLEC I would think that these estimates are well within the mainstream expectations for broadband penetration. Moreover, the 15 percent residential penetration (and the 25 percent SOHO penetration) are merely "inputs" to the BACE process. The model computes the 15 percent (or 25 percent) penetration *only on DSL compliant loops* Thus, actual, effective year 3 DSL penetration for the CLEC is less than 15 (or 25) percent. In other words, if only 75 percent of the residential loops in a wire center can support DSL, the actual (or "output") penetration rate for residential DSL would be about 11 percent (i.e., 75 percent x 15 percent).

The only evidence that Mr Bradbury presents to support his claim that my estimates are too high is his claim that BellSouth's "current penetration rate" for its retail FastAccess Service is approximately 6 percent. Mr. Bradbury does not indicate when he computed his figures, but DSL penetration has been growing robustly. For example, a study by Cahners In-Stat suggests that DSL revenues will

increase by 54 percent per year through 2005. (Cahners In-Stat, "U:S. Residential DSL Market Continues to Grow," October 2001, p. 2.)

The robust growth potential applies to small businesses as well. As long ago as 1999, firms with 1-4 telephone lines, 47.8 percent had access to the Internet through dial up or high-speed means. (U.S. Small Business DSL Services Market Assessment and Forecast, 1998-2003, International Data Corporation, October 1, 1999, p. 12) This represents an opportunity for CLECs to market broadband services. BellSouth proprietary data regarding DSL penetration for its smaller business customers, which I reviewed, showed that as of August 2003, there was penetration ***[redacted]***.

Finally, Mr. Bradbury ignores the fact that the efficient CLEC, executing the most efficient business model, can target those customers who are more likely to want broadband along with their voice service. This permits the efficient CLEC to increase the proportion of *its* customers who have DSL even beyond the overall market penetration rate. A penetration rate of 15 percent for CLEC-served customers can be consistent with an *overall* DSL penetration of *less than 15 percent* for all residential customers

Such targeting appears to be occurring with real-world CLECs. According to computations that I made based on DSL penetration data from Cahners In-Stat and on overall line penetration data from the FCC (for approximately the same period of 2001), CLECs (including IXCs) served about 15 percent of DSL lines, while according to the FCC, CLECs accounted for about 9 percent of total lines. This indicates *an above-average propensity for CLEC voice customers to subscribe to DSL*. The penetration rates that I recommend for residences and SOHO (which do not increase above 15 percent for residences, or above 25 percent for SOHO customers) are conservative and consistent with these observations.

Q. MR. KLICK ARGUES THAT MANY OF TODAY'S CLEC CUSTOMERS DO NOT OBTAIN DSL FROM THEIR UNE-P-BASED SERVICE PROVIDERS. (KLICK REBUTTAL 39-40.) PLEASE COMMENT.

A Whether this is true is not relevant for considering the capabilities of the UNE-L-based CLEC in providing DSL services to its customers, since the UNE-L-based CLEC has the authority to provide such services on the loop that it leases. Moreover, in creating the business case for the efficient CLEC, the TRO directs us to consider *all* potential revenues. (TRO 519) Indeed, the TRO specifically states that.

> The state must also consider the revenues a competitor is likely to obtain from using its facilities for providing data and long distance services and from serving business customers. (TRO 519, footnote omitted)

Q. MR. KLICK LISTS A SERIES OF REASONS THAT HE CLAIMS PREVENTS HIM FROM MAKING A DETAILED ANALYSIS OF THE BACE MODEL'S DSL CROSS-PENETRATION ASSUMPTIONS. (KLICK REBUTTAL 40.) PLEASE COMMENT ON THESE.

A. Yes. Although Mr Klick writes in the third person, he essentially admits not being able to understand (1) how the residence and business categories were derived in each wire center, (2) DSL cross-penetration for each of the spend quintiles or terciles, and (3) DSL costs used in the BACE model. Mr Klick also claims not to understand precisely the extent to which DSL service is provided by different types of carriers (ILECs, CLECs, and DLECs). I have explained the derivation of all of these in my direct, rebuttal, and this testimony, I have been deposed in Florida on the estimates that I provided to the BACE model (the transcript to which Mr. Klick would have access), I have provided programs and workpapers in multiple rounds of discovery. If Mr Klick does not understand how these inputs were developed, I refer him to this record

K. PURCHASING POWER

Q. DOES MR. KLICK ARGUE THAT CLECS WOULD HAVE LESS PURCHASING POWER THAN BELLSOUTH? (KLICK REBUTTAL 38.)

A. Mr. Klick makes only the oblique argument that if the CLEC is substantially smaller than BellSouth, as might be the case if it is serving only 3 markets, it may not receive the same vendor discounts. However, Mr Klick provides no real evidence on this point, or any reason why the efficient CLEC, executing the most efficient business plan, would fail to serve other markets in the state I will point out that Mr. Klick's client, AT&T, is an enormous telecommunications carrier and likely can avail itself to any vendor discounts as well AT&T has ongoing relationships with switch vendors. Indeed, AT&T used to own one of the major switch manufacturers (Lucent). MCI and Sprint are other national telecommunications providers with substantial purchases of equipment. It is not credible that these CLECs cannot also obtain vendor discounts.

Q. DOES THIS COMPLETE YOUR SURREBUTTAL TESTIMONY?

A. Yes.

Example of Economies of Scope				
		Voice Only	DSL Only	Both Provided Together
	Loop Cost	$20	$20	$20
+	Switching Cost	$10	$0	$10
+	Other Costs	$0	$10	$10
=	Total Costs	$30	$30	$40
	Revenue	$20	$20	$40
=	Profit	($10)	($10)	$0

Residential Customer Acquisition Costs				
	Notes	Voice & DSL	Voice Only	Total
Voice service	(1)	$50-80	$50-80	
Incremental cost for DSL	(2)	$95	$0	
Total Cust. Acq. Cost		$145-175	$50-80	
Pct. Of CLEC's Customers	(3)	15%	85%	
Weighted Cust. Acq Cost		$22-$26	$42-68	$64-94
(1) Source is Exhibit DJA-06, based on Z-Tel and Talk America (2) Source is Bryant (Voice + DSL = $225, voice only is $130, so incremental cost of DSL is $95) (3) Source is Exhibit DJA-05				

BELLSOUTH TELECOMMUNICATIONS INC.

SURREBUTTAL TESTIMONY OF DR. RANDALL S. BILLINGSLEY, CFA

BEFORE THE TENNESSEE REGULATORY AUTHORITY

DOCKET 03-00491

MARCH 17, 2004

I. INTRODUCTION

Q. Please state your name, occupation, and business address.

A. My name is Randall S Billingsley. I am a finance professor at Virginia Polytechnic Institute and State University I also act as a financial consultant in the areas of cost of capital analysis, financial security analysis, and valuation. My business address is: Department of Finance, Pamplin College of Business, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061-0221

This surrebuttal testimony presents my independent professional opinions and is not presented by me as a representative of Virginia Polytechnic Institute and State University.

Q. Have you previously submitted testimony in this proceeding on behalf of BellSouth Telecommunications Corporation (BST)?

A. Yes.

II. PURPOSE OF SURREBUTTAL TESTIMONY AND SUMMARY OF CONCLUSIONS

A. PURPOSE OF SURREBUTTAL TESTIMONY

Q. What is the purpose of your testimony in this proceeding?

A. My purpose is to critically evaluate the cost of capital-related portions of Mr. Don J. Wood's rebuttal testimony filed on behalf of AT&T Communications of the Southern States, L.L.C. (AT&T), which is dated February 27, 2004. I show that his rebuttal testimony provides no insight into the current capital costs faced by competing local exchange companies (CLECs) in general or any specific insight into the appropriate discount rate to be used in the BellSouth Analysis of CLEC Entry (BACE) model. Below I summarize my analysis of Mr Wood's rebuttal testimony

B. SUMMARY OF SURREBUTTAL OF MR. DON J. WOOD'S REBUTTAL TESTIMONY ON BEHALF OF AT&T COMMUNICATIONS OF THE SOUTHERN STATES, L.L.C.

Q. What issues does your surrebuttal focus on in Mr. Wood's rebuttal testimony concerning the CLEC industry's capital costs?

A. My surrebuttal shows that most of Mr Wood's testimony provides nothing more than unsupported speculations concerning CLEC capital costs and the rest presents inconsistent and incorrect arguments that leave us with no evidence on current CLEC capital costs. Importantly, Mr. Wood provides *absolutely no estimates* of CLEC capital costs. I identify numerous examples of his unsupported personal opinions in my surrebuttal Further, I focus on Mr Wood's inconsistent and incorrect argument that currently operating CLECs possess inefficient, sub-optimal capital structures and yet at the same time somehow are economically efficient. This contradictory argument dramatizes his misunderstanding of the information provided by currently operating, market-traded CLECs concerning their capital costs. I also evaluate Mr. Wood's misguided projection that past CLEC infrastructure investments and associated bankruptcies will necessarily be repeated in the future In summary, Mr. Wood's unsupported and incorrect observations tell us nothing meaningful about the appropriate discount rate that should be used in the BACE model.

III. ANALYSIS OF MR. DON J. WOOD'S REBUTTAL TESTIMONY ON BEHALF OF AT&T

A. QUALIFICATIONS AS A COST OF CAPITAL EXPERT

Q. Are you familiar with Mr. Wood's testimony as a cost of capital expert in other regulatory proceedings?

A No. While I have read and rebutted Mr Wood's testimony in other regulatory proceedings,

in my experience he has always simply summarized the cost of capital recommendations made by the cost of capital expert(s) working in the given case. I am not familiar with any independent work done by Mr. Wood as a cost of capital expert. I am consequently surprised that he appears to consider himself a cost of capital expert in the current proceeding and I know of no basis for doing so.

B. EVIDENCE CONTRADICTING MR. WOOD'S ASSUMPTION OF CLEC INEFFICIENCY

Q. Do you agree with Mr. Wood's position that CLECs are currently operating efficiently?

A No, I believe that the evidence contradicts Mr. Wood's position He incorrectly argues that:

> . . the fact that a significant number of CLECs have gone bankrupt suggests that competitive market constraints have winnowed the field and those CLECs that currently are operating do have efficient operations. In order to make reasonable assumptions about efficient CLEC costs, it is logical to look at currently operating CLECs (Rebuttal Testimony, p 50, lines 6 - 10).

Mr. Wood's argument reduces to unsupported speculation that CLECs that did not go bankrupt are, by definition, necessarily operating efficiently As shown in my direct testimony in this proceeding, the average bond rating for a sample of market-traded CLECs is CCC+/CCC (see Billingsley Exhibit No. RSB-6) This is a speculative-grade bond rating

that is associated with firms in financial distress Consider the following definition of the CCC-level rating:

> An obligation rated 'CCC' is currently vulnerable to nonpayment, and is dependent upon favorable business, financial, and economic conditions for the obligor to meet its financial commitment on the obligation. In the event of adverse business, financial, or economic conditions, the obligor is not likely to have the capacity to meet its financial commitment on the obligation (***Standard & Poor's Bond Guide***, October 2003, p 4).

It is absolutely amazing that Mr Wood argues that such firms should be used "... to make reasonable assumptions about efficient CLEC costs." The evidence obviously contradicts this Further, Mr. Wood's reliance on unadjusted data drawn from inefficient CLECs is inconsistent with the Federal Communication Commission's (FCC's) assertion that the cost of capital should reflect a forward-looking, efficient network (see Triennial Review Order, In Re Review of the Section 251, Unbundling Obligations of Incumbent Local Exchange Carriers, First Report and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36, released August, 21, 2003, pp. 419-420, §682).

C. INCONSISTENT ARGUMENT THAT CLEC CAPITAL STRUCTURES ARE NOT EFFICIENT

Q. After arguing that CLECs are currently operating efficiently, does Mr. Wood also argue that current CLEC capital structures are not efficient, target capital

structures?

