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BELLSOUTH TELECOMMUNICATIONS, INC.

SURREBUTTAL TESTIMONY OF DR. DEBRA J. ARON

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 030851-TP

January 28, 2003

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), Mr. Nilson (Supra), Dr. Staihr (Sprint), Dr. Bryant (MCI), Mr. Dickerson (Sprint), and Mr. Bradbury (AT&T) on a number of topics.

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 Commission 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. I have asked for (but have not yet received) witnesses' workpapers so that Mr. Stegeman and I can determine, respond to, and possibly correct, what has been done. 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.

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, I typically base 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 Dr. Staihr essentially argue that this is not conservative enough for them. 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 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 Commission with a reasonable indication of the prospects for successful economic entry by a switch-based CLEC in the BellSouth territory in Florida.

Q. HOW IS YOUR SURREBUTTAL TESTIMONY ORGANIZED?

A. In section II, I respond to interpretations that other witnesses seek to ascribe to the FCC's Triennial Review Order ("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 15-16) 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 17-18.) 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 6-7, 15-16.) 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 Commission 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 8) PLEASE COMMENT.

A. Mr. Wood's argument is profoundly mistaken. As I discussed, economics demonstrate that 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 COMMISSION TO IDENTIFY AN "AS-YET HIDDEN FORMULA FOR *POTENTIAL* SUCCESS" AS CLAIMED BY MR. WOOD? (WOOD REBUTTAL 16)

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 who 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 Commission 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 COMMISSION SHOULD NOT DRAW ANY CONCLUSIONS ABOUT IMPAIRMENT IN ANY MARKET IN FLORIDA ON THE BASIS OF THE POTENTIAL DEPLOYMENT ANALYSIS. (BRYANT REBUTTAL 42) 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 Commission 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 13-14) 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 13-14.) As I explained in my rebuttal testimony, the FCC examined and rejected this interpretation of impairment. (Aron Rebuttal 31-33, 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 13) 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 Commission 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 ENTRY, 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.

Q. DR. ARON, PLEASE COMMENT ON DR. STAIHR'S TESTIMONY REGARDING THE IMPLICATIONS OF NEW TECHNOLOGIES SUCH AS VOICE OVER INTERNET PROTOCOL ("VOIP") AND WIRELESS

SERVICES FOR THE POTENTIAL DEPLOYMENT ANALYSIS UNDER THE TRO. (STAIHR REBUTTAL 35)

A. Dr. Staihr briefly discusses the possible growth of, and competition from, VOIP and wireless providers over the 10-year horizon of the BACE model. He concludes that as these technologies become more successful they may put additional downward pressure on local exchange service prices over the forecast horizon, and that, as a result, our price projections should be trended downward. As I will discuss later, Dr. Staihr, in his rebuttal, takes great pains to lecture us on the need to use a "structured process" to estimate variables, but in this case he ignores his own advice and presents an analysis that is woefully incomplete.

Dr. Staihr advocates that the Commission speculate about the possible effects that new technologies and increased wireless competition might have on prices. However, if one were to fully adopt Dr. Staihr's speculative exercise, one would also have to consider the effect that these new entry technologies might have on *costs*, and, possibly, on CLEC market shares—indeed, on the entire concept of impairment.

The greater the extent to which other technologies impinge on and even begin to render the traditional circuit switched wireline network obsolete, the less relevant unbundled circuit switching becomes to the market and the less relevant is unbundled circuit switching, and the less policy justification there is for any unbundling of switching because competition would have passed it by using other

technologies. Therefore, to be conservative, and in compliance with the TRO, we steer clear of Dr. Staihr's speculative path, and our potential deployment model considers *existing* marketplace prices and costs that are based on *existing*, standard landline technologies, and on competitive entry by a circuit-switch-based CLEC that uses the ILEC's loops. Not only is this approach consistent with the requirements of the TRO regarding prevailing prices, (TRO 520 fn 1588), but it is also more coherent than the scattershot and self-serving considerations that Dr. Staihr suggests.

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 15) PLEASE RESPOND.

A. While competition may cause some prices to decrease in the market, such price decreases should be applauded by the Commission, and not treated as a reason to discourage competition. I believe it would be perverse public policy indeed if the Commission 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 explicitly accounts for this concern.

Q. PLEASE COMMENT ON MR. NILSON'S DISCUSSION OF "MEANINGFUL COMPETITION." (NILSON REBUTTAL 10)

A. Mr. Nilson argues that a finding of non-impairment must be predicated upon a finding of "meaningful competition," which he defines as "ubiquitous" service. He claims that anything else is "token" competition. (Nilson Rebuttal 10.) Let me first say that meaningful competition does not require ubiquitous retail service by all of the providers—Mr. Nilson is simply wrong about that. But, second, and more important, this proceeding is not about retail competition, it is about CLEC impairment. In its TRO, the FCC specifically rejected an impairment standard based on the level of retail competition. (TRO 114) As the FCC notes, "the [Act] requires [the FCC] to ask whether requesting carriers are 'impaired,' not whether certain thresholds of retail competition have been met." (TRO 114.) Mr. Nilson's arguments on this matter therefore are irrelevant for this proceeding.

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. DR. STAIHR CLAIMS THAT THE OPTIMIZATION ROUTINES OF THE BACE MODEL ARE CONTRARY TO THE TRO BECAUSE THEY PERMIT THE MARKET ENTRANT TO IGNORE UNPROFITABLE WIRE CENTERS WITHIN A UNE RATE ZONE/CEA MARKET. (STAIHR REBUTTAL 17-18) IS THIS TRUE?

A. No, it is not true. The optimization routine of the BACE model treats all of the wire centers within each UNE Rate Zone/CEA market area as a unit. That is, the BACE model determines whether the efficient CLEC would be NPV positive in that geographic market by serving *all* of the wire centers in the market. It does not apply the wire center-by-wire center approach described by Dr. Staihr.

