

ALABAMA PUBLIC SERVICE COMMISSION

COUNTY OF Travis
STATE OF Texas

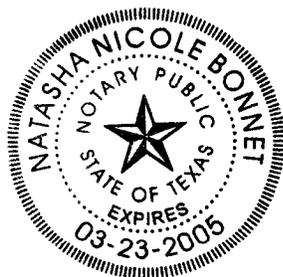
BEFORE ME, the undersigned authority, duly commissioned and qualified in and for the State and County aforesaid, personally came and appeared Debra J. Aron, who being by me first duly sworn deposed and said that he/she is appearing as a witness on behalf of BellSouth Telecommunications, Inc. before the Alabama Public Service Commission in Docket No. 29054, IN RE: Implementation of the Federal Communications Commission's Triennial Review Order (Phase II - Local Switching for Mass Market Customers), and if present before the Commission and duly sworn, his/her statements would be set forth in the annexed direct testimony consisting of 43 pages and 8 exhibits.



Debra J. Aron

SWORN TO AND SUBSCRIBED BEFORE ME
THIS 30th DAY OF JANUARY, 2004

Natasha Nicole Bonnet Notary Public



1 Managerial Economics and Decision Sciences at the Kellogg School from 1993-
2 1995. I was named a National Fellow of the Hoover Institution, a think tank at
3 Stanford University, for the academic year 1992-1993, where I studied innovation
4 and product proliferation in multi-product firms. Concurrent with my position at
5 Northwestern University, I also held the position of Faculty Research Fellow with
6 the National Bureau of Economic Research from 1987-1990. At the Kellogg
7 School, I have taught M.B.A. and Ph.D. courses in managerial economics,
8 information economics, and the economics and strategy of pricing. I am a
9 member of the American Economic Association and the Econometric Society and
10 an Associate member of the American Bar Association. My research focuses on
11 multi-product firms, innovation, incentives, and pricing, and I have published
12 articles on these subjects in several leading academic journals, including the
13 *American Economic Review*, the *RAND Journal of Economics*, and the *Journal of*
14 *Law, Economics, and Organization*. I currently teach a graduate course in the
15 economics and strategy of communications industries at Northwestern
16 University.

17
18 I have consulted on numerous occasions to the telecommunications industry on
19 competition, costing, pricing, and regulation issues in the U.S. and internationally.
20 I have testified in several states regarding economic and antitrust principles of
21 competition in industries undergoing deregulation; measurement of competition
22 in telecommunications markets; the proper interpretation of Long Run
23 Incremental Cost and its role in pricing; the economic interpretation of pricing and

1 costing standards in the Telecommunications Act of 1996 (i.e.,
2 Telecommunications Act of 1996, Pub.L.No. 104-104, 110 Stat. 56. The 1996
3 Act amended the Communications Act of 1934, 47 U.S.C. § 151 *et seq.* I refer to
4 these Acts collectively as the “Telecommunications Act,” the “Act,” or as “TA96”);
5 limitations of liability in telecommunications; Universal Service; and proper pricing
6 for mutual compensation for call termination. I have testified in a number of
7 states on issues pertaining to broadband markets, broadband deployment, and
8 incentives for broadband investment. I have also submitted affidavits to the
9 Federal Communications Commission (“FCC”) analyzing the merits of SBC
10 Michigan’s application for authorization under Section 271 of the
11 Telecommunications Act to serve the in-region interLATA market, CC Docket No.
12 97-137; explaining proper economic principles for recovering the costs of
13 permanent local number portability, CC Docket No. 95-116; explaining the
14 economic meaning of the “necessary and impair” standards for determining
15 which elements should be required to be unbundled under TA96, CC Docket No.
16 96-98; and an analysis of market power in support of Ameritech’s petition for
17 Section 10 forbearance from regulation of high-capacity services in the Chicago
18 LATA, CC Docket No. 95-65. I have consulted to carriers in Europe, the Pacific,
19 and Latin America on interconnection and competition issues, and have
20 consulted on issues pertaining to local, long distance, broadband, wireless, and
21 equipment markets. I have conducted analyses of mergers in many other
22 industries under the U.S. Department of Justice and FTC Merger Guidelines. In
23 addition, I have consulted in other industries regarding potential anticompetitive

1 effects of bundled pricing and monopoly leveraging, market definition, and entry
2 conditions, among other antitrust issues, as well as matters related to employee
3 compensation and contracts, and demand estimation. In 1979 and 1980, I
4 worked as a Staff Economist at the Civil Aeronautics Board on issues pertaining
5 to price deregulation of the airline industry. In July 1995, I assumed my current
6 position at LECG. My professional qualifications are detailed in my curriculum
7 vitae, which is submitted as Aron Exhibit No. DJA-1.

8
9 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE ALABAMA PUBLIC**
10 **SERVICE COMMISSION (“APSC” OR “COMMISSION”)?**

11 A. No.

12
13 **Q. WHAT IS YOUR UNDERSTANDING OF THIS PROCEEDING?**

14 A. The FCC’s Triennial Review Order (“TRO”) requires state commissions to
15 determine whether CLECs (“Competitive Local Exchange Carriers”) would be
16 “impaired” in the provisioning of local exchange service to mass-market
17 customers if access to the incumbent local exchange carrier’s (“ILEC’s”)
18 unbundled local switching were not available. The FCC prescribes two ways that
19 state commissions are to conduct this analysis. First, the FCC designed a
20 “bright-line” test consisting of certain “triggers” which, if met in a given geographic
21 market, mandate a finding that CLECs are not impaired (within the TRO’s
22 meaning of that term) in that geography. BellSouth has conducted the analysis

1 required by the triggers test, and the results of that analysis are provided in the
2 direct testimony of Pamela A. Tipton.

3
4 In those geographic markets where the FCC's switching triggers are *not* met,
5 there is an alternative test that state commissions must apply to determine
6 whether CLECs are impaired without access to unbundled local switching. In
7 promulgating this alternative approach to finding no impairment, the FCC
8 reasoned that "there may well be markets where self-provisioning of switching is
9 economic notwithstanding the fact that no three carriers have *in fact* provisioned
10 their own switches. In such cases, we expect states to find 'no impairment.'"
11 (TRO at ¶ 506, emphasis in original.) This alternative analysis is referred to as
12 the "potential deployment" approach to determining impairment, and it involves
13 considering three factors: evidence of actual deployment, potential operational
14 barriers, and potential economic barriers. (47 C.F. R. 51.319(d)(2)(iii)(B).)

15
16 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

17 A. The purpose of my testimony is to address the issue of whether there are
18 economic barriers in those geographic markets in Alabama where the FCC's
19 switching triggers are not met that would impair a CLEC's ability to provide local
20 exchange service if it lacked access to unbundled switching. My testimony
21 addresses the economic foundation upon which such an examination of potential
22 economic barriers should be based. I discuss the economic model that
23 BellSouth has submitted (the BellSouth Analysis of Competitive Entry or "BACE")

1 model) and how this model accurately captures the analysis required by the
2 potential deployment test. I also discuss a number of key inputs to the model,
3 and the results of the model that I have obtained for the geographical markets
4 covered by this proceeding.