A. Yes. Mr. Wood states:

> This structure is clearly not the target capital structure of these companies, but has arisen in large part because of the precipitous drop in the companies' stock prices (Rebuttal Testimony, p. 57, lines 18 - 20).

Mr. Wood is inconsistent. On one hand he argues that CLECs are efficient and a reasonable source of representative capital costs Yet on the other hand he argues that their current capital structure is not equal to their target, optimal capital structure. His only explanation for this contradictory speculation concerning current CLEC capital structures is that they are the result of the "precipitous drop in the companies' stock prices." Mr Wood's contradictory, inconsistent argument does not make sense. The truth that must be faced is that CLECs are not currently efficient in a comprehensive sense It is consequently reasonable to use the averaging process that I do to produce a representative bounded estimate of representative CLEC capital costs. It is eminently appropriate to bound current CLEC costs on the downside with the S&P 500 and on the upside with capital costs produced by a CLEC sample, which is obviously in an inefficient condition.

D. MR. WOOD'S SPECULATIONS CONCERNING CLEC FUTURE INFRASTRUCTURE INVESTMENTS

Q. What speculation does Mr. Wood make concerning future CLEC infrastructure investments based on history?

A. The gist of Mr. Wood's speculation is that CLECs have no capacity to understand or to avoid their past mistakes. He states that.

> CLECs invested in network infrastructure (large fixed costs) based on an anticipation of future revenues that would make their market entry economic. Their assumptions regarding whether entry in this manner would be economic, now clearly flawed, are very similar to the assumptions that BellSouth is now inviting CLECs to make through the results of its business case analysis (and is asking the Authority to conclude that the CLEC's should accept the invitation)
>
> CLECs face a decision of whether or not to invest in network infrastructure (in this case a local circuit switch, whose cost characteristics cause it to represent a large fixed cost) BellSouth argues that they could rationally do so ... (Rebuttal Testimony, p. 54, line 27 - p 55, line 10).

Thus, Mr Wood attributes the CLECs past woes to network infrastructure investments with "large fixed costs" and predicts that CLECs will necessarily experience the same troubles again in the future However, I do not share Mr. Wood's uncomplimentary view of the CLECs' ability to learn from past challenges. The future is not necessarily a simple extension of the past and learning is possible

E. RELATIVE RISK OF CLECS AND ILECS

Q. Does Mr. Wood provide any evidence to support his position that CLECs face higher risks than incumbent local exchange companies (ILEC's)?

A. No Mr. Wood offers no evidence on the relative riskiness of CLECs and ILECs. He only expresses his unsupported opinion as follows:

> There is a fundamental difference in the risk incurred by a former monopoly provider, with existing network facilities and an existing base of customers, and the risk incurred by a new entrant to enter the market by making a large fixed investment without the customer base needed to recover the cost of that investment (Rebuttal Testimony, p 53, lines 1 - 5).

He then speculates that "... a CLEC continues to face, for the reasons described above, much higher risk than an ILEC" (Rebuttal Testimony, p 54, lines 9 - 11)

While CLECs may well be riskier than ILECs, any possible difference should be *demonstrated* using empirical evidence rather than *assumed*. Mr. Wood *speculates* about the relative risks of ILECs and CLECs when evidence is needed, not his opinion.

IV. SUMMARY OF COST OF CAPITAL ANALYSIS FOR BACE MODEL

Q. Please summarize your recommendation concerning the appropriate pre-tax overall cost of capital that should be used to calculate the NPV in the BACE model.

A As presented in my previously filed direct testimony in this proceeding, my cost of capital estimation approach adapts to the data problems resulting from the current troubled environment facing the CLEC industry. I essentially provide "ceiling" and "floor" estimates

of the industry's capital costs Thus, I use two surrogates to measure the representative CLEC's capital costs I use the S&P 500 as a lower-bound or minimum estimate of the representative CLEC's cost of capital and I also use a sample of publicly-traded CLECs that provides an upper-bound or maximum estimate of the representative CLEC's cost of capital. I then provide a reasonable estimate of the industry's overall capital costs by averaging the results of my two approaches.

My analysis indicates that a forward-looking cost of equity estimate for the representative CLEC is an average of 17 55%. I also find evidence that the cost of debt of the representative CLEC is an average of 9 92% The average market value-based capital structure of firms is 58 50% debt and 41.50% equity Combining this average capital structure with the above average costs of debt and equity produces an average pre-tax overall cost of capital for the representative CLEC of 13 09%. This bounded averaging approach provides the most reasonable estimate of efficient CLEC capital costs in the current environment

In summary, I recommend that the Tennessee Regulatory Authority use a *before-tax* overall cost of capital of 13.09% as an input in the BACE business case model. This cost of capital should be adjusted to reflect the effect of taxes before using it to discount the after-tax cash flows generated by the BACE model

Q. Does this conclude your surrebuttal testimony?

A Yes, it does.

BELLSOUTH TELECOMMUNICATIONS, INC

SURREBUTTAL TESTIMONY OF KATHY K BLAKE

BEFORE THE TENNESSEE REGULATORY AUTHORITY

DOCKET NO. 03-00491

MARCH 17, 2004

Q. PLEASE STATE YOUR NAME, YOUR POSITION WITH BELLSOUTH TELECOMMUNICATIONS, INC. ("BELLSOUTH") AND YOUR BUSINESS ADDRESS.

A. My name is Kathy K Blake. I am employed by BellSouth as Director – Policy Implementation and Regulatory Compliance for the nine-state BellSouth region. My business address is 675 West Peachtree Street, Atlanta, Georgia 30375.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

A. Yes, I filed direct testimony and four exhibits on January 16, 2004 and rebuttal testimony on February 27, 2004.

Q. ALL PARTIES HAVE DIRECTED THE TENNESSEE REGULATORY AUTHORITY ("AUTHORITY") TO VARIOUS PORTIONS OF THE TRIENNIAL REVIEW ORDER ("*TRO*") AND THE RULES IN SUPPORT OF THEIR POSITIONS IN THEIR DIRECT TESTIMONY WHAT IS THE IMPACT OF THE D C. CIRCUIT COURT OF APPEALS ORDER ON THE TRO IN THIS PROCEEDING?

A. Currently the impact of the D.C Circuit Court's opinion is unclear. At the time of filing this testimony, the D.C. Court had vacated large portions of the rules promulgated as a result of the *TRO*, but stayed the effective date of the opinion for at least sixty days. Therefore my understanding is that the *TRO* remains intact for now, but its content, and the rules adopted thereto, must be suspect in light of the court's harsh condemnation of large portions of the order. Accordingly, I will reserve judgment, and the right to supplement my testimony as circumstances dictate, with regard to the ultimate impact of the D.C Court's order on this case.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY AND HOW HAVE YOU ORGANIZED IT?

A. My surrebuttal testimony addresses numerous comments contained in the rebuttal testimony filed by other witnesses in this proceeding on February 27, 2004.

In the first section of my testimony, I make some general observations regarding the rebuttal testimony filed in this proceeding. I then walk through each step of the investigation that the Federal Communications Commission ("FCC") asked the state commissions to undertake to determine whether Competitive Local Exchange Carriers ("CLECs") are impaired without unbundled local switching – specifically, the definition of the geographical market and the mass market/enterprise crossover and the application of the triggers and potential deployment tests. In so doing, I discuss the testimony of various CLEC witnesses and highlight areas of agreement and summarize rationales for BellSouth's

positions where disagreement exists. More detailed arguments can be found in the testimonies of other BellSouth witnesses, to whom I will refer as appropriate.

GENERAL OBSERVATIONS

Q. ARE YOU FAMILIAR WITH THE REMARKS OF OTHER WITNESSES WHO HAVE FILED REBUTTAL TO BELLSOUTH'S DIRECT TESTIMONY?

A Yes. I have reviewed the testimonies of the numerous witnesses who have filed rebuttal testimony in this proceeding, including that of Messrs. Argenbright, Bradbury, Turner and Wood on behalf of AT&T Communications of the Southern States, LLC ("AT&T"), Mr. Gillan on behalf of Competitive Carriers of the South, Inc. ("CompSouth"), Dr. Bryant and Mr. Webber on behalf of MCI WorldCom Communications, Inc. and MCI Metro Access Transmission Services LLC ("MCI"), and Mr Brown on behalf of the Consumer Advocate and Protection Division of the Office of the Attorney General ("CAPD").

Q WHAT IS YOUR GENERAL IMPRESSION OF THE REBUTTAL TESTIMONY?

A. I would make three general observations. First, there seems to be a general tendency toward selective obfuscation. That is, although the FCC has left some issues to the interpretation of the Authority, there are other issues – such as the application of the triggers tests or the type of CLEC to be modeled in the potential deployment test – on which the *TRO* is crystal clear. Although one would expect

there to be legitimate differences of opinion where interpretation is required, there should be no need to cloud issues where clarity has been provided by the FCC. As I will discuss below, Dr. Bryant and Messrs. Gillan and Bradbury are all particularly prone to issue clouding, creating unnecessary complication where none is required, presumably because they do not like the clear direction given by the *TRO*.

Second, there seems to be substantial disagreement amongst the parties attacking BellSouth's positions: some find BellSouth's suggested market definition too small, others find it too large; some find the BACE model too sensitive to inputs, others too insensitive, some claim that BellSouth has counted the wrong trigger candidates, but then argue otherwise in other proceedings (notably the current appeal from the FCC's *TRO* order) To me, this lack of consensus supports my conviction that in areas where judgments need to be made, and where legitimate differences of opinion are therefore to be expected, BellSouth has offered reasonable proposals that the Authority can feel comfortable adopting.

Finally, there are several witnesses (e.g , Messrs. Wood and Gillan) who seek to downplay the responsibility that the Authority has to determine where impairment exists and where it does not. They imply that the *TRO*'s presumption of impairment for mass-market switching based on aggregate, nationwide data shuts the door to a finding of non-impairment based on data reflecting local market conditions. In fact, nothing could be farther from the truth. The whole point of devolving responsibility to the states was ostensibly so that the state commissions could conduct the granular decision making that the FCC believed it was not in a

position to make. Indeed, as the FCC itself explained in its brief to the DC Circuit Court of Appeals: "In making certain national findings of impairment, the Commission also recognized that the record before it was not sufficiently detailed to support the nuanced decisionmaking that *USTA* required. To address those situations – involving, for example, local circuit switching, high capacity local loops, and dedicated transport – the Commission enlisted state commissions to gather and evaluate information relevant to impairment in their states. These very specific delegations were reasonably designed to ensure accurate and nuanced analyses of impairment on a market-specific basis." (Brief for Respondent at 21, *USTA v FCC,* Case No. 00-1012 (DC Cir).) (Emphasis added).

MARKET DEFINITION

Q. WHAT IS BELLSOUTH'S POSITION WITH REGARD TO THE DEFINITION OF THE GEOGRAPHICAL MARKET THAT SHOULD BE USED TO EVALUATE IMPAIRMENT?

A. BellSouth has proposed the use of UNE rate zones that the Authority has defined previously, subdivided into component economic areas ("CEAs") as defined by the Bureau of Economic Analysis, U.S Department of Commerce. As described in the direct, rebuttal, and surrebuttal testimonies of Dr Christopher Pleatsikas, this definition satisfies the multiple criteria laid out in the *TRO* and results in economically meaningful "markets" in which to consider impairment.