Q. SO, IN PERFORMING THE OPTIMIZATION ROUTINE, DOES THE BACE MODEL "OFFSET" THE MASS MARKET WITH THE ENTERPRISE MARKET? (BRYANT REBUTTAL 33-34)

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 Exhibit DJA-02, in my direct 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. While this is an unnecessarily conservative assumption, this was done to help ensure that there is an additional measure of confidence in our results and recommendations.

Q. PLEASE COMMENT ON MR. WOOD'S CLAIM THAT THE MODEL STRUCTURE "LOCKS" THE TIME HORIZON ASSUMPTION AT 10 YEARS. (WOOD REBUTTAL 5)

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. Further, as Mr. Stegeman discusses, even AT&T's own cost model in this proceeding has a fixed 10-year life.

Q. MR. DICKERSON ALSO DISCUSSES THE ISSUE OF "TERMINAL VALUE." WOULD YOU PLEASE CORRECT MR. DICKERSON'S DISCUSSION? (DICKERSON REBUTTAL 22-24)

A. I don't know that I can fully untangle Mr. Dickerson's discussion, but I will point out where it is fatally flawed. Mr. Dickerson argues (erroneously) that the BACE model assumes that the terminal value represents the liquidation of the firm. He argues (incorrectly) that because this portion of value is not from the firm's continuing operations, it should not be included in the impairment analysis. (Dickerson Rebuttal 23.)

As I explained, terminal value in a business case represents the value of the firm for the period of time that is not explicitly modeled. The base-case assumption that we make in the BACE model is that if, at the end of year 10, investors have $100 of undepreciated investment in the business, they will get, on a discounted basis for all of the years after year 10, $100 of net revenue out of the business. In other words, investors will earn exactly their risk-adjusted cost of capital, or

(same thing) they will earn a return commensurate with risk or (same thing) the economic profits in the years after year 10 will be zero. This is a conservative assumption. We could reasonably have modeled the terminal value as some continuing amount of economic profit, or perhaps an amount of economic profit that tapers down over time, but we did not. Instead, we modeled the terminal value as zero economic profit. In sum, our analysis presumes a going concern, and that the firm will generate income (cash inflows) commensurate with cost (cash outflows) on a present value basis so that the enterprise has *accounting* profits, but its *economic* profits are zero. However, this is not the same thing as liquidation value (i.e., the value associated with "go[ing] out of business"). (Dickerson Rebuttal 23.)

While our assumption is reasonable, Mr. Dickerson's proposed adjustment is not. Not only does Mr. Dickerson improperly characterize the terminal value as a bankruptcy sale, he proposes zeroing it out because, he argues, this value is determined by the sale of assets and not by ongoing operations. He has it completely backward. The terminal value of the firm in the model reflects the value of its assets at that point as an ongoing concern, not in liquidation. It is the explicit modeling of cash flows that terminates, not the firm itself. As a result, it is Mr. Dickerson's ill-conceived "fix" that implies that the firm operates for 10 years and that, at the close of business on December 31 of the 10^{th} 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. Dickerson's proposal,

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 and untenable method of estimating terminal value. Standard texts on business case valuation 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.) Accordingly, the Commission should reject Mr. Dickerson's proposal.

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. (Dickerson Exhibit KWD-6; Bryant Exhibits MTB-10, 11, 12; Wood at 29.) Based on the description of their runs, I have attempted to replicate

each of the modifications that they have discussed. In several instances I simply could not replicate the results of their runs, while in others I have been able to approximate the total NPV results that they claim but they did not provide any information relevant to the list of unimpaired markets against which to compare my results. I have requested the input files from these witnesses so that Mr. Stegeman and I can review them and determine what was done, but have yet to receive a response. In any event, 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. However, 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 29, WOOD REBUTTAL 18)

A. Dr. Bryant expressed "surprise" that varying parameter values did "little" to change the NPV. (Bryant Rebuttal 29.) In contrast, Mr. Wood claimed that "even slight changes" to parameter assumptions cause the analysis to indicate that there is impairment. (Wood Rebuttal 18.) 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 ON A STAND-ALONE BASIS IN ORDER TO PROVIDE SERVICES TO MASS-MARKET CUSTOMERS IN A MARKET. (WOOD REBUTTAL 46-47) 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. (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, it is specifically 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 48) OR, IF ANYTHING, THAT THESE CLECS HAVE REDUCED THEIR COSTS BELOW WHAT MIGHT BE OPTIMAL FROM A LONG-RUN PERSPECTIVE? (BRYANT REBUTTAL 35-36)

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 affect 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 48, 52-53) 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 OPERATIONS." (WOOD REBUTTAL 48) PLEASE COMMENT.

A. This is a disingenuous response. In requests to AT&T, BellSouth sought AT&T's business cases that analyze UNE-P and self-provisioned switching. (BellSouth 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. STAIHR CLAMS THAT HIS "STRUCTURED PROCESS" IS NEEDED TO PRODUCE A MARKET SHARE ESTIMATE. (STAIHR 20-21) PLEASE COMMENT ON THIS PROPOSED PROCESS.

A. I concur that any analysis should be structured and rational, and that the research should assemble relevant information and analyze it in a clear logical framework that takes account of theory and past experience. My approach satisfies this criterion. However, Dr. Staihr's approach is unnecessarily complex and does not appear to be designed in a way that reliably would produce a reasonable result.

Dr. Staihr's proposed research agenda posits that CLEC market share is a function of at least (by rough count) 13 variables. Moreover, these 13 variables may themselves be complex functions, or related to other variables. (For example, Dr. Staihr says that one factor is product bundling differentiation, and this can be a function of multiple product characteristics.) Other variables are notoriously difficult to estimate (for example, the existence, and amount, of pent-up demand). Dr. Staihr's argument is that formal estimates of all of these variables are needed to produce an estimate of market share. I therefore do not believe that one can reasonably or reliably apply this process.

Q. DR. STAIHR CLAIMS THAT YOU DO NOT RELY ON A STRUCTURED PROCESS TO ESTIMATE MARKET SHARE. (STAIHR REBUTTAL 22) IS THIS TRUE?