5
6 **Q. WHAT CONCLUSIONS HAVE YOU REACHED REGARDING WHETHER**
7 **CLECS ARE IMPAIRED IN ALABAMA?**

8 A. As the testimony of other BellSouth witnesses indicates, there are 34 relevant
9 geographic markets in Alabama. I understand that the FCC's switching triggers
10 are met in 3 of those markets. Applying the "potential deployment" methodology
11 to the remaining 32 markets leads to the conclusion that CLECs are not impaired
12 without access to BellSouth's unbundled switching in an additional 23 of those
13 markets. A list of the 23 additional markets is included in Aron Exhibit No. DJA-
14 2.

15
16 **II. ECONOMIC ANALYSIS REQUIRED BY THE POTENTIAL**
17 **DEPLOYMENT TEST**

18
19 **Q. CAN YOU EXPLAIN THE FACTORS THAT THE FCC ASKED THE STATE**
20 **COMMISSIONS TO CONSIDER IN THEIR APPLICATION OF THE POTENTIAL**
21 **DEPLOYMENT TEST?**

22 A. Yes. The FCC spelled out three factors to consider in applying the potential
23 deployment test. First, state commissions are to consider any use of self-

1 provisioned switches by CLECs, serving either mass market or enterprise
2 customers in the geographic market in question. (TRO at ¶ 507.) Such use may
3 fall short of meeting the triggers test but be indicative of the ability of a
4 geographic market to support “multiple, competitive supply.” (TRO at ¶ 506.)
5 The evidence regarding this factor is provided in the testimony of BellSouth
6 witness Tipton. Second, the FCC required the states to consider the impact of
7 potential operational barriers on the ability of a CLEC to enter economically.
8 (TRO at ¶ 507.) The evidence on this point is provided in the testimony of
9 BellSouth witnesses Varner and Ruscilli. Finally, the FCC mandates that state
10 commissions consider the potential economic barriers to a CLEC’s self-
11 provisioning of switching in a given market. (TRO at ¶ 507.) The issue of *how* to
12 assess potential economic barriers to self-provisioning switching is the focus of
13 this section of my testimony.

14
15 **Q. WHAT GUIDANCE DOES THE FCC PROVIDE IN THE TRO CONCERNING**
16 **HOW ECONOMIC BARRIERS TO ENTRY SHOULD BE ANALYZED?**

17 A. The FCC provides very explicit direction about what the analysis of potential
18 economic barriers should encompass. The FCC has determined that
19 “impairment” exists when “lack of access to an incumbent LEC network element
20 poses a barrier or barriers to entry, including operational and economic barriers,
21 that are likely to make entry into a market uneconomic.” (TRO at ¶ 84.)
22 Specifically, the FCC has mandated that the analysis must evaluate whether an
23 efficient CLEC could economically enter a given geographic market. To the

1 extent that such entry is economic, CLECs are not “impaired” in that market,
2 within the TRO’s meaning of the term.
3

4 **Q. CAN YOU ELABORATE ON WHAT THE FCC MEANT WHEN IT REFERRED**
5 **TO “AN EFFICIENT CLEC”?**

6 A. Yes. The FCC specifically requires that the economic barriers analysis be
7 applied to a CLEC that uses “the most efficient business model for entry rather
8 than to any particular carrier’s business model.” (TRO at ¶ 517.) The FCC
9 further mandates that the analysis assume that the CLEC in question utilizes “the
10 most efficient network architecture available.” (TRO at ¶ 517.) In other words,
11 the TRO requires the state commissions to consider the economics of a CLEC
12 with an optimized business model and network most appropriate to entry without
13 access to unbundled local switching. The CLEC considered in the potential
14 deployment analysis may therefore be materially different from many of today’s
15 CLECs, because these companies typically have business models directed
16 toward taking advantage of the availability of the unbundled network element -
17 platform (UNE-P) from BellSouth and/or are not currently efficient in their plans
18 and operations.
19

20 **Q. ARE THERE OTHER IMPLICATIONS OF THE FCC’S DIRECTIVE TO**
21 **EVALUATE AN “EFFICIENT” CLEC?**

22 A. Yes. There are two implications that flow from the directive to consider the ability
23 of an efficient CLEC to economically enter a given market. First, the operating

1 assumptions that are employed must be consistent with the operations of an
2 efficient firm. This would tend to suggest that key operating metrics like
3 customer acquisition cost, customer churn, and so forth, would tend to be better
4 than the average of actual firms (a number of CLECs have gone bankrupt,
5 suggesting that, on average, CLECs do not have optimally efficient operations).
6 Second, efficient firms would tend to sell a broad array of products to a wide
7 range of customers. This is true because many products and customers can be
8 serviced using the same asset platform without replicating many of the fixed
9 costs. For example, an efficient firm would likely leverage its network assets and
10 sales force to sell products that cost little incrementally to provide and sell, but
11 which could contribute meaningful incremental revenue. The FCC recognized
12 this premise as well:

13 The state commission must consider *all* revenues that will derive
14 from service to the mass market.... The state must also consider
15 the revenues a competitor is likely to obtain from using its facilities
16 for providing data and long-distance services and from serving
17 business customers.... Consideration of potential revenues is
18 consistent with our standard...and with the guidance of the *USTA*
19 decision. (TRO at ¶ 519, emphasis in original, footnotes omitted.)
20

21 **Q. WHAT KIND OF ANALYSIS DEFINES WHETHER AN EFFICIENT CLEC CAN**
22 **“ECONOMICALLY” ENTER A GIVEN MARKET?**

1 A. It is both standard business practice, and intuitively compelling, that one would
2 begin such an analysis with a business case, which is exactly what the FCC
3 requires. A business case is an analytical approach, with a specific structure,
4 that is used to quantify the expected value of a particular investment opportunity,
5 and thus determine whether the investment opportunity is “economic.” When a
6 CLEC considers whether to enter a given market, that option is an example of an
7 “investment opportunity.” If the expected payoff from CLEC competitive entry
8 without the local switching UNE is at least as great as the expected payoff from
9 other investments of comparable risk (that is, it covers the market cost of capital),
10 then the business case analysis will indicate that entry is economic, and thus the
11 CLEC is not impaired in that market. Conversely, if the expected payoff from
12 CLEC competitive entry without the local switching UNE does *not* cover the
13 relevant cost of capital, the business case analysis will indicate CLEC
14 impairment. Properly implemented, the business case approach correctly
15 distinguishes between “economic” and “uneconomic” entry, and therefore is
16 particularly (and uniquely) suited to an analysis of CLEC impairment.

17

18 **Q. DOES THE FCC DISCUSS THE USE OF A BUSINESS CASE ANALYSIS AS**
19 **PART OF THE “POTENTIAL DEPLOYMENT” ANALYSIS?**

20 A. Yes. In fact, the FCC explicitly directs the state commissions to use the business
21 case approach:

22

1 Consistent with the impairment standard we adopt today, state
2 commissions must determine whether competitors are unable
3 economically to serve the market. State commissions should not
4 focus on whether competitors operate under a cost disadvantage.
5 *State commissions should determine if entry is economic by*
6 *conducting a business case analysis for an efficient entrant.* This
7 involves estimating the likely potential revenues from entry, and
8 subtracting out the likely costs. (TRO at n. 1579, emphasis added.)
9

10 **Q. WHAT IS THE RELATIONSHIP BETWEEN A BUSINESS CASE AND NET**
11 **PRESENT VALUE?**

12 A. Net present value (“NPV”) is a concept widely used to measure the
13 attractiveness of a business case. A positive NPV means that the present value
14 of the revenues generated by a business opportunity exceeds the present value
15 of the costs (including the cost of capital). Put differently, a positive NPV
16 indicates that a given business decision (e.g., entry into a market) is “economic,”
17 within the meaning of that term as contemplated by the FCC and in the
18 economics literature.
19

20 **Q. DOES THE FCC ENDORSE THE USE OF NPV TO EVALUATE WHETHER**
21 **CLEC ENTRY IS ECONOMIC?**

22 A. Yes. The FCC explicitly endorses the use of NPV as the proper measure of
23 whether entry is economically possible. (TRO at n. 260.)