Q. WHAT HAVE OTHER WITNESSES SUGGESTED IN THEIR REBUTTAL TESTIMONY FOR THE GEOGRAPHICAL MARKET DEFINITION?

A. Mr. Gillan on behalf of CompSouth recommends a LATA should be considered a market. (Gillan Rebuttal, p. 13) Notwithstanding his client's membership in CompSouth, on whose behalf Mr. Gillan testifies, Dr Bryant, on behalf of MCI, suggests that each individual customer represents the appropriate economic market, although he concedes that a wire-center definition would be administratively simpler. (Bryant Rebuttal, pp. 2-7) Although Mr. Bradbury is keen to defend wire centers as the geographical unit of competition (Bradbury Rebuttal, pp 16-23), another witness for AT&T has suggested LATAs as the appropriate market definition in discovery. (AT&T – Turner's Response to BellSouth's Florida Interrogatory No 156) Mr Brown testifies at length regarding BellSouth's geographical market definition. He postulates that, because BellSouth does not cover the whole state of Tennessee, BellSouth's entire serving area in the state should be allowed, even within the TRO's prohibition against using the entire state. (Brown Rebuttal, p. 34) Further, he states that, if not the entire BellSouth serving area, the Authority should choose the three UNE zones as the minimum geographic market definition, stating "In this situation there is impairment in each UNE Zone, unless the incumbent identifies 3 different CLECs whose switches serve each zone as a single market." (Brown Rebuttal, p. 43) According to Mr Brown, to establish impairment, BellSouth must prove that the CLECs' switches actually serve the entire UNE zone. Although BellSouth does present data regarding the total number of CLEC switches deployed in BellSouth's serving area, BellSouth does not have knowledge as to the scope of

the area served by any given switch. CLECs, not BellSouth, are the best source for this information

Q. HOW WOULD YOU CHARACTERIZE THESE ALTERNATIVE POSITIONS?

A. Geographical market definition is one of those issues that support my general observation above. while Mr Gillan, Mr Brown and AT&T find BellSouth's market definition is too small, Dr. Bryant finds it is too large, which to me suggests BellSouth's proposal may actually be just right. Furthermore, it is interesting that the parties not only contradict each other, but also appear to be contradicting themselves· MCI is arguing for a larger market definition through CompSouth's witness Mr Gillan and a smaller definition through its own witness, Dr Bryant; AT&T is suggesting a LATA in discovery (AT&T Response to BellSouth's Florida Interrogatory No. 156), while its witness, Mr Bradbury, emphasizes that the Authority "must assure itself that UNE-L competition will exist in every wirecenter." (Bradbury Rebuttal, p. 20) Both MCI and AT&T have previously argued against too small a geographical market definition because their switches can provide service to a comparable area as BellSouth's tandem switches (see Blake Rebuttal, pp. 13-16), even though both are now defending individual wire centers as the unit of meaningful competition (Bradbury Rebuttal, pp. 16-23, Bryant Direct, p. 44-49).

Q WHAT SHOULD THE AUTHORITY DECIDE IN THE FACE OF THESE COMPETING ALTERNATIVES?

A It is hardly surprising that many alternative definitions of the geographical market have been propounded as this is an issue that has been left to the Authority's judgment. While UNE Zones cut by CEAs is the most logical definition, there may be others that meet the FCC's requirements. However, as Dr. Pleatsikas explains, that is not the case with two possible market definitions, both of which should be avoided. The first would be to define the whole State of Tennessee as a market, the second would be to define every wire center within Tennessee as a market. Either of these approaches would run afoul of *TRO* ¶ 495 (the former is too big, the latter is too small). As long as the Authority steers between these two "icebergs," the Authority has some latitude in defining the market

Q. TURNING FROM THE GEOGRAPHICAL MARKET TO THE DEFINITION OF "MASS MARKET," WHAT IS THE AUTHORITY'S TASK?

A. The *TRO* (¶ 497) is quite clear on this point: "Some mass market customers (i e , very small businesses) purchase multiple DS0s at a single location. .Therefore as part of the economic and operational analysis discussed below, a state must determine the appropriate cut-off for multiline DS0 customers as part of its more granular review." The Authority's task is no more and no less than to set a number of DS0s below which a customer is classified as "mass market" and above which it is classified as "enterprise" (and therefore no longer eligible for unbundled switching, per *TRO* ¶ 419).

Q. WHAT IS BELLSOUTH'S POSITION REGARDING THE APPROPRIATE CUTOFF?

A. As described in my direct testimony (p. 8), BellSouth has accepted the FCC default delineation that customers with three or fewer CLEC DS0 lines serving them should be deemed "mass market." This position has also been tentatively adopted by the Ohio PUC. (See *In the Matter of the Implementation of the Federal Communications Commission's Triennial Review Regarding Local Circuit Switching in the Mass Market,* Case No 03-2040-TP-COI, *Entry*, dated October 2, 2003, p 5.)

Q. WHAT HAVE OTHER WITNESSES SUGGESTED IN THEIR REBUTTAL TESTIMONY FOR THE CUTOFF?

A. Mr. Gillan proposes a 10-line cutoff for BellSouth's territory, which he bases on the testimony of AT&T's witness Mr. Argenbright (Argenbright Rebuttal, p. 6; Gillan Rebuttal, p. 14) The other parties are silent on this issue.

Q. WHAT SHOULD THE AUTHORITY DECIDE IN THE FACE OF THESE COMPETING ALTERNATIVES?

A. Obviously, BellSouth believes its position is a reasonable one by staying within the *TRO*'s mandate to include multiline DS0 customers while establishing an explicit cutoff. On the other hand, raising the cutoff, as Mr. Gillan suggests, only improves the chances of finding mass-market non-impairment, and so it is not

unappealing to BellSouth. However, the Authority should remain mindful of the requirement of the *TRO* and the FCC rule that a single, clear cutoff point be established between "mass market" and "enterprise" customer segments

THE TRIGGERS AND POTENTIAL DEPLOYMENT TESTS

Q. WHAT DO YOU MEAN BY THE "TRIGGERS AND POTENTIAL DEPLOYMENT TESTS"?

A Having defined the geographical markets and the "mass market" cutoff, the *TRO* lays out a clear process by which the Authority should determine whether impairment exists for local switching. All witnesses in this proceeding agree that the Authority should examine each geographical market in turn, first applying the "triggers tests," which examine whether there is actual deployment of CLEC switching on either a retail or wholesale basis. If neither of those trigger tests are satisfied, the next step is the "potential deployment test," which weighs evidence of actual deployment, operational barriers, and economic barriers to determine whether self-provisioning of facilities is potentially economic, even if it has not yet occurred to the extent required to meet either of the triggers.

Q LET US BEGIN WITH THE TRIGGERS TESTS. WHAT IS BELLSOUTH'S INTERPRETATION OF THESE TESTS?

A. Actually, very little interpretation is required. The *TRO* is crystal clear about the nature of these tests. Furthermore, BellSouth is not claiming that the wholesale facilities trigger is met in any market at this time, which simplifies matters because it means that the Authority only has to consider the self-provisioning trigger. As it is easy to get lost in the lengthy, seemingly plausible, but in fact mostly fictitious, "interpretations" of the trigger test presented by Dr. Bryant and Messrs. Gillan and Bradbury in their rebuttal testimonies, let me quote *in its entirety* the FCC's rule describing this test:

> Local switching self-provisioning trigger. To satisfy this trigger, a state commission must find that three or more competing providers not affiliated with each other or the incumbent LEC, including intermodal providers of service comparable in quality to that of the incumbent LEC, each are serving mass market customers in the particular market with the use of their own local switches (47 C.F.R. § 51.319 (d)(2)(iii)(A)(1))

Although BellSouth would prefer the trigger to be met with the presence of one or two competing providers, the text is quite clear that three is the threshold. Similarly, although many witnesses would prefer the trigger to be met only if additional criteria – such as a *de minimis* threshold, or a requirement that every customer in the market be served, or that trigger candidates have to use ILEC loops and "mass market switches" (whatever those may be) are satisfied – such criteria are inconsistent with the FCC's rule.

Ms. Pam Tipton further elaborates on these fictional criteria in her testimony, and describes how, in contrast, BellSouth has simply applied the FCC's straightforward test to the markets that have been proposed. That is, in each market BellSouth has counted how many competing providers – through their

own admission in discovery and BellSouth's internal data – are serving mass-market customers In the markets where there are three or more competing providers, the trigger has been met, and the Authority should immediately find non-impairment. In the markets where there are fewer than three competing providers, the trigger has not been met, and therefore, the Authority should continue their examination to see if the markets pass the potential deployment test.

Q. MR. GILLAN STATES THAT "THE SELF-PROVISIONING TRIGGER CANDIDATE'S SWITCHES MUST NOT BE 'ENTERPRISE' SWITCHES." (GILLAN REBUTTAL, P. 22) WHAT IS MEANT BY AN "ENTERPRISE SWITCH"?

A. Within the context of the FCC's *Order*, an enterprise switch is a switch providing service to enterprise customers through the use of DS1 or above loops (*TRO,* ¶441, fn 1354). It is clear from the discussion contained in the *TRO* that this definition is appropriate. Where a CLEC is already using its switch to serve customers using DS0 loops, clearly the serving switch already has the capability to serve mass market customers using DS0 loops and thus is not an "enterprise" switch, regardless of how many or few mass market lines the switch is serving

Q. SHOULD SWITCHES THAT SERVE PRIMARILY ENTERPRISE CUSTOMERS BUT ALSO SERVE MASS MARKET CUSTOMERS BE SOMEHOW DISQUALIFIED FROM INCLUSION IN BELLSOUTH'S TRIGGER ANALYSIS?

A. No As I explained in my rebuttal testimony (pp. 22-23), there is no distinction between a so-called "enterprise" and "mass market" switch for purposes of the trigger analysis, despite Mr. Gillan's suggestions to the contrary (Gillan Direct, pp. 37-41; Gillan Rebuttal, p. 22). The trigger analysis contains no requirement to "qualify" switches, notwithstanding CLEC claims to the contrary There is certainly no requirement to analyze switch capacity, as Mr. Gillan seeks to do. When a CLEC has self-deployed a switch that is serving mass market customers using DS0 loops as well as "enterprise" customers, the CLEC constitutes a qualified trigger candidate because its self-provisioning of switching "demonstrates adequately the technical and economic feasibility of an entrant serving the mass market with its own switch, and indicates that existing barriers to entry are not insurmountable." (*TRO* ¶501)

Q. HOW HAS BELLSOUTH DEFINED "COMPETING PROVIDERS"?

A. BellSouth has been rather conservative in defining "competing providers." For example, despite the evidence in the *TRO* itself that "local services are widely available through CMRS providers" (¶ 230), that CMRS providers are sufficiently competitive with the incumbent LEC that they should qualify for UNEs (¶ 140), and that CMRS is "growing as a...replacement for *primary* fixed voice wireline service" (¶ 230), BellSouth chose not to challenge the FCC's statement that "at this time we do not expect state commissions to consider CMRS providers in their application of the triggers" (fn 1549) Similarly, BellSouth did not include internet-based telephone providers, such as Vonage, as trigger candidates,

although internet-based telephone providers and CMRS providers are clearly a growing presence and a direct and ubiquitous substitute for the incumbent LEC's voice service. (See Exhibit KKB-5)

Eliminating these two categories of trigger candidates leaves only wireline CLECs as included as "competing providers." I should mention in passing that BellSouth has of course included cable companies as trigger candidates, which is completely consistent with the *TRO*. It is surprising that Dr. Bryant (pp.11-12) and Mr Gillan (Direct, pp 47-50, Rebuttal, p. 22) argue that cable companies should not be considered trigger candidates. Besides being flatly contrary to the FCC rules, MCI's and CompSouth's position before the Authority is inconsistent with the CLEC position in their DC Circuit brief where they acknowledged that the "triggers may 'count' carriers like cable companies". (Brief of CLEC Petitioners and Intervenors, *USTA v FCC,* Case No. 00-1012 (DC Cir), p. 37)

Q. WITH RESPECT TO THE "POTENTIAL DEPLOYMENT" TEST, HOW SHOULD THIS TEST BE APPLIED?

A. Although it is not quite as straightforward as the "bright-line" self-provisioning trigger test, the potential deployment test is also well described in the *TRO*. In markets where neither of the triggers tests has been met, the Authority needs to examine three criteria: evidence of actual switching deployment, operational barriers (such as the availability of collocation space and cross-connects), and economic barriers (47 C.F.R. § 51.319 (d)(2)(iii)(B)(1)-(3)) If, having weighed

these criteria, the Authority decides that self-provisioning of local switching could be economic, then it should make a finding of non-impairment

Q. HOW HAS BELLSOUTH APPLIED THIS TEST?

A. BellSouth has presented details regarding each of these three criteria. evidence of actual switching deployment is described in the pre-filed testimony of Ms. Tipton; the lack of operational barriers is described in the testimony of several BellSouth witnesses; and the assessment of economic barriers as discussed in the prefiled testimony of Mr Stegeman, Dr. Aron, and Dr Billingsley

Q WHAT HAVE OTHER WITNESSES SUGGESTED IN THEIR REBUTTAL TESTIMONY REGARDING THE POTENTIAL DEPLOYMENT TEST?