A. No, it is not. The process that I used is structured and, moreover, is appropriate given the state of knowledge about market penetration and the data that are actually available.

Q. PLEASE DESCRIBE THE PROCESS THAT YOU USED TO DETERMINE THE MARKET PENETRATION RATE. (STAIHR REBUTTAL 22)

A. The approach that I used had four main parts. The first was a review of the academic literature that I undertook 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.

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 Florida 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, "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 Florida. 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. In contrast, I believe that Dr. Staihr's proposed methodology is overly narrow on this point. What Dr. Staihr claims is a "market-specific process" (Staihr Rebuttal 29) and is, in my view, a misguided and insular approach that would ignore potentially important information that can be gleaned from other local telephone markets. 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 did not limit myself to primary research, as Dr. Staihr's "structured process" seems to recommend. 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.

Thus, while my approach to market share estimation differs from Dr. Staihr's, I believe that my approach (in contrast to his) is designed to actually produce a reasonable, robust, conservative estimate. 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 Dr. Staihr recognizes have influenced, or could influence, the landline telephone market in the future. (See, e.g., Staihr Rebuttal 35.) I do not presume that the CLEC wins any converts from, e.g., wireless customers.

Second, my analysis is conservative in that it does not incorporate any revenue-enhancing effects that could result from "changes to product characteristics," (Staihr Rebuttal 21) and innovations that a switch-based CLEC might implement.

I will agree with Dr. Staihr on several other points, however. My research process was complex, it was time-consuming, and it was research intensive. It entailed reviewing a substantial amount of existing research and primary data in the BellSouth region and throughout the country. However, unlike Dr. Staihr's ivory tower approach, my own was designed to produce a reasonable estimate of an efficient CLEC's market share, not to set up an impossible set of tasks that might not produce a reasonable result. 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. DR. BRYANT CLAIMS THAT "THE ULTIMATE MARKET SHARE THAT AN INDIVIDUAL CLEC MAY ACHIEVE IS UNKNOWN AND UNKNOWABLE." (BRYANT REBUTTAL 37) 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 Commission draw no conclusion about impairment from the potential deployment analysis. (Bryant Rebuttal 42.) The FCC directed the commissions to assess potential deployment

despite the inherent uncertainty of the future, and I believe it is the Commission'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 Commission 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. DR. STAIHR AND DR. BRYANT CLAIM THAT AN EXAMINATION OF AGGREGATE CLEC MARKET SHARE IN FLORIDA DOES NOT IMPLY THAT EACH CLEC, OR THAT ONE CLEC, COULD ATTAIN THE SAME MARKET PENETRATION. (STAIHR REBUTTAL 22-23, BRYANT REBUTTAL 36-37) PLEASE COMMENT.

A. Drs. Staihr and Bryant are confounding two separate (though related) issues. One 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

Florida (and elsewhere in the BellSouth region) provides information regarding the willingness of customers to change their service provider. We observe today a number of wire centers in Florida (and throughout the BellSouth region) where CLECs in the aggregate already serve 15 percent or more of the lines. This is tangible information about the *willingness of customers* to switch to alternative providers and, in the alternative, the degree of customer loyalty to or lock-in to the incumbent carrier. 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.

My framework for viewing market structure implies that the market will undergo significant consolidation in the coming years. I believe that in fact 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. 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. 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.

Q. PLEASE GIVE US AN EXAMPLE OF HOW MARKET STRUCTURE CAN AFFECT THE SHARE ESTIMATES OF DRS. BRYANT AND STAIHR.

A. Dr. Staihr recommends an assumed CLEC market share of 10 percent, based on two analyses. The first considers the long-distance experience. Based on this experience, Dr. Staihr concludes that CLECs will take 65 percent of the total market, but that this will be divided among 7 firms (producing about 9 percent each). Dr. Staihr also considers a situation where competitors take 65 percent of the total market, but that a cable telephony firm takes 23 percent, and the remaining 6 CLECs get 7 percent each. (Staihr Rebuttal 26-29). Dr. Bryant

argues that the aggregate share of the CLECs will be 15 percent, but that it will be shared equally by three CLECs. (Bryant Rebuttal 36-37.) Thus, these witnesses argue that aggregate CLEC share may be on the order of 15 to 65 percent and that it may be divided among 3 to 7 firms. I do not believe that a market structure with numerous firms, especially with small penetration rates, is likely as a long-run equilibrium in light of the scale economy issues I just discussed. I also do not think it likely that a given geographic market typically will support 6 or 7 small CLECs. As I explained, within a given geographic market, I expect market structure to be more consolidated, reflecting the scale economies available to CLECs. Hence I believe my penetration estimate is most consistent with a realistic view of ultimate market structure, but note that Dr. Staihr's expectations of total CLEC share are far more aggressive than my own.

Q. DR. STAIHR CLAIMS THAT IT IS UNCLEAR WHETHER YOUR ANALYSIS OF BELLSOUTH WIRE CENTERS IS LIMITED TO MASS-MARKET CUSTOMERS, AND THAT THIS IMPLIES THAT MASS-MARKET PENETRATION IS "WELL BELOW 15%." (STAIHR REBUTTAL 23-24) PLEASE EXPLAIN.

A. To clarify, I examined mass-market customers. The computations of market penetration include only basic lines (no high-capacity lines, or channelized hi-cap lines), so I believe that the lines largely (if not solely) represent residential and small business lines. I did not have the information to differentiate between business and residential lines (as this is not required for an analysis of the mass

market). I compared the number of these "mass market" lines served by CLECs to the total (CLEC+ILEC) mass-market lines. Dr. Staihr argues that the majority of CLEC lines in Florida serve large business customers. This may be so, but it is irrelevant to the data that I present in my analysis, because I exclude high-capacity lines. Thus, Dr. Staihr claim that my data "suggest a mass-market penetration well below 15%" is incorrect. (Staihr Rebuttal 24.)