1

2 **Q. PLEASE DISCUSS THE STRUCTURE OF A PROPERLY-SPECIFIED**
3 **BUSINESS CASE MODEL.**

4 A. A properly structured business case analysis permits the determination of
5 whether entry is economic and thus whether investors would rationally provide
6 the capital needed to fund entry (and other) costs that would be incurred by an
7 efficient CLEC to generate the expected benefits. These costs and benefits can
8 be quantified as cash flows over time. Obviously, if the cash costs, in present
9 value terms, imposed on investors exceed the expected cash benefits, in present
10 value terms, investors will not provide capital and entry will be “uneconomic.”
11 Hence, a business case analysis must identify the amount and timing of cash
12 flows, and the method for calculating the present value of those cash flows.

13

14 **Q. CAN YOU ELABORATE ON THE IMPORTANCE OF THE TIMING AND**
15 **CERTAINTY OF CASH FLOWS?**

16 A. By timing, I mean that the business case analysis must recognize and properly
17 account for the fact that competitive entry is a long-term proposition. It is
18 common to model the business in question for at least 10 years. One must
19 include all of the cash costs associated with entry, which include any
20 expenditures on capital items that are designed to provide service and generate
21 revenues, over a number of years. It is a fundamental tenet of economics that,
22 all else being equal, a contemporary cash flow is worth more than the same cash
23 flow received in the future. In addition, a cash flow received immediately has no

1 more (and may have less) risk than a longer-term expected cash flow. As a
2 result, a properly specified business case must identify when the cash inflows
3 and outflows occur so that the pattern of cash flows can be compared properly to
4 alternative investments.

5
6 Similarly, the future cash flows associated with an investment opportunity (such
7 as competitive entry) cannot be known with certainty. A properly-specified
8 business case must reliably adjust for such uncertainty so as to permit a
9 comparison of the results of this opportunity with alternative investments. As Dr.
10 Billingsley explains in his testimony, this is done by comparing investment
11 opportunities of equal (or reasonably similar) risk in order to determine the cost of
12 capital that is relevant to the business case.

13
14 **Q. WHAT ADDITIONAL ECONOMIC FACTORS MUST BE CONSIDERED IN A**
15 **PROPERLY-SPECIFIED BUSINESS CASE?**

16 A. In accounting for the available revenues and associated costs, any business
17 case seeking to represent an accurate picture of whether an efficient CLEC could
18 economically enter any particular local exchange market must consider the cost-
19 reducing effects of scale and scope economies. The FCC has said that state
20 commissions may “not define the market so narrowly that a competitor serving
21 that market alone would not be able to take advantage of available scale and
22 scope economies from serving a wider market.” (TRO at ¶ 495.) Clearly, the
23 FCC contemplates that in considering whether a CLEC can “economically” enter

1 a particular market, the array of opportunities available to a rational CLEC for
2 establishing a profitable business should be considered.

3
4 These principles require that an impairment analysis reflect the sources of
5 economic efficiency that are available to an efficient CLEC that is considering
6 competitive entry into the market. It is therefore appropriate to model the *entire*
7 geographic and product scope of operations in which a rational, efficient CLEC
8 would participate. To evaluate the economics of serving a given customer type
9 by geographic market, one must apply this operational model to assess the cash
10 inflows and outflows that occur as a result of a CLEC entering a particular
11 geographic market and serving a particular type of customer (without the local
12 switching UNE) in that market. For example, in assessing whether it is economic
13 for a CLEC to serve mass-market customers in Zone 1 of Huntsville, one would
14 first have to model the overall operations of an efficient CLEC. If an efficient
15 CLEC would presumably operate elsewhere in the state and in other states, and
16 would serve enterprise as well as mass-market customers, then those operations
17 must be modeled. In the context of that model, one can assess whether serving
18 mass-market customers in that area would be “economic.” That assessment
19 would have to take into account that some costs would be shared with, or borne
20 entirely by, the enterprise part of the business and/or other geographic markets.
21 In this way, any economies of scale or scope would be incorporated into the
22 model when assessing the viability of serving the mass market in any one
23 geographic market.

1

2 **Q. IS IT NECESSARY TO PERFORM A SEPARATE ANALYSIS, IN ADDITION TO**
3 **A BUSINESS CASE ANALYSIS, TO ACCURATELY ADDRESS ADDITIONAL**
4 **CONSIDERATIONS SUCH AS SUNK COSTS AND ECONOMIES OF SCOPE**
5 **AND SCALE?**

6 A. No. The purpose of a business case is to assess, within the framework of the
7 business case model, the effect of *all* barriers to entry and barriers to capturing
8 profit opportunities that exist in the market at issue. Entry barriers raise the costs
9 or reduce the revenue opportunities associated with competitive entry. A well-
10 specified business case model incorporates as costs (or reductions in revenue
11 opportunities) the effect of all such barriers. Hence, a proper business case will
12 consider and quantify the effects of any economic barrier to entry that is relevant
13 to the market at issue and incorporate it into the model, and similarly will
14 incorporate any benefits from scale or scope economies. The results of the
15 business case will thereby permit a determination of whether entry is economic
16 despite the existence of potential economic entry barriers.

17

18 **Q. CAN YOU PROVIDE AN EXAMPLE OF HOW ENTRY BARRIERS ARE**
19 **INCORPORATED INTO A BUSINESS CASE ANALYSIS?**

20 A. Yes. The FCC noted that barriers that may be relevant include (1) scale
21 economies; (2) sunk costs; (3) first-mover advantages; (4) absolute cost
22 advantages; and (5) barriers within the control of the ILEC. (TRO at ¶¶ 87-91.)
23 A business case can be designed to account for any and all of these.

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Consider, first, the “scale economies” barrier cited by the FCC. Suppose that a CLEC seeking to enter a market had to invest in an Operational Support System (“OSS”) to manage its backend order entry, billing, and other issues. If the system’s costs were relatively invariant to scale (i.e., one size fits all), then the OSS system would provide a source of scale economies because they do not increase proportionately with increases in output. The OSS system therefore may deter a CLEC from entering a market if the CLEC does not expect to win enough customers to cover the up-front, scale-invariant costs of the OSS system. This scale economy can be modeled as a one-time, up-front expenditure on the OSS system that does not vary with output volume. By modeling the OSS costs in this way, within the business case analysis, one ensures that the costs, and the effects of scale economies created thereby, are properly considered.

Consider a second example pertaining to “first-mover advantage.” The FCC explains that a CLEC may be disadvantaged, relative to the incumbent, by not being able to obtain preferential access to buildings and rights-of-way, or by facing customers that are reluctant to switch carriers. (TRO at ¶ 89.) By properly specifying the costs faced by an efficient CLEC seeking building access or rights-of-way access, the business case would produce an accurate assessment of this particular barrier. In certain cases, the barrier may make entry uneconomic, while in other cases, the attractiveness of a given market may overwhelm this disadvantage.