A. The focus of other witness's rebuttal testimony is primarily on BellSouth's assessment of the economic barriers This assessment was based on the BACE model, a detailed business case for a UNE-L CLEC entering the Tennessee market. In sponsoring the BACE model, BellSouth has made an effort unparalleled by any other carrier in the country to provide the Authority with a tool to assess economic impairment in a way that meets the criteria laid out in the *TRO* (see for example *TRO* ¶ 485 and the direct testimony of Mr Stegeman, pp. 6-17) Indeed, no other party has even attempted to claim that the models they originally presented in direct testimony are better suited to the task at hand. Unfortunately, instead of engaging in a constructive debate about the BACE model, the rebuttal testimonies of Dr. Bryant and Messrs. Webber, Bradbury and

Wood by and large satisfy themselves with making unfounded attacks on the input parameters or superficial complaints about the structure of the model. The former group of complaints is comprehensively dealt with in the surrebuttal testimonies of Drs Aron and Billingsley, who show that most of the issues are the results of definitional misunderstandings or attempts to substitute the months of documented research that the BellSouth witnesses have performed regarding variables such as churn, cost of capital, and selling, general and administrative ("SG&A") costs, with offhand assumptions. The latter group of complaints is handled in the surrebuttal testimonies of Messrs Stegeman, Milner and Gray, who demonstrate that none of the witnesses appear to have made a good faith attempt to understand the model, with the result that many of their alleged critiques are inaccurate and mutually contradictory.

The Authority should make use of the powerful tool that is the BACE model. Contrary to the assertion of Mr. Wood that the potential deployment test is essentially irrelevant because the absence of self-deployment "should eliminate any question regarding the ability of CLECs to enter a market and successfully compete for mass market customers without access to UNE local circuit switching" (Wood Rebuttal, pp.8-9), the *TRO* lays out a detailed and thoughtful test for state commissions to apply where the triggers are not met. So long as UNE-P promotes artificial competition by distorting market prices and subsidizing arbitrage players with no interest in making real investments in the state of Tennessee, this test may be some consumers' only hope of benefiting from real, facilities-based competition and therefore deserves to be taken seriously

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes

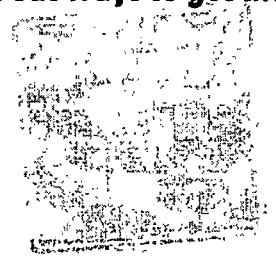
#530848

[The Atlanta Journal-Constitution 12/5/03]

Internet remolds phone service

By DAVID HO
The Atlanta Journal-Constitution

NEW YORK -- When friends and family dial Tom Tribolet's Phoenix number, the phone rings at his home in Argentina



It's not simple call forwarding but a rapidly emerging technology that allows this retired veterinarian to make or receive calls with his local phone number anywhere he has high-speed Internet access

"When I pick up the phone here in Buenos Aires, I have a live phone in the United States," said Tribolet, 64, who now trains racehorses "This is a wonderful way to be able to keep in touch with my two sons and their families and my other friends "

Analysts say the technology, called VoIP or Voice over Internet Protocol, will upset the dominance of traditional phone companies and could revolutionize communications, signaling an end to calls over the copper wires people have used for more than a century

The service is bought from a company that provides customers with a phone adapter that links ordinary phones and fax machines to the cords from a cable or DSL Internet connection.

With this future looming, regulators and telephone and cable companies are scrambling to be part of it

"Voice over IP is going to be as important and have as much impact as the telephone itself," said Jeff Kagan, an independent telecommunications analyst based in Atlanta "It's one of those disruptive technologies that's going to change everything in the business "

The incursion of Internet calling into the telecommunication industry has so far been small, with about 130,000 home phone subscribers In comparison, there are about 166 million residential phone numbers in the United States and an additional 150 million cellphone numbers

However, the number of Internet phone users is expected to jump next year as more companies offer the service

The technology converts speech into packets of digital information that speed over the Internet and are reassembled into a voice on the other end Many companies offering the service promise an experience no different from making a traditional phone call.

A leader in this nascent industry is Vonage Holdings Corp , a private company based in Edison, N J Vonage began offering its Internet phone service a year ago and has grown this year from 7,500 customers to more than 76,000

One of those thousands is Tribolet, who pays $34 99 for unlimited calling in the United States and Canada and a host of features ranging from traditional call waiting to voice-mail messages delivered to his e-mail.

How it works

Vonage and similar Internet services can call traditional residential phones, using part of the existing phone networks Calls between people using the Internet on both sides might skip the traditional phone system entirely.

Vonage customers can transfer their existing phone numbers or have their choice of local area codes for a new number

About a quarter of subscribers choose local numbers that don't match their geographic area, said John Rego, Vonage's chief financial officer. He said this uprooting of local numbers is going global, with the company expanding its operations into the United Kingdom and Switzerland

"If you're living in Manhattan, you could have a U K phone number," he said "Phone numbers don't mean the same to us in our world "

The technology, which enjoys cheaper rates and freedom from the regulations that apply to phone companies, is yet another challenge for the regional Bells – BellSouth Corp., SBC Communications, Verizon Communications and Qwest Communications. The industry giants already duel with cable companies over broadband subscribers and struggle to adapt to more people "cutting the cord" and leaving land-line phones for cellular service.

Enter the Bells

Sensing that the best way to beat the coming threat is to join in, the Bells are rolling out their own Internet calling services Most of them, as well as AT&T Corp , already provide some type of Internet phone service for business customers.

Qwest and Verizon say they want to have widely available Internet calling services for consumers next year.

Kagan, the analyst, said that while companies like Vonage are growing rapidly, they don't threaten phone companies in the long term

"I don't think they are going to be the leaders," he said "They're the ones who are forcing the change "

Instead, he said, cable companies are the greatest challengers to the communications industry, and "if we go out a few years the cable companies and the phone companies start to look a lot alike to the customer because of voice over IP."

That convergence has already begun

Cablevision, serving more than 3 million subscribers in and around New York City, began marketing an online calling service last month to its more than 1 million high-speed Internet customers

Time Warner Cable, with about 11 million customers in 27 states, launched an Internet phone service in Portland, Maine, in May and now has more than 8,000 customers there, said spokesman Keith Cocozza Four out of five of those customers transferred their traditional residential phone numbers to the new service.

The company has also begun offering the service in Raleigh and plans to expand to all the states where it has cable service

Other cable companies have similar plans

BELLSOUTH TELECOMMUNICATIONS, INC

SURREBUTTAL TESTIMONY OF A. WAYNE GRAY

BEFORE THE TENNESSEE REGULATORY AUTHORITY

DOCKET NO. 03-00491

MARCH 17, 2004

Q. PLEASE STATE YOUR NAME, YOUR BUSINESS ADDRESS, AND YOUR POSITION WITH BELLSOUTH TELECOMMUNICATIONS, INC. ("BELLSOUTH")

A. My name is A Wayne Gray. My business address is 675 West Peachtree Street, Atlanta, Georgia 30375. My title is Director – Regional Planning and Engineering Center in BellSouth's Network Planning and Support organization.

Q. ARE YOU THE SAME A. WAYNE GRAY WHO PREVIOUSLY FILED REBUTTAL TESTIMONY IN THIS DOCKET ON FEBRUARY 27, 2004?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony rebuts portions of the rebuttal testimony filed by MCI witness James D. Webber and AT&T witness Mark David Van De Water In so doing, I respond to the competitive carriers' suggestions that they are "impaired" due to

collocation issues in BellSouth's central offices. These issues range from the availability of sufficient collocation space to BellSouth's ability to handle the additional demand for collocation services that will result from a "no impairment" finding. I point out the errors in these witnesses testimony and explain how BellSouth is prepared to handle any collocation issues that may arise as a result of these proceedings. I also discuss cross connection issues that these witnesses raise and demonstrate that BellSouth is addressing these issues appropriately.

As stated in my rebuttal testimony, the only collocation issue related to the FCC's impairment analysis is "whether a lack of sufficient collocation space gives rise to impairment in [a] market." TRO ¶ 472. The availability of sufficient collocation space in BellSouth's Tennessee central offices is not a problem and certainly does not give rise to impairment. Notably, none of the competitive local exchange carrier ("CLEC") witnesses refer to a single instance of an alleged space availability issue. Nor do they present any evidence to refute the excellent results achieved by BellSouth with respect to the collocation performance measurements established by the Tennessee Regulatory Authority ("Authority"). In short, collocation does not constitute an impairment to CLECs in Tennessee, now or the foreseeable future.

Q. ALL PARTIES HAVE DIRECTED THIS COMMISSION TO VARIOUS PORTIONS OF THE FCC TRIENNIAL REVIEW ORDER ("TRO") AND THE FCC RULES IN SUPPORT OF THEIR POSITIONS IN THEIR DIRECT AND

REBUTTAL TESTIMONY. WHAT IS THE IMPACT OF THE D C. CIRCUIT COURT OF APPEALS ORDER ON THE FCC TRO IN THIS PROCEEDING?

A. Currently the impact of the DC Circuit Court's opinion is unclear At the time of filing this testimony, the DC Circuit Court had vacated large portions of the rules promulgated as a result of the TRO, but stayed the effective date of the opinion for at least sixty (60) days. Therefore my understanding is that the TRO remains intact for now, but its content, and the rules adopted thereto, must be suspect in light of the court's harsh condemnation of large portions of the TRO Accordingly, we will reserve judgment, and the right to supplement our testimony as circumstances dictate, with regard to the ultimate impact of the DC Circuit Court's Order on this case

Rebuttal Testimony of MCI Witness James D. Webber

Q ON PAGE 4, MR. WEBBER TAKES ISSUE WITH THE FACT THAT MCI WOULD HAVE TO BUILD OUT ADDITIONAL COLLOCATION AND TRANSPORT FACILITIES OR GAIN ACCESS TO ENHANCED EXTENDED LINKS ("EELS") IF THE AUTHORITY WERE TO FIND THAT THERE IS NO IMPAIRMENT WITHOUT ACCESS TO UNBUNDLED LOCAL SWITCHING ("ULS"). PLEASE COMMENT.

A While Mr. Webber is correct that MCI would need to use other means, besides UNE-P (a UNE loop and port combination), to serve its customer base if the Authority determines that CLECs are not impaired without access to ULS, Mr.

Webber appears to ignore the fact that there is no impediment in regard to new or additional collocation in any of BellSouth's wire centers in Tennessee

Moreover, the fact that MCI has chosen not to collocate in all of the BellSouth wire centers that serve its UNE-P customers or ordered any EELs to serve these customers is a problem of MCI's own making, and in the context of this proceeding, is irrelevant. MCI has had, and will continue to have, very little incentive to collocate its equipment in these other wire centers or request EELs from BellSouth as long as ULS and UNE-P are available.

Rebuttal Testimony of AT&T Witness Mark David Van De Water

Q. ON PAGE 2, MR. VAN DE WATER APPEARS TO SUGGEST THAT BELLSOUTH DOES NOT PROVIDE CROSS-CONNECTIONS BETWEEN CLECS. PLEASE COMMENT.