Q. PLEASE RESPOND TO THE CLAIM THAT CABLE TELEPHONY IS NOT AN APPROPRIATE INDICATOR OF THE MARKET SHARE THAT CLECS MIGHT ATTAIN. (WOOD REBUTTAL 40, STAIHR REBUTTAL 24-25)

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 40.) Dr. Staihr argues that the cable telephony penetration is not representative of the share that a CLEC could obtain because, according to the FCC, cable television providers have a "first mover" advantage and economies of scope in offering telephony along with television services.

Both Dr. Staihr and Mr. Wood err in their conclusion because they confuse supply with demand. Mr. Wood rejects the use of cable television because cable telephony providers do not routinely use ILEC loops to provide service. 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).

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. 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 inapt indicator of the market share that a traditional UNE-L-based CLEC might attain in the future.

Dr. Staihr's testimony is similarly confused. In a complete about-face, after his lecture about what a demand-side market share analysis should entail, Dr. Staihr relies only on an FCC discussion about economies of scope (which pertain to the costs of provisioning, and hence the supply of the service) as a reason to view the cable telephony successes with caution. The fact that cable companies may enjoy economies of scope with regard to the provisioning of telephone service does not obviate the inference one can draw regarding the willingness of customers to change their telephone provider (the demand side).

Dr. Staihr also notes that according to the TRO, cable television companies have "unique economic circumstances of first-mover advantages and scope economies, [and therefore] have access to the customer that other competitive carriers lack." (TRO 310.) The FCC says that this "first-mover" advantage stems from

exclusive franchises and a captive market. Both exclusive franchise and captive market, however, pertain to cable *television*, not *telephony*, and so do not apply here. Moreover, the fact that cable company has an ongoing relationship with its existing base of customers is not unique, either. Long-distance service providers such as Sprint have relationships with their customers, too. Long-distance carriers also may be able to use their existing relationships to sell local voice and data (DSL) services to their customers. Thus, neither Dr. Staihr nor Mr. Wood advance any supported argument that would exclude the cable telephony experience as a relevant indicator of the customer willingness to switch service providers.

Q. DOES THE FACT THAT YOU GIVE WEIGHT TO INFORMATION ABOUT CUSTOMER WILLINGNESS-TO-SWITCH GLEANED FROM CABLE TELEPHONY PROVIDERS IMPLY THAT THE BACE MODEL SHOULD HAVE MODELED A CABLE TELEVISION PROVIDER? (STAIHR REBUTTAL 24)

A. No, it does not. The purpose of the BACE model is to investigate whether a particular entry method (e.g., a landline CLEC using its own switching and the ILEC's loops) is economic in a market without access to unbundled local switching. To be conservative, the BACE approach models a CLEC that is entering the market using its own circuit switching and the ILEC's loops. However, this does not invalidate using the relevant knowledge that we gain from the cable industry regarding customers' willingness to switch service providers.

Our approach is a perfectly consistent and reliable way of applying a business case analysis.

Q. DO YOU HAVE ANY OTHER OBSERVATIONS ABOUT THE TESTIMONY PROVIDED BY DR. STAIHR OR MR. WOOD ON CABLE TELEPHONY?

A. Yes. Neither Dr. Staihr nor Mr. Wood dispute that cable telephony is equivalent to traditional local exchange service in overall quality. Neither disputes the fact that cable companies have gained substantial numbers of customers and substantial share where they have offered telephone service. Neither Dr. Staihr nor Mr. Wood disputes the fact that cable companies such as Cox have gained 20 to 30 percent share in those areas where they have offered service, and that Cox itself has gained 19 percent share overall where it offers service and 53 percent of its existing cable TV subscribers. These figures indicate that *customers are willing to shift* 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. BUT, IF CABLE COMPANIES HAVE HAD GREAT SUCCESS ATTRACTING CUSTOMERS, DOES THIS NOT "WORK AGAINST" YOU, AS DR. STAIHR ALLEGES, BY LEAVING FEWER CUSTOMERS "LEFT OVER" FOR NON-CABLE BASED PROVIDERS? (STAIHR REBUTTAL 24)

A. No. Dr. Staihr's argument implies that the cable company is guaranteed a 26.2 percent of the market. This is not true. An efficient CLEC may be able to *win customers from the cable company as well as from the ILEC* in markets where cable telephony is being offered. In a market with an efficient, UNE-L-based CLEC, the cable company might obtain substantially less than the current national average of 26.2 percent of the market. In any event, the more successful are the alternative bypass technologies (such as cable and wireless, or alternative switch technologies such as VOIP), the less justified is any unbundled switching policy, as I discussed earlier.

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 39-40)

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 and Dr. Staihr do. 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 39-40) 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 Florida 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

noted that AT&T Wireless's rate of customer additions was below the industry average in the fourth quarter of 2003 and AT&T is seeking to sell that business (Matt Richtel, "AT&T Wireless Says it Wants a Suitor," New York Times January 23, 2004, C1+), so AT&T's brand name has not provided an obvious advantage in the wireless industry. In light of AT&T's struggles in other areas, I think it reasonable to accept that its success in New York is not attributable uniquely to an all-powerful brand name, and that other carriers with attractive offerings could replicate its success. In any event, the FCC specifically instructed us to consider "countervailing advantages" (TRO 84) and the most efficient business model. (TRO 517.) A strong brand name would seem to be one of these advantages (although we did not specifically model AT&T, nor did we seek to model a firm with special name recognition). As a result, Dr. Staihr's attempt to rule out AT&T as a legitimate example of CLEC success of 15 percent market share should be dismissed as simply self-serving.

Q. DR. STAIHR POINTS OUT THAT EVEN THOUGH AT&T ACCOUNTS FOR 15 PERCENT MARKET SHARE IN NEW YORK, 25 OTHER CLECS ACCOUNT FOR ANOTHER 13 PERCENT. HE ARGUES THAT THIS DEMONSTRATES THAT OTHER CLECS WILL BE UNABLE TO ATTAIN 15 PERCENT MARKET SHARE. (STAIHR REBUTTAL 25) PLEASE COMMENT.