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Barriers that are within the control of the ILEC also can be incorporated into a business case analysis. The FCC’s discussion on such barriers focuses on the hot cut process. (TRO at ¶ 91 n. 304, ¶ 459.) The business case can incorporate the effect of ILEC-based barriers, when they exist, by estimating their effects on the CLEC’s operating (or acquisition) costs, customer churn, or by estimating their effects on the CLEC’s revenue opportunities (e.g., ability to win market share). In sum, the economic effects of the entry barriers described by the FCC (and the countervailing advantages of the CLEC) can, and should, be incorporated into the business case analysis when they exist. By so doing, one may properly determine whether entry genuinely is economic.

III. THE BACE MODEL AND ITS KEY INPUTS

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section I do two things: first, I describe why I find the BACE model to be constructed in accordance with both general economic principles and the guidance given in the TRO; second, I supply empirical and economic evidence to support a number of key model inputs for which I am responsible.

Q. CAN YOU PROVIDE AN OVERVIEW OF THE BACE MODEL?

A. Yes. BellSouth’s BACE model is a sophisticated, granular, multi-period model of an efficient, generic CLEC’s entry into the local telecommunications business. It

1 models in a realistic way the costs and revenues a CLEC would accrue in
2 entering the market, over time and by geographic market. In short, it is the kind of
3 model that a real CLEC could use when constructing a business plan and
4 precisely the kind of business-case model specified by the FCC.

5

6 **Q. IS THE STRUCTURE OF THE BACE MODEL IN LINE WITH GENERAL**
7 **ECONOMIC PRINCIPLES?**

8 A. Yes, it is. Over the last few months, my staff and I have discussed the structure
9 of the model at length, examined its input tables and outputs, spent significant
10 time working with the model during its development, and met with the model
11 developer (Mr. Stegeman) on numerous occasions. Based on all the work we
12 have done, I believe we have a firm understanding of the economic structure of
13 the model, and I find it to be in line with general economic principles.

14

15 **Q. DOES THE BACE MODEL PERMIT USERS TO CONDUCT THE ECONOMIC**
16 **ANALYSIS REQUIRED BY THE POTENTIAL DEPLOYMENT TEST?**

17 A. Yes, it does. As I discussed in the previous section, the TRO establishes a clear
18 approach for conducting the economic analysis required by the potential
19 deployment test. The essence of that test is to model the cash flows of an
20 efficient CLEC to determine whether the NPV of entry in a given market is
21 positive. In my judgment as an economist and based on my extensive work with
22 BACE and Mr. Stegeman, I believe that the BACE model achieves this
23 effectively. It is substantially more detailed in its delineation of revenues and

1 costs than most business case models that I have seen. It is also highly granular
2 in its treatment of geographic and customer variations.

3

4 **Q. CAN YOU DESCRIBE IN MORE DETAIL THE WAY IN WHICH THE BACE**
5 **MODEL REPRESENTS A PROPER BUSINESS MODEL, CONSISTENT WITH**
6 **THE FCC'S DIRECTION IN THE TRO?**

7 A. Yes. First, the model is designed to reflect the costs and revenues of an efficient
8 CLEC that is serving many geographic areas, and is serving both business and
9 residential customers. In doing so, the model captures the benefits in any given
10 geographic market from economies of scale and scope across customer types
11 and across geography. The model also incorporates the ability of a CLEC to
12 target customers and to make economically rational decisions about whether to
13 serve a given geography or type of customer. The BACE model not only
14 includes detailed network costs and wholesale (UNE) costs, it also incorporates
15 realistic costs associated with customer acquisition, churn, taxes, bad debt, and
16 other factors that are relevant to a real firm's profitability. Again, consistent with
17 the direction from the FCC and with sound economic principles, it models a
18 realistic business case in which a CLEC will provide an array of services for
19 which customers will vary in their demands. It also accounts for the fact that
20 some customers will purchase stand-alone basic service, while others will
21 purchase a larger bundle or array of services.

22

1 **Q. DOES THE BACE MODEL INCORPORATE THE ECONOMIC BARRIERS TO**
2 **ENTRY THAT MAY BE RELEVANT TO CLEC ENTRY, AS DISCUSSED BY**
3 **THE FCC?**

4 A. Yes. As Mr. Stegeman testifies, the BACE model considers all relevant costs,
5 whether sunk or recoverable, of entry and operation of a CLEC. In addition to
6 the network costs and operational costs such as collocation, the model
7 incorporates the effects of customer churn, of customer acquisition costs, of OSS
8 costs, and of the fixed costs of providing switching. It also incorporates “first
9 mover advantages” of the incumbent in a number of ways, including the
10 assumption that the entrant will, even after ten years, achieve only a relatively
11 small share of the market.

12
13 **Q. HOW IS THE BACE MODEL USED TO ASSESS IMPAIRMENT?**

14 A. The criterion for impairment calculated by the model is the NPV standard that
15 was discussed earlier, and the NPV standard is applied separately to the mass-
16 market customers in each geographic market so that each market can be
17 assessed separately. Notably, in the model, it is not sufficient that the total
18 market in a geographic area (enterprise and mass market together) be NPV
19 positive; it must be demonstrated that the mass market itself provides positive
20 NPV in order for the model to deliver the conclusion that the mass market is
21 unimpaired. This is a rigorous test for impairment (indeed, it is overly rigorous
22 from an economic perspective because the model allocates fixed costs to the

1 mass market even in situations in which all the fixed costs might appropriately be
2 allocated to the enterprise market for purposes of an impairment test).

3

4 **Q. YOU MENTIONED THAT YOU ARE RESPONSIBLE FOR SOME OF THE KEY**
5 **INPUTS OF THE BACE MODEL. PLEASE EXPLAIN.**

6 A. I provided a number of the inputs into the model, including information regarding
7 segmentation and CLEC revenues, churn, sales expenses, and general and
8 administrative expenses. The development of these inputs required economic
9 analysis and judgment. In the remainder of this section of my testimony, I
10 provide more detail regarding what I recommended for each of these inputs.

11

12 **Q. PLEASE DISCUSS THE CUSTOMER SEGMENTATION THAT IS USED IN**
13 **THE BACE MODEL.**

14 A. Certainly. Let me begin by describing why “customer segmentation” as used in
15 the BACE model is required. One of the main themes running through the TRO
16 is the requirement that the impairment analysis be “granular.” (e.g., see TRO at
17 ¶ 56.) By this, the FCC has sought to ensure that variations in revenues and
18 costs by geography, customer class, and services offered be taken into
19 consideration. Given this direction, it is clearly inadequate to assume that the
20 CLEC being modeled gains the same revenue per line for every subscriber
21 acquired – obviously some customers spend more than others, and may
22 therefore be more attractive for the CLEC to acquire.

23

1 Further, the TRO requires that the CLEC business case model “tak[e] into
2 consideration any countervailing advantages that a new entrant may have.”
3 (TRO at ¶ 84.) The ability to target attractive customers selectively is one such
4 advantage that CLECs have exploited in reality and is highlighted in the TRO
5 (“competitors often are able to target particular sets of customers.” TRO at n.
6 1539.) For example, suppose a CLEC determines that it is only profitable to sell
7 to customers who spend at least \$60 on local service, features, and long-
8 distance service. The CLEC would then enter the market with a \$60 service
9 bundle so that, by self-selection, most of the customers acquired would be
10 profitable. Without a segmentation of customers based on their level of
11 spending, it would be impossible to take into account this kind of “cream
12 skimming” that an efficient CLEC could perform.