A Mr. Van De Water is wrong. He is evidently talking about what BellSouth refers to as "Co-Carrier Cross Connects" ("CCXCs"), which are cross-connects placed between two different CLECs' collocated arrangements within the same BellSouth central office. BellSouth permits a CLEC to engage a BellSouth Certified Supplier ("supplier"), which may be the CLEC's own technicians if the CLEC has been certified by BellSouth as such, to provision the necessary cabling directly between its collocation space and that of another CLEC within the same central office. If the two collocation spaces are not contiguous, then the supplier must run the appropriate optical or electrical (lit or dark) cabling between the two CLEC spaces utilizing BellSouth's cable support structure. If

the two collocation spaces are contiguous, then the CLEC's supplier may place a cable directly between the two arrangements, without having to place the cabling in the BellSouth cable support structure. Therefore, if AT&T wished to place a CCXC between its collocation space and that of another CLEC, it would need to engage a supplier (or use its own technicians if AT&T has been certified as a supplier) to provision a cable directly between its collocation space and the other CLEC's space. The amount of time that would be required to place the cabling would be negotiated between AT&T and its supplier, since it will be the supplier that will be provisioning the cabling Thus, the timeliness of provisioning the CCXC would not be controlled by BellSouth, but would be determined by AT&T and its supplier

Q ON PAGES 2 AND 3, MR. VAN DE WATER CITES PARAGRAPHS 478 AND 514 OF THE FCC'S TRO, AS WELL AS SECTION 51.319 OF THE TRO RULES, AS REQUIRING BELLSOUTH TO PROVIDE CROSS-CONNECTIONS BETWEEN CLECS. WHAT ARE THE FCC'S RULES REGARDING BELLSOUTH'S OBLIGATION TO "PROVIDE CO-CARRIER CROSS-CONNECTIONS"?

A. 47 C.F.R. § 51 323(b)(h) states:

> (h) As described in paragraphs (1) and (2) of this section, an incumbent LEC shall permit a collocating telecommunications carrier to interconnect its network with that of another collocating telecommunications carrier at the incumbent LEC's premises and to connect its collocated equipment to the collocated equipment of another telecommunications carrier within the same premises, provided that the collocated equipment is also used for interconnection with the incumbent

LEC or for access to the incumbent LEC's unbundled network elements.

> (1) An incumbent LEC shall provide, at the request of a collocating telecommunications carrier, a connection between the equipment in the collocated spaces of two or more telecommunications carriers, ***except to the extent the incumbent LEC permits the collocating parties to provide the requested connection for themselves or a connection is not required under paragraph (h)(2) of this section.*** Where technically feasible, the incumbent LEC shall provide the connection using copper, dark fiber, lit fiber, or other transmission medium, as requested by the collocating telecommunications carrier. (emphasis added)
>
> (2) ***An incumbent LEC is not required to provide a connection between the equipment in the collocated spaces of two or more telecommunications carriers if the connection is requested pursuant to section 201 of the Act, unless the requesting carrier submits to the incumbent LEC a certification that more than 10 percent of the amount of traffic to be transmitted through the connection will be interstate.*** The incumbent LEC cannot refuse to accept the certification, but instead must provision the service promptly Any incumbent LEC may file a section 208 complaint with the Commission challenging the certification if it believes that the certification is deficient. No such certification is required for a request for such connection under section 251 of the Act. (emphasis added)

Q. DOES BELLSOUTH COMPLY WITH THE FCC'S RULES?

A. Yes. BellSouth permits collocated CLECs to provision the necessary CCXCs themselves, in compliance with 47 C.F.R § 51.323(b)(h)(1).

Q. WHAT ABOUT THE FCC'S REQUIREMENT UNDER 47 C F.R § 51.323 (b)(h)(2)? HAS BELLSOUTH FILED A SECTION 201 CCXC OFFERING IN ITS FCC TARIFF NO. 1?

A. Yes. BellSouth recently filed its Section 201 CCXC tariff offering in Tariff FCC No. 1 as required by 47 C.F R § 51 323(b)(h)(2) In order to differentiate the tariff offering, CCXCs offered pursuant to the tariff are called "Intra-Office Collocation Cross Connects" in the tariff. This tariff is in effect, so AT&T and the other CLECs may place orders pursuant to this Section 201 tariff offering. However, as the FCC has stated in its rules, any CLEC that orders this product must certify that 10% or more of the traffic transmitted over this intra-office cross connection will be interstate.

Q ON PAGE 4, MR. VAN DE WATER STATES THAT BELLSOUTH CCXC OFFERINGS ARE NOT COMPLIANT WITH THE REQUIREMENTS OF THE TRO. IS THIS TRUE?

A. No. As BellSouth has shown above, BellSouth is in full compliance with the FCC's Rules regarding the provisioning of CCXCs in its central offices

Q. ON PAGES 4 AND 5, MR. VAN DE WATER STATES THAT BELLSOUTH'S NEW FCC TARIFFED "SPECIAL ACCESS PRODUCT" REQUIRES CLECS TO CERTIFY THAT THE TRAFFIC CARRIED ON THAT CFA TO CFA CONNECTION MEETS THE FCC'S DE MINIMUS (10%) INTERSTATE RULE IS HE CORRECT?

A Yes. As I stated above, the Intra-Office Collocation Cross Connect Service reflected in Section 13 of BellSouth's Tariff FCC No. 1 was filed pursuant to the

FCC's Rules in 47 C.F.R. § 51.323(b)(h)(2), which require that a carrier ordering this product certify to BellSouth that more than 10% of the traffic transmitted over this intra-office cross connection will be interstate. This requirement is often referred to by the FCC as the "de minimus" rule. (The FCC has applied this same rule to traffic that is being transported over special access facilities.) BellSouth included this requirement in order to comply with the FCC's Rules in 47 C.F.R § 51.323(b)(h)(2), not because BellSouth wished to preclude carriers from requesting this service offering.

Q. ON PAGE 5, MR. VAN DE WATER ASSERTS THAT BELLSOUTH'S NEW TARIFFED PRODUCT CANNOT BE ORDERED EFFICIENTLY. IS THIS TRUE?

A. No. If a collocated carrier wishes to place an order for BellSouth's tariffed Intra-Office Collocation Cross Connect Service, then it can do so by submitting an Access Service Request ("ASR") to BellSouth for this service, along with: (1) a written certification that more than 10% of the amount of traffic to be transmitted through the Intra-Office Collocation Cross Connect will be interstate traffic and (2) an LOA from the receiving collocated carrier that includes the appropriate Connecting Facility Assignment ("CFA") and Access Carrier Terminal Location ("ACTL") that BellSouth is authorized to use for interconnecting the networks and/or equipment of the two collocated carriers. It is not a complicated process.

Q. MR. VAN DE WATER ALLEGES THAT ALTHOUGH A UNE LOOP IS ORDERED ON AN LSR, BELLSOUTH WILL REQUIRE THAT THE CROSS

CONNECTION BETWEEN TWO CLECS THAT WISH TO "SPLIT" THE LOOP BE ORDERED AND PROVISIONED OUT OF THE FCC ACCESS TARIFF USING AN ASR. PLEASE COMMENT.

A As I explained above, the Intra-Office Collocation Cross Connect Service is a tariffed interstate service offering that BellSouth is making available to satisfy the FCC's Section 201 requirements, pursuant to the FCC Rules in 47 C.F.R. § 51 323(b)(h)(2) There is no mandate set forth by the FCC that requires BellSouth to offer an Intra-Office Collocation Cross Connect Service (or CCXC Service) as a UNE, unless BellSouth refuses to permit collocated carriers to self-provision CCXCs between their collocation spaces in the central office. BellSouth has allowed (for several years), and will continue to allow, the collocators to self-provision CCXCs between their individual collocation arrangements As I have already stated in my testimony, pursuant to 47 C.F.R. § 51.323(b)(h)(1), if BellSouth permits the collocators to self-provision CCXCs between their collocation arrangements in BellSouth's central offices, then BellSouth is not required to provision CCXCs for the collocators.

Q. MR. VAN DE WATER CONTENDS THAT THERE WILL BE NO MEANS OF ELECTRONICALLY ORDERING SUCH AN ARRANGEMENT TO ESTABLISH WORKING SERVICES FOR THE CUSTOMER IS HE CORRECT?

A. No. BellSouth's tariffed Intra-Office Collocation Cross Connect Service may be ordered electronically using an ASR.

Q MR. VAN DE WATER INDICATES THAT IN ORDER FOR THE TWO CLECS TO "SPLIT" THE LOOP BETWEEN THEM, BOTH CLECS MUST ISSUE AN LSR AND THEN ONE OF THE CLECS MUST ISSUE AN ASR. IS THIS TRUE?

A. It depends upon how the two CLECs determine they will "split" the loop. It would appear to BellSouth that the most efficient means of accomplishing a "split" of the loop (which would presumably be ordered as a UNE-Loop) would be for the "loop splitting" CLEC (the CLEC that has the loop splitting equipment located in its collocation space) to order the loop, perform the "loop splitting" function and send the agreed-upon split portion of the loop (either voice or data traffic) to the receiving CLEC via a CCXC between the two collocated CLECs, if both CLECs are collocated in the same central office. If the receiving CLEC is not collocated in the same office or has a Point of Presence ("POP") located outside the BellSouth central office, then the "loop splitting" CLEC could send the agreed-upon split portion of the loop to the receiving CLEC via a UNE transport service (which may be an EEL) that either terminates to the receiving CLEC's POP or the receiving CLEC's collocation space in another BellSouth central office.

If the CLECs opted to order an Intra-Office Collocation Cross Connect, then it would seem likely to BellSouth that the ordering CLEC would need to be the "loop splitting" CLEC, as well as the CLEC that places the order for the loop that will be split between the two CLECs. In this case, the ordering CLEC would perform the loop splitting function and then send the agreed-upon split portion of the loop to the receiving CLEC via the Intra-Office Collocation Cross Connect. It

would then be up to the receiving CLEC to place this traffic on whatever transport facilities it has to route it to its switch or other equipment.

Q. MR. VAN DE WATER SPECULATES THAT BELLSOUTH'S TARIFFED PRODUCT WILL CREATE "OPERATIONAL AND ECONOMIC BARRIERS TO PROVIDING DIGITAL SUBSCRIBER LINE ("DSL") SERVICES TO MASS MARKET CUSTOMERS " DO YOU AGREE?

A No. There are several alternatives available to CLECs that wish to provide DSL services to mass market customers I noted two such alternatives in the discussion above regarding the means by which two CLECs could "split" a loop between them by utilizing a CCXC placed by the CLECs or by placing an order for a BellSouth Intra-Office Collocation Cross Connect from BellSouth's Tariff FCC No 1. CLECs can also request cageless or virtual collocation space in increments as small as that required to place a single bay or rack of equipment in those central offices in which they desire to serve mass market customers Finally, the two CLECs could effectively share collocation space through the establishment of a Guest/Host arrangement in a caged collocation space In this scenario, one of the CLECs would lease the caged collocation space from BellSouth and then sublease a smaller amount of this space to the other CLEC for the placement of this CLEC's equipment.

Q. AT THE BOTTOM OF PAGE 5 AND TOP OF PAGE 6, MR VAN DE WATER ALLEGES THAT "BELLSOUTH'S PROPOSED POLICIES AND PRACTICES FOR THIS SERVICE ARE DESIGNED TO COMPLICATE AND HINDER THE

PROVISION OF LINE SPLITTING SERVICE TO CLEC CUSTOMERS AND SHOULD BE REJECTED BY THIS COMMISSION." DO YOU AGREE?