A. Dr. Staihr once again confuses the issue of market structure with the issue of market penetration. Dr. Staihr's figures demonstrate only that a substantial

portion—at least 28 percent—of customers have already shown a willingness to change their service provider. It does not demonstrate that there cannot be two switch-based CLECs, each with approximately 15 percent market share, and an ILEC, that compete with one another on a facilities basis.

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 39)

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 early in the process. However, my research indicates 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 39 and 40 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 37)

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 39)

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 38) 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. 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 39, STAIHR REBUTTAL 32)

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 Commission 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 and that, over time, these will be migrated to UNE-L lines in those areas where an efficient CLEC is not impaired without

access to the local switching UNE. 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 Dr. Staihr 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 this to AT&T and Sprint in response to discovery. (AT&T's 3rd Set of Requests for Production of Documents No. 47, Sprint's 1st Request for Production of Documents No. 2.)

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. YOU EARLIER REFERRED TO YOUR REVIEW OF THE ACADEMIC LITERATURE ON MARKET PENETRATION. DR. STAIHR CLAIMS THAT BY ADHERING TO THE APPROACH DESCRIBED IN THE LITERATURE, YOU "STACKED THE DECK" SO THAT CLEC

PENETRATION, AS EXPRESSED BY THE P-VALUE, INCREASES THE LIKELIHOOD OF SUCCESS. (STAIHR REBUTTAL 31) HAVE YOU STACKED THE DECK?

A. No, I have not. Dr. Staihr does not dispute the findings that I described from my review of the academic literature. Dr. Staihr'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 research is instructive does not mean that we should ignore it. The FCC instructed us to consider an efficient firm. I take that to mean (and Dr. Staihr does not seem to dispute my conclusion) 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.

Dr. Staihr also argues that market penetration is something "over which the company has little control." (Staihr Rebuttal 31-32.) This is another incorrect statement. If penetration were outside the control of the firm, there would be no reason for the firm to spend money on marketing and customer acquisition. I wonder if Sprint's sales personnel share Dr. Staihr's view of the exogeneity of demand for CLEC services. I believe that the p-value that I have selected is consistent with the customer acquisition cost estimate that I have selected, and that a reduction in one would require a reduction in the other.

Q. PLEASE COMMENT ON DR. STAIHR'S USE OF FCC DATA TO DEMONSTRATE THE PATTERN OF CLEC MASS MARKET PENETRATION OVER TIME. (STAIHR REBUTTAL 32)

A. Dr. Staihr misuses FCC data to suggest that the rate of share gain of an efficient CLEC will be lower than the p-value of 0.50. His analysis is incorrect because it implicitly and erroneously assumes that there is a single national market in local exchange service. Instead, there are multiple local exchange markets and initial entry by CLECs can occur at different times in each market. This will influence the aggregate statistic and can lead to erroneous conclusions about CLEC successes.

An example may clarify how the FCC's data can be subject to the kind of misinterpretation seen in Dr. Staihr'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) 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). These aggregated

penetrations do not illuminate what is happening in local markets and demonstrate 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.

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 25) 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 30-32) PLEASE COMMENT.

A. Mr. Wood expresses a concern that because Florida has several retail price groups, the BACE model's treatment of customer segmentation is "incorrect" and "biases" the results toward a showing on no impairment. (Wood Rebuttal, p. 32.) 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 Florida 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 $3.50 from the highest to the lowest rate group. Instead, most residential customers will face local access line rates that are within $1 of one another. 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.

Further, 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.

Nevertheless, 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 26-27) PLEASE COMMENT.

A. These prices were provided in response to Sprint's First Request for Production of Documents No. 1, and Staff's 5th Request for Production of documents No. 31 and Interrogatory 82.

Q. DR. STAIHR CLAIMS THAT CLECS MUST COMPETE WITH THE BELLSOUTH WINBACK BUNDLE PRICES, AND THAT THE WINBACK PRICES THEREFORE SHOULD FORM THE BASIS OF THE CLEC'S BUNDLE PRICES. (STAIHR REBUTTAL 33-34) PLEASE COMMENT.

A. This is incorrect. While it is true that BellSouth's winback bundle prices are available in the market today, they are not the relevant price for an efficient CLEC. Rather, *bundle prices offered by the CLECs themselves* in the face of those winback prices are more relevant, because they are offered to customers at large.

Q. PLEASE RESPOND TO DR. STAIHR'S DISCUSSION ABOUT HOW THE 10 PERCENT DISCOUNT FOR *A LA CARTE* SERVICE PRICES IS APPLIED IN THE BACE MODEL. (STAIHR REBUTTAL 34)

A. Dr. Staihr's description on this point is muddled (and incorrect). Let me first describe how the BACE model computes revenues, and it will become clearer how the 10 percent discount applies. The model assigns certain customers to bundles and these customers pay the bundled prices that I developed from actual CLEC service offerings. The rest of the customers buy services *a la carte*, and they pay the BellSouth prevailing prices minus a 10 percent discount on local service, including local usage and vertical features. (The installation charge is also waived.) Therefore, the bundle prices reflect the prevailing observed CLEC prices and the *a la carte* prices are discounted from the prevailing ILEC prices, providing a pricing incentive for a customer to switch.

Q. DOES DR. BRYANT CRITICIZE YOUR REVENUE ESTIMATE FOR RESIDENTIAL CUSTOMERS? (BRYANT REBUTTAL 40-41)

A. No, not directly. Instead he re-runs the BACE model using a monthly revenue estimate of $47.25 for residential customers. He does not comment directly on my revenue estimates.

Q. PLEASE COMMENT ON DR. BRYANT'S USE OF THE $47.25 FOR RESIDENTIAL CUSTOMERS.

A. Although he claims in his testimony that he assumes average revenues of $47.25, Dr. Bryant actually uses $46.50 in his model. In any event, Dr. Bryant's figure is unreasonably low because it does not appear to include the possible revenue that the CLEC, executing the most efficient business plan, can attract from serving customers who will purchase DSL services as well as local and long-distance services. For example, in discovery, MCI claimed that its end-user average (qualifying) revenues were between *** [redacted] *** (MCI Response to BellSouth Interrogatory No. 26, p. MCI-000074). Because any results from the BACE model that use the $47.25 do not reflect the most efficient business plan, they cannot be relied upon for making a determination about impairment.