13
14 As described by Mr. Stegeman, the BACE model reflects both the granular
15 differences in customer spend and the potential for targeting opportunities by
16 dividing the customer base into seventeen segments—one residential segment
17 that is divided into five “quintiles” by customer spend, and four business
18 segments (segmented by numbers of lines at each business customer location),
19 each of which is further subdivided into three “terciles” by spend. Each
20 geographic market (that is, UNE zones subdivided by CEAs, as discussed in Dr.
21 Pleatsikas’s testimony) is then allocated the appropriate number of customers
22 from each segment to reflect the actual economic profile of that market. For
23 example, a CLEC may find more high-spend customers in Birmingham than in

1 Tuscaloosa. I find this segmentation to be an economically reasonable way to
2 take into account the granular variation of customer spending and potential for
3 cream skimming required by the TRO.

4

5 **Q. HOW IS THE REVENUE OF THE MODELED CLEC DETERMINED?**

6 A. As described by Mr. Stegeman, the revenues of the modeled CLEC are derived
7 from the prices that the CLEC charges, the quantities of different products that
8 each customer takes, and the number of subscribers that it wins in each
9 customer segment – in other words, revenues are derived from prices and
10 quantities, as one would expect.

11

12 **Q. HOW ARE THE MODELED CLEC'S PRODUCT PRICES AND QUANTITIES**
13 **DETERMINED?**

14 A. As described in Mr. Stegeman's testimony, the modeled CLEC is able to sell
15 services both *à la carte* and in bundles. The prices and quantities (e.g., the price
16 per long-distance minute and the corresponding minutes of use per customer) by
17 customer segment for *à la carte* services were developed in a pre-processing
18 program using industry standard market sizes and actual billing data for
19 BellSouth's customer locations. Prices for bundled services are direct inputs into
20 the BACE model that I developed after reviewing the prices of actual CLEC
21 bundled service offerings in Alabama. The bundle prices are generally lower
22 than the price of purchasing the equivalent *à la carte* offerings separately. All
23 prices in the BACE model, whether for *à la carte* or bundled offerings, are,

1 therefore, the “prevailing prices” required by the TRO for this analysis. (TRO at
2 n. 1588.)

3

4 **Q. HOW IS THE NUMBER OF CLEC CUSTOMERS DETERMINED FOR EACH**
5 **CUSTOMER SEGMENT?**

6 A. In its most basic terms, for each customer segment, the BACE model computes
7 the total number of customers won by the CLEC in each year by multiplying the
8 CLEC’s forecasted market share of local service in that year by the total number
9 of customers in the market. The market share is computed for each of 10 years
10 (t), for each market (i), and for each customer segment (j) and each spend class
11 of each segment, (k). Or:

12
$$CLEC\ Share_{i,j,k,t} = \frac{Number\ of\ CLEC\ Served\ Customers\ Locations_{i,j,k,t}}{Number\ of\ CLEC\ and\ ILEC\ Customers\ Locations_{i,j,k,t}}$$

13 To describe the CLEC share over time (t), I selected a mathematical curve
14 according to which CLEC penetration increases over time at a decreasing rate
15 (that is, more quickly at first, then more slowly over time). This specification
16 requires an estimate of two parameters: the “rate of the climb” (or “ p -value”) and
17 the ultimate maximum market share (or “asymptote”).

18

19 I recommend the use of a rate of climb of 0.50 for residential customers and
20 successively lower p -values for the business segments, such that the largest
21 business segment (“SME/C”) has a p -value of 0.25. A p -value of 0.50 means
22 that the carrier will obtain half the difference between its current market share

1 and its ultimate market share in a given year. The lower p -value for business
2 customers means that the CLEC penetration of these customer locations will be
3 slower, in line with the TRO's observation that they might be more willing to sign
4 term contracts. (TRO at ¶¶ 127-128.) Furthermore, I recommend an asymptote
5 of 15 percent for all customer segments in the geographic markets in which the
6 CLEC operates.

7
8 **Q. WHY ARE THESE RECOMMENDATIONS FOR THE NUMBER OF**
9 **CUSTOMERS REASONABLE?**

10 A. There are a number of steps that I took to arrive at the rates of climb and ultimate
11 market share that I recommended be included in the model: (1) I reviewed the
12 academic literature on firm growth; (2) I inspected actual CLEC wholesale line
13 gains in the BellSouth region; and (3) I reviewed the success of cable telephony
14 and other providers. Below I will say a few words about each of these sources of
15 information, but in short, all of them support the current inputs into the BACE
16 model.

17
18 (1) Peer-reviewed empirical studies of firm growth provide support for using a
19 curve of the general shape that I describe that is based on a p -value and an
20 asymptote. Research on firm growth generally has found that the size of a
21 typical, successful entrant (when plotted against time) increases rapidly when the
22 firm is young and small, and tends to level off (i.e., the growth rate decreases) as
23 the firm becomes older and larger (see, e.g., Richard E. Caves, "Industrial

1 Organization and New Findings on the Turnover and Mobility of Firms,” Journal
2 of Economic Literature, Vol. XXXVI, December 1998, pp. 1947-1982).

3
4 (2) My review of wholesale data on CLEC lines in BellSouth wire centers also
5 confirms that this general curve shape is reasonable for CLEC entry and growth.
6 I analyzed data on every wire center in the BellSouth territory, examining several
7 hundred examples of entry by different CLECs over time. While the shape of the
8 penetration curves varied from case to case, my visual inspection confirmed the
9 reasonableness of using a two-parameter (i.e., “rate of climb” and asymptote)
10 curve to represent the general penetration profile of an efficient CLEC over the
11 10-year time frame that is incorporated into the BACE model. In addition to
12 confirming the basic shape of the penetration curves, I found that the actual
13 BellSouth data of CLEC penetration provided support for the asymptote or
14 maximum assumed market share. I specifically note that in the 9-state BellSouth
15 region, CLECs, in aggregate, had attained market shares of 15 percent or more
16 in 172 of BellSouth’s wire centers.

17
18 (3) Cable TV providers that have elected to offer voice telephony have already
19 achieved penetration rates far in excess of the 15 percent “maximum” market
20 share assumed for the modeled CLEC in the BellSouth business case. Both Cox
21 Communications and Comcast Corp. have successfully rolled out telephony
22 service to their existing customers in target markets. Both operators have
23 achieved penetration rates of 20-30 percent of their target markets in far less

1 than ten years. I understand that Cox Communications does not currently offer
2 service in Alabama, but I believe that the experience of cable telephony providers
3 around the country is informative as to levels of penetration that are achievable in
4 Alabama. For example, according to one estimate, in the Orange County
5 market, Cox Communications serves 53 percent of existing Cox cable TV
6 customers, and Cox has achieved a 19 percent share of telephone-ready homes
7 in Cox's total geographic footprint nationwide. Furthermore, figures cited in the
8 TRO also confirm that cable television companies are having considerable
9 success in those areas where they choose to compete. According to the FCC's
10 figures, cable television companies throughout the nation have captured
11 approximately 26 percent of the households in areas where they compete with
12 the ILEC for voice telephony. The FCC reports that 2.6 million homes subscribe
13 to cable telephony on a nationwide basis and that about 9.6 percent of the
14 nation's 103.4 million households, or 9.9 million households, have cable
15 telephony available to them. Thus, of the 9.9 million that can obtain cable
16 telephone service, 2.6 million (or 26.2 percent) have selected it. (TRO at ¶ 444.)
17 In addition to the cable-telephony experience, a prominent CLEC has reached a
18 15 percent market share on a statewide basis in less time than I have assumed
19 in the model parameters. UBS Warburg noted in a December 2002 report on
20 AT&T that, "The company [AT&T] recently announced that it had turned EBITDA
21 positive in New York State, where it has roughly 15% market share after almost
22 three years of entry." Hence, if anything, actual experience therefore indicates

1 that 15 percent is a conservative ultimate penetration for the modeled efficient
2 CLEC to achieve after 10 years.