A. Absolutely not. As I have already explained above, BellSouth's Intra-Office Collocation Cross Connect Service offering was filed by BellSouth to comply with 47 C.F R. § 51 323(b)(h)(2), which required BellSouth to file a Section 201 CCXC (which is called an Intra-Office Collocation Cross Connect in the tariff) offering in its Tariff FCC No. 1. It was not designed, nor contemplated, by BellSouth to complicate or hinder the provisioning of loop splitting service to a CLEC's customers.

Q. AT THE BOTTOM OF PAGE 6 AND TOP OF PAGE 7, MR. VAN DE WATER CLAIMS THAT BELLSOUTH HAS NOT PROVIDED EVIDENCE REGARDING THE AMOUNT OF COLLOCATION SPACE THAT IS AVAILABLE IN BELLSOUTH'S CENTRAL OFFICES IN TENNESSEE? PLEASE COMMENT.

A. This claim is simply a distraction. BellSouth does not keep a running total of how much collocation space is available in each central office because the amount of space available for collocation in each individual central office could conceivably change from day to day or even many times throughout the day, depending upon the number of applications BellSouth receives from CLECs and other telecommunication carriers for new collocation space, augmentation or termination of existing collocation space, and the reservation of future collocation space (up to 24 months) The amount of space available in an individual central office would also change based on space that is utilized or reserved (up to 24

months) by BellSouth for its own operations during the course of the day. Therefore, even if BellSouth were to prepare a report listing the amount of space available for collocation in BellSouth's central offices in Tennessee, such a report would quickly become obsolete as a result of ongoing activity in these offices. The reality is that BellSouth is committed to taking all reasonable measures to ensure that CLECs have adequate space to collocate in BellSouth's central offices in Tennessee

BellSouth does provide space availability information to CLECs and other telecommunication carriers via a "Space Availability Report" pursuant to CFR §51.323. Upon request from a CLEC or telecommunications carrier, BellSouth will provide a written report describing in detail the space that is available for collocation at a particular central office. This report not only includes the amount of collocation space available at the central office requested, but also the number of collocators present at the central office, any modifications in the use of the space since the last report on the central office requested (if a previous report had been performed), and the measures BellSouth is taking to make additional space available for collocation arrangements

Q. WILL BELLSOUTH CONTINUE TO PROVIDE COLLOCATION IN A TIMELY MANNER IN THE FUTURE? PLEASE EXPLAIN.

A. Yes. BellSouth will continue to comply with the collocation ordering and provisioning intervals established by the Authority, as set forth in the BellSouth Service Quality Measurements ("SQM") plan adopted by the Authority,

regardless of the volume of collocation applications received by BellSouth in the future (which may result from implementation of the TRO). Furthermore, if BellSouth fails to meet the Authority-ordered provisioning intervals, then BellSouth would incur substantial SEEMS penalties for its inability to meet these intervals. As BellSouth's current performance demonstrates, BellSouth is extremely committed to providing carriers with collocation space in its central offices as quickly as possible and in accordance with the provisioning intervals ordered by the Authority Therefore, BellSouth has every incentive to continue its outstanding collocation provisioning performance in Tennessee in the future

Q. BELLSOUTH HAS NOT ADDRESSED HOW NEW COLLOCATION REQUESTS WILL BE HANDLED IN THE FUTURE PURSUANT TO THE TRO PLEASE COMMENT.

A. BellSouth has not discussed the means by which additional applications for new collocation arrangements will be handled in this proceeding, because BellSouth's processing of future collocation applications is not anticipated to change from BellSouth's current procedure for handling collocation applications. Whether or not there is a surge of requests for new collocation applications and/or augmentation applications in the future, BellSouth is prepared to handle these applications utilizing its existing processes. If, as a result of a significant increase in the number of applications received by BellSouth, there becomes a need for BellSouth to increase its current staffing levels, BellSouth is prepared to do so. Also, BellSouth is continually analyzing and updating its electronic ordering system, called the e.App system, for the processing of collocation

applications to ensure that BellSouth uses the most efficient means of processing all requested applications.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes

BELLSOUTH TELECOMMUNICATIONS, INC.

SURREBUTTAL TESTIMONY OF W KEITH MILNER

BEFORE THE TENNESSEE REGULATORY AUTHORITY

DOCKET NO 03-00491

MARCH 17, 2004

Q PLEASE STATE YOUR NAME, YOUR BUSINESS ADDRESS, AND YOUR POSITION WITH BELLSOUTH TELECOMMUNICATIONS, INC. ("BELLSOUTH").

A My name is W. Keith Milner. My business address is 675 West Peachtree Street, Atlanta, Georgia 30375. I am Assistant Vice President - Interconnection Operations for BellSouth.

Q. ARE YOU THE SAME W KEITH MILNER THAT FILED DIRECT AND REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY FILED TODAY?

A The first part of my surrebuttal testimony responds to criticisms of BellSouth's Analysis of Competitive Entry ("BACE") model For example, on pages 5 – 6 of Mr. James Webber's rebuttal testimony on behalf of

MCIMetro Access Transmission Services, LLC and MCI WORLDCOM Communications, Inc., he discusses the assumption within the BACE model that Competitive Local Exchange Carriers ("CLECs") can serve some or all of their end users with so-called Enhanced Extended Links ("EELs"). To respond to such criticisms, I discuss several areas in which the default inputs to the BACE model cause the model to yield financially conservative results. The second part of my testimony provides surrebuttal to the rebuttal testimonies of Mr. Jay Bradbury on behalf of AT&T Communications of the Southern States, LLC ("AT&T") and Mr. Steve Brown on behalf of the Consumer Advocate and Protection Division ("CAPD"), Office of the Attorney General.

Q. ALL PARTIES HAVE DIRECTED THIS COMMISSION TO VARIOUS PORTIONS OF THE TRIENNIAL REVIEW ORDER ("TRO") AND THE RULES IN SUPPORT OF THEIR POSITIONS IN THEIR DIRECT TESTIMONY. WHAT IS YOUR UNDERSTANDING OF THE IMPACT OF THE D.C. CIRCUIT COURT OF APPEALS ORDER ON THE TRO IN THIS PROCEEDING?

A. Currently the impact of the D.C. Circuit Court's opinion is unclear. At the time of filing this testimony, the D.C Court had vacated large portions of the rules promulgated as a result of the TRO, but stayed the effective date of the opinion for at least sixty days. Therefore, my understanding is that the TRO remains intact for now, but its content, and the rules adopted thereto, must be suspect in light of the court's harsh condemnation of

large portions of the order. Accordingly, I will reserve judgment, and the right to supplement my testimony as circumstances dictate, with regard to the ultimate impact of the D C. Court's order on this case.

BACE Model Assumptions

Q. PLEASE EXPLAIN YOUR BELIEF THAT BELLSOUTH'S BACE MODEL USES CONSERVATIVE INPUTS AND THUS YIELDS CONSERVATIVE OUTPUTS.

A In my opinion, BellSouth's BACE model yields conservative results based on inputs made for the following elements:

1. The quantity of switches a CLEC will operate in a Local Access and Transport Area ("LATA")
2. The quantity of trunk groups between a CLEC's switch and the E911 tandems in a LATA
3. The use of Special Access transport instead of CLEC-provided transport between the CLEC's central office and the BellSouth access tandem
4. The use of Special Access transport instead of CLEC-provided transport between the CLEC's switch and the CLEC's choice of Directory Assistance and Operator Services platforms
5. The deployment of a voicemail platform per LATA
6. The portion of unbundled loops provisioned as Service Level 2 ("SL2") loops rather than lower priced Service Level 1 ("SL1") loops
7. The use of current "full price" Non-Recurring Charge ("NRC") levels

rather than discounted levels for all cutover of unbundled loops

I discuss each of these issues in greater detail below.

Q PLEASE EXPLAIN HOW BELLSOUTH'S ASSUMPTION REGARDING THE QUANTITY OF SWITCHES A CLEC WILL OPERATE IN A LATA WILL YIELD A CONSERVATIVE RESULT.

A. The default BACE inputs assume a CLEC will deploy at least one (1) switch per LATA. As was discussed in my direct and rebuttal testimony in this proceeding, CLECs can deploy a single switch and provide service to end users over a very large geographic area, perhaps even over an entire state or more. Thus, the default assumption that a CLEC will place at least one (1) switch per LATA results in a higher quantity of switches deployed.

Q. PLEASE EXPLAIN HOW BELLSOUTH'S ASSUMPTION REGARDING THE QUANTITY OF TRUNK GROUPS BETWEEN A CLEC's SWITCH AND THE E911 TANDEMS IN A LATA WILL YIELD A CONSERVATIVE RESULT.

A In developing the default input for the quantity of E911 trunks a CLEC would deploy, I found that the maximum quantity of E911 tandems in a single LATA in BellSouth's region is six (6) Thus, the BACE default assumption is that a CLEC will equip its switch for six (6) DS-1 transport facilities (one each to the E911 tandem switches) which, if fully equipped,

would provide for 144 simultaneous calls to E911 operators from the CLEC's switch. Since most end office switches have only one or two trunk groups to E911 tandem switches, this assumption results in a higher quantity of E911 trunk groups being equipped.

Q. PLEASE EXPLAIN HOW BELLSOUTH'S ASSUMPTION REGARDING THE USE OF SPECIAL ACCESS TRANSPORT INSTEAD OF CLEC-PROVIDED TRANSPORT BETWEEN THE CLEC's CENTRAL OFFICE AND THE BELLSOUTH ACCESS TANDEM WILL YIELD A CONSERVATIVE RESULT.

A. The default assumption in the BACE model is that a CLEC will use Special Access facilities rather than CLEC-provided facilities to connect the CLEC's switch to BellSouth's access tandem. In cases where the CLEC self-provides this transport and where the resulting costs are less, BACE derives a higher cost that would actually be incurred. Further, BACE determines the quantity of DS-1 or DS-3 equivalents required based on traffic loads Since BACE does not assume the use of higher transport facilities than DS-3, BACE will, depending on traffic demand, deploy multiple DS-3 circuits rather than Optical Carrier ("OCn") circuits, which in some situations would be more efficient and thus less costly.

Q. PLEASE EXPLAIN HOW BELLSOUTH'S ASSUMPTION REGARDING THE USE OF SPECIAL ACCESS TRANSPORT INSTEAD OF CLEC-PROVIDED TRANSPORT BETWEEN THE CLEC's SWITCH AND THE

CLEC's CHOICE OF DIRECTORY ASSISTANCE AND OPERATOR SERVICES PLATFORMS WILL YIELD A CONSERVATIVE RESULT.

A. The default assumption is that a CLEC will elect the use of Special Access facilities rather than self-provided facilities between the CLEC's switch and the CLEC's choice of director assistance platform. Likewise, BACE assumes the use of Special Access rather than CLEC-provided facilities to transport traffic between the CLEC's switch and the CLEC's choice of operator services platform. In any case where the CLEC self-provides this transport and the resulting cost is less than Special Access charges, BACE will have assumed a higher cost to the CLEC than would actually be incurred.

Q. PLEASE EXPLAIN HOW BELLSOUTH'S ASSUMPTION REGARDING THE DEPLOYMENT OF A VOICEMAIL PLATFORM PER LATA WILL YIELD A CONSERVATIVE RESULT.

A. As with switches, voicemail platforms can be equipped to handle demand over a very large geographic area, often over an entire state or even larger. Thus, the default assumption within the BACE model yields a conservative result because the quantity of voicemail platforms assumed to be deployed would be larger than a CLEC would actually probably deploy.

Q. PLEASE EXPLAIN HOW BELLSOUTH'S ASSUMPTION REGARDING

THE PORTION OF UNBUNDLED LOOPS PROVISIONED AS SL2 LOOPS RATHER THAN LOWER PRICED SL1 LOOPS WILL YIELD A CONSERVATIVE RESULT.