D. PRICE TRENDS

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 24, STAIHR 35-36) 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 both prices *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. BUT, ISN'T IT TRUE THAT PRICES THAT ARE ABOVE COST (AS COMPUTED BY THE FCC'S HCPM MODEL) WILL ATTRACT COMPETITION AND SERVE TO REDUCE PRICES IN THE FUTURE? (STAIHR REBUTTAL 35-36)

A. This is another instance where Dr. Staihr attempts to use the conservatism of the BACE modeling approach against itself. Mr. Nilson makes a somewhat similar claim, arguing that a "basic tenet of economics" is that prices decrease. (Nilson Rebuttal 11.) In so doing, both witnesses inadequately describe the nature of the competitive process. I concur that one outcome of competition can be lower prices when prices are substantially above cost. However, if prices already are below the competitive level, competition will not cause them to decrease further. 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.

One possible effect of product innovation on the part of the efficient CLEC and general technological progress, were we to incorporate it in the model, would be to contribute toward increased revenue per customer over time. This, in turn, would 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.

Dr. Staihr's proposal to trend prices downward over time is unreasonable because it addresses only one effect that can occur as competition increases, and it ignores the countervailing effect that innovation can have in increasing customer spending. However, 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.

In any event, I will also note that no firm conclusions can be drawn from Dr. Staihr's use of the FCC's High Cost Proxy Model ("HCPM"). The HCPM is a forward-looking incremental cost model developed by the FCC to identify high cost areas for purposes of universal service fundings. The model is designed to identify areas that are *relatively* high cost, not to identify all of the costs themselves. Accordingly, the FCC has stated that the HCPM should not be used

for determining or evaluating prices. (See, e.g. Memorandum and Order CC Docket No. 00-217, January 19, 2001, p. 41.)

Q. PLEASE COMMENT ON DR. STAIHR'S RECOMMENDATION THAT PRICES SHOULD BE REDUCED BY 1.5 PERCENT PER YEAR TO REFLECT GAINS IN PRODUCTIVITY. (STAIHR REBUTTAL 37)

A. This is yet another example where Dr. Staihr fails to follow his own advice of using a "structured" analysis. Dr. Staihr claims that such a reduction is consistent with productivity that "normally [would] be passed through to end-users in a competitive market." (Staihr Rebuttal 37.) However, these same productivity gains will also reduce costs. (Indeed, productivity enhancements would only lead to price decreases *if* they reduce costs.) Dr. Staihr's recommendation therefore is biased: he would have us reduce prices to reflect productivity; he says nothing about reducing 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.

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 27) 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 27) IS THIS USEFUL INFORMATION FOR THE POSSIBLE PATH OF LOCAL SERVICE PRICES?

A. Absolutely not. Dr. Staihr makes this same, incorrect argument as well. (Staihr Rebuttal 37-38.) 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. Neither Dr. Staihr nor Mr. Wood 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 price decrease is applied over the 10-year horizon of the BACE model should come as no surprise. (Wood Rebuttal 29.) 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.

Q. DO THE DECREASES IN WIRELESS PRICES PROVIDE A USEFUL BENCHMARK AS TO WHAT MIGHT OCCUR WITH LANDLINE TELEPHONE PRICES IN THE FUTURE? (STAIHR REBUTTAL 37-38)

A. No. Unlike landline residential service prices, wireless prices were not regulated during the 1994 to 2002 period that Dr. Staihr investigates. There is no reason why the price trends of services that started at an unregulated, potentially supra-competitive level and fall over time should tell us anything meaningful about price trends of services that have been highly regulated for many years, and which, in some instances, may be below the competitive level. Moreover, fundamental changes in wireless technology occurred during that time (particularly, the transition from analog to digital service) that affected the cost of

providing wireless services, and we have not modeled any such changes in wireline technology in the BACE model.

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 10, 46-47) PLEASE COMMENT.

A. At pages 46 and 47 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 Commission'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 Commission 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 CLEC MODEL (REGARDING CHURN) THAT RELIES EXCLUSIVELY ON THE ACTUAL EXPERIENCE OF UNE-P FIRMS WILL BE UNDERSTATED. (BRYANT REBUTTAL 38)

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 37.) 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 81-82.) 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 44) PLEASE COMMENT.

A. Mr. Wood's argument is misleading because he fails to tell the whole story. Mr. Wood cites to page 34 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 44.) 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.

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. As I noted in my direct testimony, an investment analyst 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 44) 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 page 31 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 on that same page (page 31) of 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 44.)

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 49) PLEASE COMMENT.

A. I disagree. First, this argument cannot apply to business customers, because my recommendation for customer acquisition costs is expressed as 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. First, 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.

Moreover, 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 38-39)

A. Dr. Bryant makes several claims. He says that my customer acquisition costs are based on the Z-Tel experience. (Bryant Rebuttal 38.) This is only partly true. I considered customer acquisition costs for Z-Tel, Talk America, and AT&T as shown in Exhibit DJA-06, 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 39.) 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 Exhibit DJA-06) 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 39) 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 39.) 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).

Q. PLEASE COMMENT ON MR. DICKERSON'S CLAIM THAT THERE SHOULD BE MORE GRANULARITY IN THE SALES EXPENSE THAT YOU UTILIZE. (DICKERSON REBUTTAL 19-22)

A. Certainly Mr. Dickerson cannot be referring to the sales expense that I propose for business customers. Business customer sales expense is computed as a percent of customer location revenues. As a result, our analysis provides sales expenses at the same granularity as revenues.

I disagree that there needs to be any additional granularity for residential customers. Dr. Bryant's approach does not consider any additional granularity in customer acquisition costs, for example. Moreover, my recommendation is at the same level of granularity that is used by investment analysts who seek to make recommendations about potential investments. The BACE model is likewise designed to determine the value of switch-based entry in a market and determine whether investors would be disposed to providing the capital needed for such entry. Because of the similarities in the issues that are being addressed in the BACE model and by investment analysts, it is reasonable to use the same level of granularity in BACE as is used by these analysts in their valuation models.