3

4 **Q. IN CONSIDERING THE MARKET SHARE PENETRATION THAT THE CLECS**
5 **MAY ACHIEVE, DO YOU ALSO CONSIDER WHETHER THE CLECS MAY**
6 **PENETRATE DIFFERENT CUSTOMER GROUPS AT DIFFERENT RATES?**

7 A. Yes. In my opinion, it is clear that CLECs attempt to attract disproportionate
8 numbers of high-spending customers. Because CLECs are not obliged to serve
9 all customers, it would be rational for an efficient CLEC to “cream skim,” and the
10 price offerings of actual CLECs suggest that this is their aim, as I discussed in
11 my \$60 bundle pricing example above. Anecdotal evidence also supports the
12 CLEC customer-targeting hypothesis – for example, according to analysts at
13 Banc of America Securities:

14

15 AT&T’s approach to launching local service has been very granular.
16 AT&T’s “cherry picking” approach has drawn Bell ire but it has
17 worked. The company targets expansion by state, by
18 neighborhood, and by profit hurdle, experiencing substantial
19 success in the process. (David W. Barden, “AT&T Corporation: A
20 Case for Consumer Services,” Banc of America Securities—United
21 States Equity Research, April 30, 2003, p. 6.)

22

1 **Q. IS THERE ANY FURTHER EVIDENCE OF THE DEGREE TO WHICH CLECS**
2 **SUCCEED IN THEIR EFFORTS TO TARGET HIGH-SPENDING**
3 **CUSTOMERS?**

4 A. Yes. BellSouth customer disconnect information indicates that the Company's
5 customers whose monthly spending is substantially below the average are least
6 likely to become "competitive disconnects." If there were no customer targeting,
7 one would expect competitors to win customers about evenly from each
8 customer segment. This is not the case. Instead, BellSouth data indicate that
9 competitive disconnects have been lowest among residential customers with
10 lower-than-average spending on telecommunications services. This is illustrated
11 in Aron Exhibit No. DJA-3. The exhibit shows the proportion of competitive
12 disconnects by spending quintile (arrayed from the highest spenders (quintile 1)
13 to the lowest spenders (quintile 5)). Absent cream skimming, one would expect
14 CLECs to win 20 percent of its customers from each quintile (i.e., the line labeled
15 "expected"). However, the exhibit shows that this is not the case. The lowest-
16 spending quintile customers disconnect from BellSouth to go to a CLEC at about
17 one-half the expected (i.e., non-targeted) rate.

18
19 Aron Exhibit No. DJA-4 illustrates that cream skimming also occurs in the SOHO
20 ("Small Office/Home Office") category. Like the residential case, if no cream
21 skimming occurred, one would expect customer location losses to be evenly
22 divided among the three spending categories. This implies that 33 of every 100
23 customers won by the CLEC would be drawn from each of the three spending

1 level segments. Instead, for SOHO customers, CLECs attract the highest
2 spending customer locations at about twice the rate that would occur without
3 cream skimming *** [REDACTED]

4 [REDACTED]

5 [REDACTED] ***

6
7 **Q. BASED ON THIS INFORMATION, WHAT VARIATION IN PENETRATION**
8 **RATES DO YOU RECOMMEND ACROSS THE CUSTOMER SPEND**
9 **GROUPS?**

10 A. The evidence clearly supports the economically rational expectation that CLECs
11 engage in customer targeting. Such targeting is efficient and should be
12 considered as one of the “countervailing advantages” that the FCC requires state
13 commissions to consider in their impairment analyses. I recommend that
14 customer targeting be modeled in the residential and SOHO (1 to 3 line)
15 customer segments consistent with the evidence of BellSouth’s experience.

16
17 **Q. YOU HAVE BEEN DISCUSSING THE PENETRATION RATES FOR CLECS IN**
18 **THE LOCAL VOICE MARKET. HOW DOES THE BACE MODEL ESTABLISH**
19 **WHETHER A PARTICULAR TYPE OF CUSTOMER WILL PURCHASE ONE**
20 **OR MORE SERVICES IN ADDITION TO LOCAL EXCHANGE SERVICE?**

21 A. The model considers the penetration calculation in two conceptual parts. The
22 first part produces the overall CLEC market share for local service that I have
23 been discussing above – in other words, the CLEC’s success in attracting

1 customers in the marketplace. The second part quantifies the percentage of the
2 CLEC's customers in each customer segment who also subscribe to the other
3 services the CLEC offers, such as long distance, DSL, or a bundle. These two
4 parts work in tandem to produce the number of customers that the CLEC serves
5 with different products in each spend category.

6
7 My recommendations for the second part—that is, the penetrations of *à la carte*
8 non-local products—are summarized in Aron Exhibit No. DJA-5. To arrive at
9 these recommendations, I conducted an extensive review of the public literature
10 to find relevant industry data (primarily industry and investment analyst reports
11 and CLEC presentations to investors) and considered data provided by BellSouth
12 from its own experience in the marketplace.

13
14 **Q. WHAT DO YOU RECOMMEND FOR THE CHURN RATES USED IN THE**
15 **MODEL?**

16 A. "Churn" refers to the frequency with which customers disconnect or change
17 providers and is generally expressed as the percentage of subscribers who leave
18 a given provider over a particular time period. I recommend the following rates: 4
19 percent per month for residential customers, 2 percent per month for the two
20 smaller business segments, and 1.5 percent per month for the two larger
21 business segments.

22
23 **Q. HOW DID YOU ARRIVE AT YOUR RECOMMENDED CHURN RATES?**

1 A. For residential customers, I reviewed actual CLEC churn rates and also the
2 churn experience of related industries such as wireless, long-distance, and
3 Internet access. For actual CLECs, Z-Tel reported a monthly churn of about 4
4 percent in 3Q01, and MCI reported in the TRO proceeding that long-term churn
5 for its mass-market *Neighborhood* plan is 4-6 percent per month. (See
6 respectively, James J. Linnehan, “Z-Tel Technologies, Inc.—Still Chugging
7 Along,” Thomas Weisel Partners Merchant Banking, November 8, 2001, p. 3; and
8 Gil Strobel (Worldcom) to Marlene H. Dortch, Secretary, FCC, CC Dockets No.
9 01-338, 96-98, 98-147 (filed November 15, 2002).)

10

11 The wireless industry may also provide useful inferences regarding CLEC churn.
12 Banc of America Securities believes this to be the case. In the same report I
13 cited earlier, they conclude:

14

15 We believe the wireless churn rate is a relatively close proxy for
16 local churn, although we would expect local churn to be higher than
17 wireless churn. The lack of local number portability is a solid churn
18 defense for the wireless companies (LNP is available for local
19 service) and is only partially offset by service and network issues
20 facing wireless carriers.