A. The model assumes a high proportion (45% of non-Digital Subscriber Line ("DSL") customers) of mass market unbundled loops will be purchased as Service Level 2 ("SL2") loops. This level was chosen assuming that CLECs would continue to order the higher-priced SL2 loops as they have in the recent past. SL2 loops are designed loops that are provisioned with test points that allow automated testing. The CLEC also receives a Detailed Layout Record ("DLR") depicting the loop makeup Providing the test points and DLRs adds cost over those incurred in the provisioning of Service Level 1 (" SL1") loops that are not equipped with test points and do not come with a DLR. In my opinion, CLECs will not choose SL2 loops for residential end users. For small business customers, the CLECs may sometimes choose SL2 loops over SL1 loops. Since the existing UNE-P base is predominantly residential customers, the default assumption in the BACE model that 45% of all unbundled loops will be provided as SL2 loops is probably overstated and thus results in the model deriving higher CLEC costs.

Q PLEASE EXPLAIN HOW BELLSOUTH'S ASSUMPTION REGARDING ALL CUTOVER OF UNBUNDLED LOOPS WILL BE PRICED AT THE CURRENT NON-RECURRING CHARGE ("NRC") LEVELS RATHER THAN DISCOUNTED LEVELS WILL YIELD A CONSERVATIVE

RESULT.

A. The BACE model assumes that all NRCs for unbundled loop provisioning are the current NRCs. BellSouth has announced discounts off the NRC for CLECs using the Batch Hot Cut method For CLECs using the Mass Migration method described in the surrebuttal testimony of BellSouth witness Milton McElroy, the discounts are even steeper. Thus, the BACE model calculates NRCs higher than will be experienced by CLECs using the Batch Hot Cut method or the Mass Migration method.

Surrebuttal to Mr. Jay Bradbury

Q. ON PAGE 17 OF HIS TESTIMONY, MR BRADBURY CONTENDS THAT, IN REGARD TO CLEC NETWORK ARCHITECTURAL CONSIDERATIONS, THE STATEMENT MR. MILNER MADE IN HIS DIRECT TESTIMONY "AT&T HAS THE ABILITY TO CONNECT . " MISSES THE MARK AND "DOES NOT PROVIDE ANY INFORMATION ABOUT HOW AT&T, OR ANY OTHER CLEC, DETERMINES WHETHER IT IS ECONOMIC TO MAKE SUCH CONNECTIONS." PLEASE COMMENT

A I was not making an economic determination of CLEC profitability as Mr. Bradbury implies Instead, I was making a statement regarding the technical capabilities of CLECs' switches. As Mr. Bradbury says in his testimony beginning at the bottom of page 17, "As I indicated in my direct testimony, a crucial issue in this proceeding is not whether a CLEC simply

'can' connect its switch with the local loops of the end user, but whether a CLEC can 'efficiently use' its own switch to connect to the local loops of end users. In contrast, the issue being discussed in the testimony Mr Milner has selected was geographic comparability not the actual deployment of network facilities to serve customers " Importantly, Mr. Bradbury does not dispute that CLECs' switches have the potential to serve large geographic areas (for example, at least as large as the geographic area served by a BellSouth tandem switch), which corroborates my statement in direct testimony regarding same. I did not perform an independent analysis of the economics of using fewer switches and consequently longer loops simply because BellSouth's BACE model provides such an analytic tool.

Surrebuttal to Mr. Steve Brown

Q. MR. BROWN, ON PAGE 40 OF HIS TESTIMONY, REFERS TO A STATEMENT MADE IN MR. MILNER'S DIRECT TESTIMONY THAT CLEC SWITCHES CAN SERVE AN ENTIRE STATE MR. BROWN STATES "NOT ONCE IN HIS TESTIMONY DOES MR. MILNER USE THE WORD 'CAPABLE' OR THE PHRASE 'SWITCH CAPABILITIES' TO DESCRIBE CLEC SWITCHES." PLEASE RESPOND

A. I'm not quite sure what, if any, point Mr. Brown seeks to make Obviously, if switches are actually serving customers, then they are capable of doing so. Mr Brown implies that somehow CLECs' sworn testimony in other dockets before the Authority is now hearsay. Let me be clear· CLECs

have asserted that their switches are capable of serving customers across broad geographic areas, even as large as an entire state or larger. To illustrate this point, I have prepared Exhibit WKM-6, which is attached to this testimony. I will discuss this Exhibit in greater detail later in this testimony, but first let me describe the source of the information and how it is compiled.

Q. WHAT IS THE SOURCE OF THE INFORMATION SHOWN IN THE EXHIBIT?

A. The data was extracted from the Local Exchange Routing Guide ("LERG"), an industry subscription tool used by telecommunications carriers to create routing instructions such that the customers of one carrier can call the customers of any other carrier. I used data contained in the February 2004 version of the LERG

Q. PLEASE DESCRIBE IN GENERAL THE CONTENTS OF THE EXHIBIT.

A. The Exhibit lists all NPA/NXX codes and associated rate center information for any CLEC's switch that serves any area in Tennessee. Further, if a switch also serves areas outside Tennessee, the information for the area outside Tennessee is likewise noted. For example, the first entry in the Exhibit is for a switch operated by Level 3 Communications and is identified with the Common Language Location Identification ("CLLI") of ATLNGAHPDS5. This switch is physically located in Atlanta

Georgia Note that the list of communities served by this single switch runs from Page 1 of the Exhibit to the top of Page 5 of the Exhibit. Also note that this switch (using the information Level 3 or its agent submitted for publication in the LERG) is capable of serving customers in Georgia, North Carolina, Alabama, South Carolina, and Tennessee. Further, that single switch is capable of serving customers in 23 LATAs in these five (5) states. This arrangement is shown pictorially on page 1 of Exhibit WKM-7, which is attached to this testimony.

As a second example of the geographic "reach" of CLECs' switches, please refer to Sprint Communication's switch physically located in Nashville, Tennessee (the CLLI reference is NSVLTN17CA1.) The list of geographic areas served by this switch begins in the middle of Page 25 of my Exhibit and runs through Page 29 Note that this single switch is capable (according to the information Sprint or its agent submitted for publication in the LERG) of serving customers in Tennessee, North Carolina, Georgia, Kentucky, Indiana, Alabama, Ohio, South Carolina, Virginia, and Arkansas Within Tennessee, this single switch is, according to the information Sprint or its agent submitted for publication in the LERG, capable of serving customers in:

- Chattanooga and other communities in LATA 472
- Bristol and other communities in LATA 956
- Knoxville and other communities in LATA 474
- Memphis and other communities in LATA 468
- Nashville and other communities in LATA 470

This arrangement is shown pictorially on page 2 of Exhibit WKM-7, which is attached to this testimony.

To summarize, Mr. Brown does not suggest that I quoted CLECs' witnesses incorrectly and he does not suggest that I mischaracterized what they said. Instead, he suggests that my conclusions are somehow flawed because I did not set out some maximum geographic area within which CLECs' respective switches are capable of serving. There was no need for me to set out some theoretical maximum geography simply because there is no such maximum geography. I stand by my citation to the CLECs' respective testimony that I quoted from in my direct testimony in this proceeding and the corroboration of those CLECs' respective testimony in Exhibit WKM-6 As the information in Exhibit WKM-6 makes abundantly clear, CLECs' respective switches are capable of serving multiple LATAs in multiple states. Moreover, Mr. Bradbury, AT&T's witness in this proceeding, does not dispute that AT&T operates switches in Tennessee and he does not dispute my statement that CLECs' switches can handle large geographic areas.

Q CAN YOU CITE CLEC TESTIMONY REGARDING THE GEOGRAPHIC REACH OF CLEC SWITCHES?

A. Yes. In addition to quotes cited in my direct testimony, in North Carolina Docket No. P-582, Sub 6 and Louisiana Docket No. U-24206, ICG Telecom and ITC^Deltacom witness, Michael Starkey testified that:

"ICG, like many new entrant CLECs, generally deploys its individual switches to cover a large geographic area served by a common transport network The advent of fiber optic technologies and multi-function switching platforms have, in many cases, allowed carriers like ICG to serve an entire statewide or LATA-wide customer base from a single switch platform. Likewise, the ability to aggregate unbundled loops from collocations within a number of ILEC central offices while transporting that traffic to a single location allows these carriers to originate, switch and terminate traffic between callers located many miles apart with a single switch."[1] [emphasis added]

In Georgia Docket No. 11901-U, WorldCom witness, Don Price testified that:

"WorldCom uses state-of-the-art equipment and design principles based on technology available today. Their local network has been built within the past few years using optic fiber rings with SONET transmission, which makes it possible to access and serve a large geographic area from a single switch "[2] [emphasis added]

In Florida Docket No. 991854-TP, Intermedia Communications witness, J Carl Jackson, Jr. testified that:

"First of all, without even looking at the areas served by

[1] See Prefiled Direct Testimony of Michael Starkey, NC Docket No P-582, Sub 6 at p 21 (dated May 27, 1999) See also Direct Testimony of Michael Starkey, LA Docket No U-24206 at p 24 (dated September 3, 1999)

[2] See Prefiled Rebuttal Testimony of Don Price at p 48 (dated August 3, 2000)

Intermedia's switches, it is safe to say that they cover area's [sic] comparable in scope to BellSouth's tandems, because Intermedia's network design is entirely different than BellSouth's. Instead of deploying a multiplicity of switches to cover an area, as is BellSouth's custom, Intermedia deploys a single switch to cover a very large area Intermedia can do this because the switches it deploys are very capable and have a very large capacity As noted above, they perform both the functions of a tandem, such as remote traffic aggregation, and the functions of end office switches, such as providing dial tone "[3] [emphasis added]

" Intermedia has existing, ubiquitous facilities in Florida. As one of the first ALECs to provide competitive services to the citizens of Florida, Intermedia has customers in virtually all parts of the State. It has deployed state-of-the-art switching platforms and will continue to do so as its business dictates (please refer to Jackson Exhibit No. 3 referenced above) "[4]

Q. ON PAGES 41-42 OF MR. BROWN'S TESTIMONY, HE DISCUSSES IDENTIFYING THE GEOGRAPHIC SCOPE OF 65 CLEC SWITCHES DESCRIBED BY BELLSOUTH WITNESS MS. TIPTON IN EXHIBIT PAT-1, AND STATES "MR. MILNER DOES NOT IDENTIFY THE GEOGRAPHIC SCOPE OF THE CLEC SWITCHES LISTED IN EXHIBIT

[3] See Direct Testimony of J Carl Jackson, Jr at p 11-12, FL Docket No 991854-TP (filed February 14, 2000)
[4] See Rebuttal Testimony of J Carl Jackson, Jr at p 14, FL Docket No 991854-TP (dated March 6, 2000)

PAT-1.. " BUT IN REGARD TO WHETHER THE 65 SWITCHES HAVE GEOGRAPHIC SCOPE EQUAL TO THE ENTIRE STATE STATES "MR. MILNER'S TESTIMONY, WHICH I ALREADY QUOTED, SUGGESTS THEY DO " PLEASE COMMENT.

A. First, let me set the record straight. I did not suggest any particular geographic scope for CLECs' switches other than the citations to CLECs' witnesses' testimony in my direct testimony in this proceeding That said, Exhibit WKM-6, which is attached to this testimony and which I discussed earlier in this testimony, shows the geographic location of CLEC's respective switches serving parts of Tennessee. In my opinion, this should conclusively establish that the geographic reach of CLECs' switches is large and covers at least an entire LATA if not the entire state. I also refer Mr Brown to the rebuttal testimony of Mr. Bradbury in this proceeding beginning on page 16. Mr. Bradbury does not dispute that CLECs switches have the capability of serving large geographic areas. My understanding of Mr Bradbury's criticism of that portion of my testimony is that I did not consider the economics of doing so. I did not perform an independent economic analysis because BellSouth's BACE model provides such an analysis.