Moreover, Mr. Dickerson's own analysis illustrates precisely why granularity for its own sake does not guarantee reasonableness. Mr. Dickerson claims to have performed a detailed analysis of Sprint's "customer sales costs." He concludes

that these costs are on the order of ***[redacted]***, or some ***[redacted]*** the *existing* customer acquisition costs of firms such as Z-Tel and Talk America. They are nearly ***[redacted]*** the amount recommended by Dr. Bryant, and nearly ***[redacted]*** that noted by analysts as pertaining to AT&T. Mr. Dickerson does not even attempt to reconcile his results with any of these figures, perhaps erroneously concluding that because they were developed on a "granular" basis that this alone verifies their merit. Nor does Mr. Dickerson indicate how these extreme results can be reconciled with the requirement that we model an efficient CLEC executing the *most efficient* business model. Mr. Dickerson's figures are of no value.

Q. MR. DICKERSON LISTS A NUMBER OF ITEMS SUCH AS ORDER MANAGEMENT, THIRD-PARTY VERIFICATION, AND ORDER PROCESSING THAT HE CLAIMS SHOULD BE INCLUDED AS CUSTOMER ACQUISITION COSTS. (DICKERSON REBUTTAL 21-22) DOES YOUR PROPOSED ESTIMATE INCLUDE THESE?

A. My recommendation is sufficiently conservative that all of the costs associated with customer acquisition (and for G&A expenses) for an efficient CLEC are adequately accounted for in the NPV business case. I have already described the derivation of my customer acquisition cost figure and described why it is conservative. I will address G&A expenses in the following section. The main point is that Mr. Dickerson has demonstrated that the "bottom up" approach is no guarantee for a reasonable estimate of customer acquisition cost, and that my own

is very much a mainstream, if not a conservative estimate. I will demonstrate that the costs that I have included for G&A likewise are generous.

Q. MR. DICKERSON SAYS THAT YOUR CUSTOMER ACQUISITION COST ESTIMATE EXCLUDES TELEVISION ADVERTISING. (DICKERSON REBUTTAL 21) PLEASE RESPOND.

A. Mr. Dickerson is being disingenuous. As I noted in a footnote of my exhibit, one of the figures (related to Z-Tel's management target of customer acquisition costs of $50) may exclude television advertising. However, the other estimates are not qualified in any way. For example, analysts estimated Talk America's customer acquisition costs at $80, and this is made without any qualification. My own estimate is $95, which is 90 percent greater than the Z-Tel management goal and about 20 to 35 percent greater than the Talk America amounts, which, as I mentioned, are not qualified regarding television (or any other) advertising. I would also note that general brand advertising, including brand advertising or television, is included in my G&A category. To the extent the analysts or carriers are including television advertising in their estimates of customer acquisition costs, I may be double-counting them.

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 49-50)

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. Thus, 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 large and small ILECs, not only the four major ILECs.

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.

Mr. Dickerson claims that my estimate is wanting because it does not assume non-scalability (i.e., economies of scale). (Dickerson Rebuttal 15.) However, I noted that the academic literature did not support the notion of scale economies in G&A, so, rather than make an unsupported claim (as Mr. Dickerson does), I tested whether G&A expenses exhibited scale economies using statistical techniques on data from both large and smaller ILECs. My empirical analysis did not indicate a statistically significant, positive intercept on the regression of revenues and G&A expenses (an indicator of scale economies). As a result, in my view, it is unreasonable to model an "efficient" CLEC by assuming, against both theory and hard evidence, that the CLEC will have higher overheads than will the incumbents.

Q. MR. DICKERSON CLAIMS THAT YOU OFFER A "MEAGER DISCUSSION" IN SUPPORT OF YOUR G&A RECOMMENDATION. (DICKERSON REBUTTAL 13-14) PLEASE RESPOND.

A. I provided a lengthy and detailed discussion of my results in response to Sprint's interrogatories. The academic literature was provided to Mr. Dickerson in response to Sprint 1st Request for Production of Documents No. 25. My analysis of empirical research was described and provided to Mr. Dickerson in the response to Sprint 1st Request for Production of Documents Nos. 17, 18, 19, and 25. All in all, I produced scores of pages of supporting and explanatory documents on this issue.

I. CREAM SKIMMING

Q. PLEASE RESPOND TO MR. WOOD'S DISCUSSION ON CREAM SKIMMING. (WOOD REBUTTAL 33-35)

A. 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.)

On page 34 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 34.) 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 20.)

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 not.

Q. DO ANY OF THE OTHER WITNESSES CONFIRM THAT AN EFFICIENT CLEC CAN TARGET CUSTOMERS?

A. Yes. Dr. Staihr claims that CLECs "can and do tailor their product offerings," and that they do so in such a way as to "attempt to attract the more profitable customers throughout the entire market." (Staihr Rebuttal 18.) And, as I noted, AT&T has hardly been a model of consistency on this topic, admitting it in one proceeding and denying it in another.

Q. HOW CAN MR. WOOD ARGUE THAT CLECS THAT SELF-PROVISION SWITCHES DO NOT HAVE AN INCENTIVE TO CREAM SKIM? (WOOD REBUTTAL 35-36)

A. The argument is incorrect. Mr. Wood argues that a CLEC has the incentive to "obtain all customers served by [a] wire center." (Wood Rebuttal 35.) 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 37.)

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. BAD DEBT

Q. PLEASE COMMENT ON MR. DICKERSON'S BAD DEBT ASSUMPTION. (DICKERSON REBUTTAL 24)

A. Mr. Dickerson simply claims that his bad debt assumptions represent the experiences of Sprint's Mass Market CLEC ventures to date. (Dickerson Rebuttal 24) That may be so, but he presents absolutely no evidence that the huge bad debt rates that he recommends are efficient or that this would reasonably represent the rate for an efficient CLEC.