21

22 I concur with this view. The Banc of America report estimates the average
23 cellular churn rate for what the analyst calls the “big six” wireless carriers to be

1 2.4 percent per month, and 2.6 percent when the analyst includes “smaller
2 wireless carriers and affiliates.” A study by Morgan Stanley (Simon Flannery,
3 “Trend Tracker: Bottom Line Better, But for How Long?” Morgan Stanley North
4 American Equity Research, May 23, 2003) confirms the reasonableness of this
5 estimate.

6
7 I am aware that wireless local number portability is expected to increase wireless
8 churn rates. For example, InStatMDR, a market research firm, estimates that
9 local number portability could increase wireless churn 25-50 percent (i.e., from
10 2.4 percent to 3.0-3.6 percent). Such an increase, were it to occur, would still
11 place wireless churn well below my recommended CLEC consumer churn rate of
12 4.0 percent, even though it is not clear whether InStatMDR considered all the
13 ways that wireless companies may respond to local number portability to manage
14 their churn (e.g., by changing the structure of their contracts).

15
16 I also examined the residential long-distance and high-speed Internet churn
17 experiences. Because long-distance providers have had a longer opportunity to
18 move toward an equilibrium level of churn, and CLECs may bundle high-speed
19 Internet service with their residential voice offerings, the churn rates for these
20 services may provide useful information.

21
22 With regard to long-distance service, an IDC survey of residential customers
23 concludes “26.2% of the total population indicated that they changed their long-

1 distance telephone service (not necessarily service providers) in the past 12
2 months.” (*The Evolving Landscape of Consumer Telecom: IDC’s 2002 U.S.*
3 *Residential Telecommunications Survey*, IDC, Report #27724, August 2002, p.
4 4.) The 26.2 percent annual churn represents 2.5 percent per month. Also, as
5 IDC notes, the 26.2 percent churn survey result includes respondents who
6 changed plans without necessarily changing their particular service provider.
7 Thus, the churn from one provider to another may be even less.

8
9 As for high-speed Internet service, the IDC Report concludes, “According to the
10 2002 survey results, 25.4% of the high-speed Internet population indicated that
11 they changed service providers in the past 12 months.” This likewise indicates a
12 churn rate of about 2.5 percent per month.

13
14 In short, there is no reason why an efficient CLEC, providing adequate service
15 and customer support, should not achieve a churn rate of 4 percent or lower, per
16 month, for residential customers.

17
18 **Q. WHAT EVIDENCE DID YOU CONSIDER IN ARRIVING AT YOUR**
19 **CONCLUSIONS REGARDING CHURN FOR THE BUSINESS SEGMENTS?**

20 A. I reviewed analyst studies and surveys regarding existing levels of churn. For
21 example, a Goldman Sachs analysis claims “[M]any CLECs have customer
22 attrition rates in excess of 2% per month [for business customers with sub-T1
23 requirements].” (Lawrence Benn, “Telecom Services: CLECs,” Goldman Sachs,

1 January 22, 2001, p. 51.) I infer from this that business customers with T-1 (i.e.,
2 DS-1) and above requirements would have lower churn rates (and other
3 evidence that I will discuss supports this) because, as the TRO observes, these
4 larger customers would be more likely to be signed to term contracts. (TRO at ¶¶
5 127-128.) A study of US LEC, a business-oriented CLEC, by investment
6 analysts Kaufman Brothers, concluded that after quarterly churn “ticked up” to 3
7 percent due to a “clean-up of payables” and other reasons, the expectation was
8 that churn would return “to historical industry leading levels of 1% per quarter.” A
9 quarterly churn rate of 1 percent represents a monthly churn of about 0.3
10 percent, just one-fifth of the 1.5 percent monthly rate that I recommend for
11 CLECs that serve the larger business customers. Indeed, the Kaufman US LEC
12 Report concludes:

13
14 In our opinion, [US LEC] is executing well in a difficult environment.
15 US LEC, with several years of history in its targeted markets in the
16 mid-Atlantic and south, is approaching incumbent status while its
17 operations achieve critical mass and start to generate positive [free
18 cash flow]. (Vik Grover, “US LEC Corp.: 1Q03 Earnings Review,”
19 Kaufman Brothers, L.P., April 30, 2003, p. 1.)

20
21 This suggests that an efficient CLEC can move toward an ILEC-type churn rate.
22

1 In another survey, Morgan Stanley analysts conclude that about 64 percent of
2 the business customers in its survey are either indifferent to switching, somewhat
3 unlikely to switch, or very unlikely to switch suppliers. (Simon Flannery, "Annual
4 Telecom Services Survey Part 3: Competition" Morgan Stanley North America
5 Equity Research, June 17, 2003, p. 4.) The survey also concludes that 36
6 percent are "somewhat" or "very" likely to switch local services providers in the
7 next 12 months. If *all* 36 percent of such business customers do in fact switch
8 providers, this would imply a monthly industry-wide churn rate as a result of
9 seeking a different carrier of 3.7 percent. If only those who indicated that they
10 are "very likely" to switch do, in fact, switch, this would imply a monthly churn rate
11 of 1.4 percent.

12
13 In sum, my recommendation of a 2 percent churn rate for the smaller (SOHO and
14 "SME/A") business customers and a 1.5 percent churn rate for the "larger"
15 ("SME/B" and "SME/C") business customers is reasonably close to actual CLEC
16 experience (in some instances it is substantially greater than actual CLEC
17 experience) and so provides a generous point of reference for the efficient CLEC.

18
19 **Q. PLEASE EXPLAIN WHAT YOU MEAN BY "SALES" AND "GENERAL AND**
20 **ADMINISTRATIVE" EXPENSES.**

21 A. A firm's expenses generally can be organized as being "cost of goods" (or
22 "operating expenses") or "Sales, General & Administrative" (or "SG&A")
23 expenses. I understand that there are no strict accounting guidelines that

1 distinguish between the cost of goods and SG&A classifications. From an
2 economic perspective, the group of expenses known as “sales” contains types of
3 expenses that are different from, and incurred differently than, expenses
4 associated with G&A. The former expenses relate to customer acquisition, while
5 the latter relate to the overall management of the firm (such as executive, legal,
6 human resources, and the like). I therefore analyzed “S” separately from “G&A.”
7 To separate the costs, I consulted a survey on CLEC accounting practices by
8 analysts at Merrill Lynch. The survey provided a description of the types of
9 expenses that CLECs generally book as “SG&A.” From this description, I could
10 create a mapping of ILEC SG&A accounts to CLEC SG&A accounts. It was on
11 this basis that I was able to harmonize ILEC data with general CLEC accounting
12 practices. As I describe later, I used ILEC data to provide an estimate of the
13 “G&A” portion of expenses. I separately estimated the “Sales” (customer
14 acquisition) expenses.

15
16 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS WITH REGARD TO**
17 **CUSTOMER ACQUISITION (I.E., “SALES”) COSTS.**

18 A. I recommend that customer acquisition costs for residence customers be no
19 higher than \$95 per subscriber, and that business acquisition costs be based on
20 a multiple of about ***[REDACTED]*** times the first month’s expected average revenue for
21 that particular segment of customer.