Q. FURTHER ON PAGE 42 OF HIS TESTIMONY, MR BROWN SUGGESTS THAT THERE IS "A CONTRADICTION BETWEEN MR. MILNER'S SUGGESTION THAT THE CLECs SWITCHES HAVE A STATEWIDE SCOPE AND THE INCUMBENT'S CONCLUSION THAT

ONLY 4 AREAS ARE NOT IMPAIRED VIA THE SELF-PROVISIONING TRIGGER." PLEASE COMMENT.

A Quite simply, there is no contradiction. Mr. Brown has misread the test the FCC set up for determining whether CLECs are impaired without unbundled switching as Ms Tipton explains in her surrebuttal testimony in this proceeding.

Q. MR. BROWN, ON PAGES 46-47 OF HIS TESTIMONY, OPINES THAT WHILE BELLSOUTH MAY KNOW THE LOCATION OF THE CLEC SWITCHES, BELLSOUTH DOES NOT KNOW THE BOUNDARIES OF THE GEOGRAPHIC AREAS SERVED BY THOSE SWITCHES IS HE CORRECT?

A. No. I offered no geographic boundary to CLECs switches simply because there is none. Modern switching systems such as those employed by CLECs in Tennessee are capable of serving multiple rate areas and multiple LATAs. Indeed it is common, even in BellSouth's network, that a carrier's switch handles customer lines located in more than one switch. For example, BellSouth's switch in Chattanooga serves customers located in Tennessee as well as in neighboring Georgia. Such arrangements are not at all uncommon. Therefore, if the switches are capable of handling customers in multiple rate centers, LATAs and states, then the geographic scope of the switches may be said, for all practical purposes, to be unlimited

Q. ON PAGE 52 OF MR. BROWN'S TESTIMONY, HE STATES "ACCORDING TO MR MILNER, BELLSOUTH TREATS THE CLEC SWITCH AS IF ITS GEOGRAPHIC SCOPE IS EQUAL TO A LATA'S GEOGRAPHIC SCOPE, RATHER THAN THE 'TYPICAL' STATEWIDE SCOPE " PLEASE COMMENT.

A. Mr. Brown mischaracterizes what I said in my direct testimony. Since I did not offer any limit of geographic scope for CLECs' switches, I cannot see how he concludes I set a geographic limit as equal to a LATA

Q. ON PAGE 53 OF HIS TESTIMONY, MR. BROWN STATES THAT IT IS NOT REASONABLE FOR BELLSOUTH TO TREAT THE "CLEC-SWITCH-SCOPE" AS IF IT IS LATAWIDE. DO YOU AGREE?

A. No, for the reasons I discuss above.

Q. MR. BROWN, ON PAGE 55 OF HIS TESTIMONY, STATES "MR MILNER'S SELF-DESCRIBED 'CONSERVATIVE' ASSUMPTION OBSCURES THE INCUMBENT'S LACK OF KNOWLEDGE ABOUT THE ACTUAL GEOGRAPHIC SCOPE OF CLEC'S SWITCH " PLEASE COMMENT.

A. First, despite Mr. Brown's characterization to the contrary, BellSouth has significant knowledge of the actual geographic scope of CLECs' respective switches based on the information that CLECs themselves (or

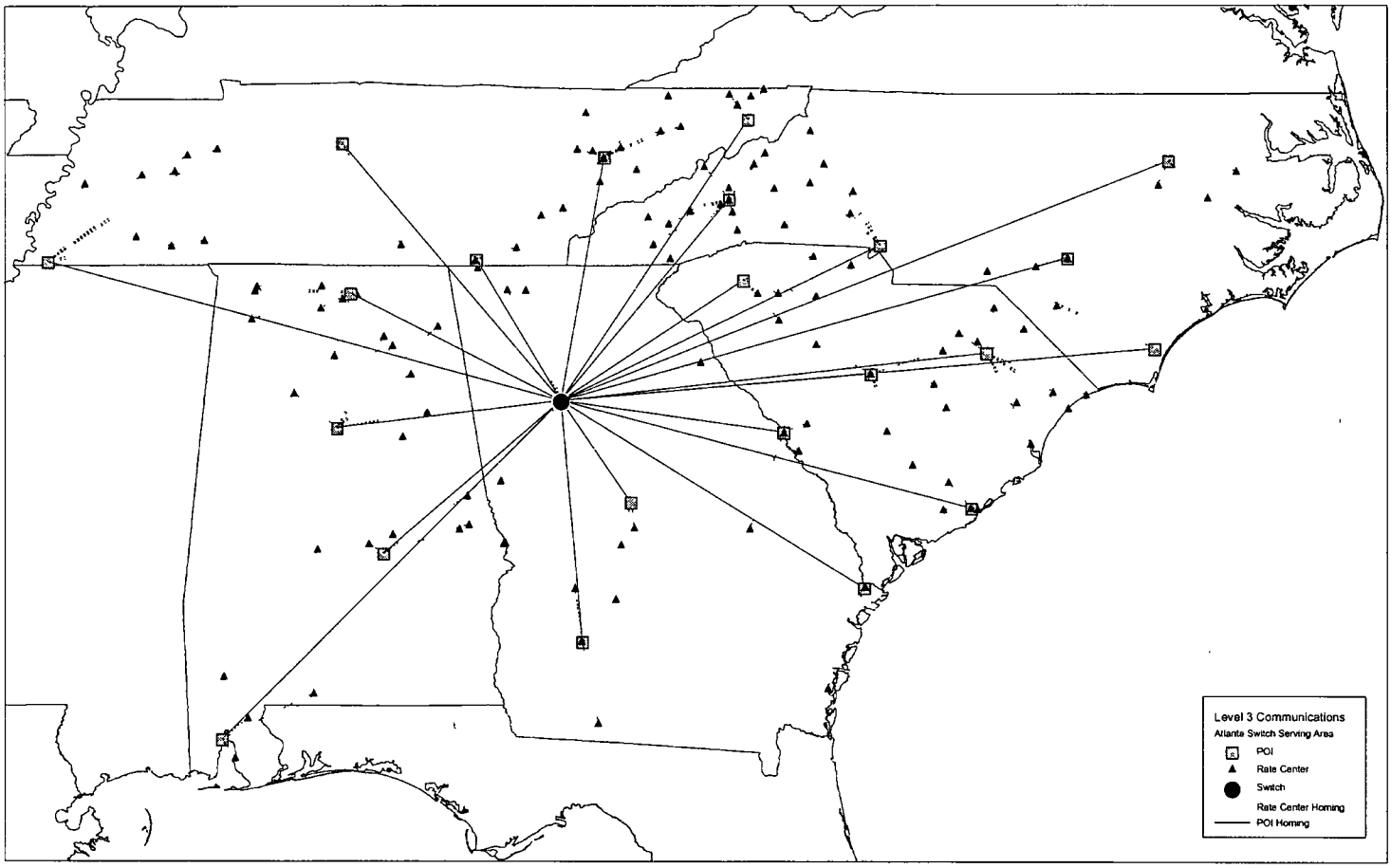
their respective agents) submit for publication in the LERG. BellSouth and other telecommunications service providers use the information in the LERG to determine routing patterns such that customers can call each other regardless of local service provider Second, since CLECs' switches are capable of serving customers located in multiple LATAs in multiple states and since Tennessee has five (5) LATAs, simple math would lead to a conclusion that BellSouth's BACE mode is conservative in its use of a CLEC switch in each LATA rather than in each state Again, just so it is clear, all other things being equal, having more switches to serve a given quantity of customers is more expensive than having a single switch to handle that same quantity of customers. I stated no geographic scope or boundary for CLECs' respective switches simply because there is no practical geographic limit As is clearly set out in Exhibit WKM-6 (which I discussed earlier in this testimony) the CLECs' own data shows the large geography served by their respective switches

Q. DOES THAT CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes.

BellSouth Telecommunications, Inc
Tennessee Regulatory Authority
Docket No. 03-00491
Exhibit WKM-6

Confidential and Proprietary Information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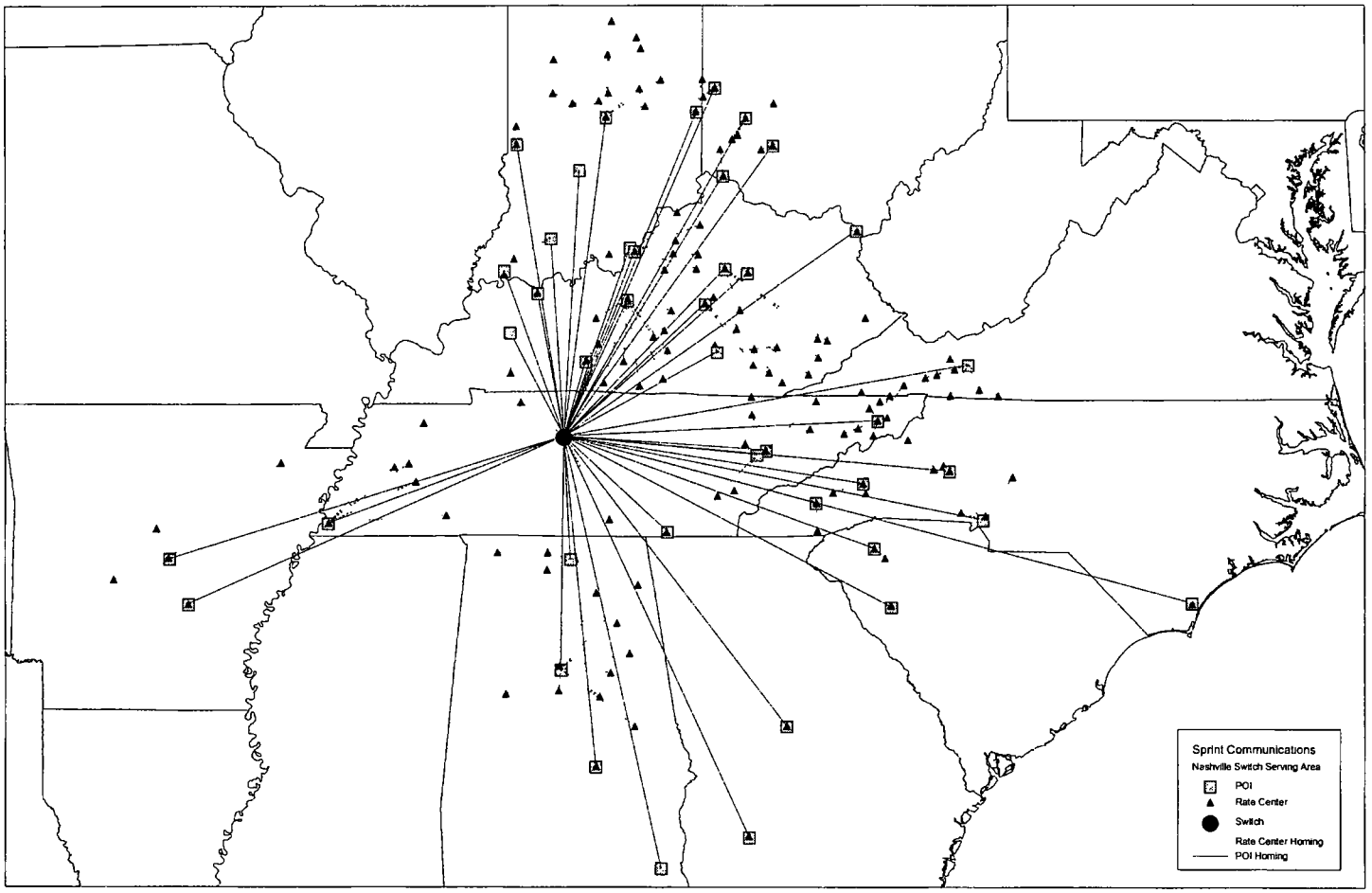
Atlanta Switch Serving Area
POI
Rate Center
Switch
Rate Center Homing
POI Homing


Sprint Communications
Nashville Switch Serving Area
POI
Rate Center
Switch
Rate Center Homing
POI Homing