Managing bad debt is important because failure to receive payment for service exerts a double whammy: it is both a loss of revenues that falls to the bottom line,

and it implies that the CLEC incurred costs to provide service that was never paid for. Thus, it is very important for firms to manage bad debt, and it is unreasonable to consider as part of an "impairment" analysis the fact that a CLEC might fail to properly manage this very important cost with reasonable efficiency.

I arrived at my recommendation (of 2.75 percent of revenues) by examining the bad debt experience of the ILECs, including BellSouth, and several of the CLECs. I found that ILEC bad debt is substantially lower than that of the actual CLECs. I believe that actual CLEC performance in the recent economy does not reflect what an *efficient* CLEC would be capable of in a normal economy.

To determine a reasonable bad debt-to-revenue ratio, I examined the performance of ILECs over time and across the industry. ILECs may be representative because they serve a broad category of customers. I obtained revenue and bad debt data for the ILECs from the ARMIS 43-01 database for the periods 1990 through 2002. I computed uncollectible rates (i.e., uncollectibles divided by operating revenue) for total operations and for both the interstate and intrastate segments that comprise the total by company study area. I observed that the RBOC uncollectibles varied during this 13-year period, and, in particular, uncollectibles (relative to revenue) increased in 2001 and 2002 for each RBOC. I reviewed the SEC Form 10-K discussions on bad debt and found that the increase was said to be due to CLEC bankruptcies (and in particular, the WorldCom bankruptcy) and also to the slower economy. One might reasonably expect bad debt to be counter-cyclical (i.e., bad debt increases as a proportion of revenue as the economy

weakens), but it is unreasonable to assume that the slow economy of 2000-2002 will endure throughout the next 10 years. Moreover, it is likewise inappropriate to develop a bad debt parameter estimate on the basis of the effects from the massive WorldCom bankruptcy. The relevant bad debt pertains to the retail market, not the ILECs' wholesale markets.

Additionally, the CLECs that I examined had uncollectible percentages that ranged from 2 to 5 percent over the last 6 years. The CLECs also showed much more volatility than the ILECs did. To account for this volatility, I add a premium to the ILEC uncollectible base rate, and determine that a reasonable long-term rate would be 2.75 percent.

K. 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 27.) PLEASE COMMENT.

A. My assumption of a 15 percent residential penetration rate for DSL and 25 percent penetration for SOHO customers for the efficient CLEC is well within the mainstream expectations for broadband penetration. First, the 15 percent residential penetration (and the 25 percent SOHO penetration) is an "input" to the BACE process. The model computes the 15 percent (or 25 percent) penetration *only on DSL compliant loops*. Thus, actual, effective penetration 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).

Moreover, Mr. Bradbury's only evidence supports his claim that my estimates are too high is his observation that BellSouth's "current penetration rate" for its retail FastAcces Service is approximately 6 percent. Even Mr. Bradbury's data appear too low. Mr. Bradbury does not state when that particular penetration rate was computed, but I will note that it is some 25 percent lower than the 8 percent penetration rate for DSL that the Florida Commission's Office of Market Monitoring and Strategic Analysis reports for BellSouth. ("Annual Report on Competition: Telecommunications Markets in Florida as of June 30, 2003," Florida Public Service Commission—Office of Market Monitoring and Strategic Analysis, p. 41.)

The Commission's study also provides data that show a compound average growth rate for DSL of approximately 120 percent per year between December 2000 and December 2002 (Annual Report 39.) and that DSL accounted for only 40 percent, in round numbers, of total broadband connections (cable and other accounted for the balance) (Annual Report 39.) Such growth strongly indicates that the use of current penetration figures is not a reasonable way to estimate future DSL penetration. Indeed, 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.) It also

indicates that CLECs have the potential to compete for cable modem customers, where the serviceable properties overlap.

The 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 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. 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 overall line penetration data (for approximately the same period of 2001) from the FCC, 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. Thus, 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.

L. CLEC PURCHASING POWER

Q. MR. DICKERSON CLAIMS THAT A CLEC MAY NOT HAVE THE SAME PURCHASING POWER AS BELLSOUTH, AND SO WOULD PAY $1.25 FOR EVERY $1.00 THAT BELLSOUTH WOULD PAY FOR EQUIPMENT. (DICKERSON REBUTTAL 18) PLEASE COMMENT.

A. Mr. Dickerson's adjustment is bogus because Mr. Dickerson does not account for any countervailing advantages that might be available to an efficient CLEC. For example, the efficient CLEC may be part of a much larger organization, such as an AT&T, MCI, or Sprint. Certainly, Mr. Dickerson provides no evidence, other than his personal claims, that a CLEC (including, presumably, CLECs as large as Sprint or AT&T) would pay 25 percent more to its vendors than does BellSouth. In addition, CLECs may be able to use newer, lower cost technologies. The FCC requires that the CLEC use the *most efficient* network architecture available. I will let others discuss the nature of new technologies that are currently available to CLECs, but I will note that to be conservative, we did not model new technologies. Nevertheless, a real-world CLEC may have these technologies and this would argue for a lower cost multiplier. Finally, the fact is that ILECs have

vastly cut back their equipment purchases. Vendors are hurting from this drop in demand for their products and would suggest that they would be particularly eager, in this environment, to compete for new sources of demand. The new sources of demand would be the CLECs. All of these represent countervailing advantages that Mr. Dickerson totally ignores. I believe it most reasonable to simply acknowledge that there are challenges and countervailing advantages to being a CLEC, rather than artificially inflating the efficient CLEC's costs through the purchasing multiplier.

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)	$100	$0	
Total Cust. Acq. Cost		$150-180	$50-80	
Pct. Of CLEC's Customers	(3)	15%	85%	
Weighted Cust. Acq Cost		$22-$27	$42-68	$64-95

(1) Source is Exhibit DJA-06, based on Z-Tel and Talk America.
(2) Source is Bryant (Voice + DSL = $225, voice only is $123.55, so incremental cost of DSL is $101).
(3) Source is Exhibit DJA-05.