22

1 **Q. PLEASE EXPLAIN HOW YOU DETERMINED THE CUSTOMER ACQUISITION**
2 **COST RECOMMENDATION FOR RESIDENTIAL SUBSCRIBERS.**

3 A. I relied on reports available from Wall Street investment analysts regarding CLEC
4 customer acquisition costs. I also relied on information provided by CLECs in *ex*
5 *parte* presentations in other regulatory venues, and I considered the academic
6 literature to determine how to interpret these data. First, regarding the empirical
7 survey, I found a range of estimates and claims for customer acquisition costs,
8 as shown in Aron Exhibit No. DJA-6.

9
10 As the exhibit shows, analysts at Thomas Weisel Partners indicate that Z-Tel's
11 actual per customer acquisition costs were in the \$60-\$70 range. They conclude
12 that Z-Tel's target customer acquisition cost of \$50 per account has been
13 established as management seeks to improve efficiency by cutting back on
14 telemarketing and eliminating direct mail, "as these are its most expensive sales
15 channels." Z-Tel seeks to emphasize an incentive program that harnesses
16 customer referrals to entice its existing customers to market to new ones.

17
18 Also as noted in the exhibit, customer acquisition costs for Talk America currently
19 are estimated to be \$80 per customer. According to its website, Talk America
20 provides residential and small business customers with a variety of local, long-
21 distance, and bundled voice offerings, as does the modeled CLEC. For
22 purposes of valuing AT&T, the investment analysts at Banc of America Securities
23 "deem to be appropriate" the use of \$125 per customer for AT&T's UNE-P

1 business case. Thus, publicly available estimates of customer acquisition costs
2 for mass-market customers range from \$50 to \$125.

3

4 **Q. ARE CUSTOMER ACQUISITION COSTS OF UNE-P-BASED PROVIDERS**
5 **LIKELY TO BE REPRESENTATIVE OF CUSTOMER ACQUISITION COSTS**
6 **OF UNE-L-BASED PROVIDERS?**

7 A. There is reason to believe that customer acquisition costs for UNE-P-based
8 providers are higher than those of UNE-L-based providers (and almost certainly
9 higher than those of *efficient* UNE-L providers).

10

11 Economists Thomas Hazlett and Arthur Havenner demonstrate that customer
12 acquisition costs are inefficiently high when UNE-P is available in areas where a
13 CLEC would not otherwise suffer impairment. (Thomas W. Hazlett and Arthur M.
14 Havenner, "The Arbitrage Mirage: Regulated Access Prices with Free Entry in
15 Local Telecommunications Markets," Review of Network Economics, (undated),
16 pp 4-7.) They argue that the availability of the local switching UNE provides a
17 CLEC with the opportunity to defer investment while it gathers more information
18 regarding the future costs and revenues of serving the market. However, what
19 begins as a benefit to CLECs is dissipated in the form of inefficiently high
20 customer acquisition costs as UNE-P-based CLECs seek to compete for
21 customers. The result is inefficiently low facilities investment and inefficiently
22 high customer acquisition costs. Accordingly, one should not accept at face
23 value the actual customer acquisition costs of CLECs, because theory suggests

1 that these may not be representative of the customer acquisition costs that would
2 be incurred by an efficient CLEC.

3
4 Based on the Hazlett and Havenner research, one might reasonably select a
5 value from the lower end of the range of data, such as the \$50 target for Z-Tel.
6 However, to be conservative I recommend the use of \$95 per residential
7 customer, which is above the midpoint of the range.

8

9 **Q. PLEASE EXPLAIN HOW YOU DETERMINED THE CUSTOMER ACQUISITION**
10 **COST RECOMMENDATIONS FOR BUSINESS SUBSCRIBERS.**

11 A. These parameter values are based on independent analysis, which I confirmed
12 with information from BellSouth. My analysis considered acquisition costs from
13 Mpower, Choice One, and Allegiance. Mpower, for example, presents data in its
14 December 2001 10-K report that imply that selling cost per gross line added was
15 on the order of \$309 in 2000 and \$343 in 2001. In a May 2002 conference call
16 for investors, Mr. Steve Dubnik, Chairman and CEO of Choice One
17 Communications, estimated that his company's selling expenses were
18 approximately \$170 per line. I also estimate, based on data from a February 19,
19 2002 analyst report on Allegiance by Thomas Weisel Partners, that Allegiance's
20 customer acquisition costs were on the order of \$188 per line in 2001. According
21 to its website, Allegiance does not market to residential customers, so the
22 estimate applies to the types of business customers that are Allegiance's focus.

23

1 According to information from BellSouth, it pays its independent sales agents
2 approximately ***[REDACTED]*** times the first month's revenue to acquire Small Business
3 Customers. CLECs also utilize sales agents and compensate them in a similar
4 fashion. Based on revenue estimates for the different business segments, I
5 conservatively estimated business customer acquisition costs per line as shown
6 in Exhibit DJA-7.

7
8 **Q. WHAT DO YOU RECOMMEND FOR G&A EXPENSES?**

9 A. I recommend that G&A expenses be modeled as a percent of revenue. I further
10 recommend that G&A be computed as 15 percent of long-distance revenues and
11 28.4 percent of all other revenue.

12
13 **Q. HOW DID YOU DETERMINE THAT IT IS APPROPRIATE TO MODEL G&A
14 EXPENSES AS A PERCENT OF REVENUE?**

15 A. As well as conducting an extensive review of the relevant empirical academic
16 literature, I performed my own empirical analysis of G&A expenses. The analysis
17 confirmed that these expenses are substantially and significantly explained, in a
18 statistical sense, by revenues. My analysis examined total operating revenue
19 and G&A expenses for all of the reporting companies (and over the 1992-2002
20 period) in ARMIS. I used a statistical technique called "weighted regression" to
21 determine the linear relationship between G&A and revenue. The data
22 representing a number of ILECs of various sizes over a number of years,

1 indicated a very strong relationship, with G&A averaging about 28 percent of
2 revenues.

3
4 I assumed a lesser G&A of 15 percent of revenue for long distance, because the
5 model assumes that long distance is operated on a resale basis. I expect that a
6 CLEC operating an efficient resale long-distance business would have a
7 significantly lower G&A cost than would a facilities-based operation.

8

9 **IV. RESULTS OF THE MODEL RUNS**

10

11 **Q. BASED ON THE RESULTS OF THE BELLSOUTH IMPAIRMENT MODEL YOU**
12 **HAVE DESCRIBED, WHICH GEOGRAPHIC AREAS IN ALABAMA ARE**
13 **UNIMPAIRED?**

14 A. Aron Exhibit No. DJA-2 lists the geographic markets in Alabama in which the
15 FCC's triggers are not met, but where CLECs are not impaired without access to
16 BellSouth's unbundled switching, according to the BACE model. A map of these
17 areas is provided in Aron Exhibit No. DJA-8.

18

19 **Q. WHAT ARE YOUR CONCLUSIONS?**

20 A. I believe that BellSouth has provided a highly granular, detailed, sophisticated,
21 and nuanced model of CLEC entry that incorporates the directives of the FCC in
22 its TRO, and the best available research on the parameter inputs that were under
23 my supervision and control. I conclude that CLECs are unimpaired in the areas I

1 have listed in Exhibit DJA-2, and the Commission should declare that BellSouth
2 need not provide access to unbundled local switching in those geographic
3 markets. To arrive at any other conclusion would contravene the intention of the
4 Telecommunications Act to promote competition, would contravene the directives
5 of the FCC in implementing the Act, and would discourage efficient investment in
6 Alabama.

7

8 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

9 **A. Yes, it does.**