Exhibit No.
Issue: Market Definition
And Mass Market Cutover
Witness: August H. Ankum
Type of Exhibit: Phase I Rebuttal
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Case No. TO-2004-0207
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BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION

In the Matter of a Commission Inquiry into the Possibility of Impairment without Unbundled Local Circuit Switching When Serving the Mass Market	))))	Phase I, Case No. TO-2004-0207

Rebuttal Testimony of Dr. August H. Ankum on Behalf of MCI

January 16, 2004

BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION

In the Matter of a Commission Inquiry into the Possibility of Impairment without Unbundled Local Circuit Switching When Serving the Mass Market	))))	**CASE NO. TO-2004-0207**

AFFIDAVIT OF AUGUST H. ANKUM

STATE OF ILLINOIS)
) SS.
COUNTY OF Cook)

I, August H. Ankum, of lawful age, being duly sworn, depose and state:

1. My name is August H. Ankum. I am Senior Vice President at QSI Consulting, Inc.

2. Attached hereto and made a part hereof for purposes is my Phase I rebuttal testimony.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge and belief.

August H. Ankum

Subscribed and sworn to before me this 16TH day of ~~December, 2003~~ JANUARY, 2004.

Notary Public

OFFICIAL SEAL
ROBERT HEIDEMAN
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 1-24-2008

My Commission Expires:

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I. QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dr. August H. Ankum. I am Senior Vice President at QSI Consulting, Inc., a consulting firm specializing in economics and telecommunications issues. My business address is 1261 North Paulina, Suite #8, Chicago, Illinois.

Q. ARE YOU THE SAME DR. AUGUST H. ANKUM THAT FILED DIRECT TESTIMONY ON DECEMBER 18, 2003 IN THIS PROCEEDING?

A. Yes, I am.

II. STATEMENT OF PURPOSE AND SUMMARY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to respond to the testimony of SBC. Specifically, I will respond to the testimony of the following SBC witnesses:

-- the testimony of Dr. Timothy J. Tardiff, regarding market definition;

-- the testimony of Gary A. Fleming regarding market definition and the DS0 cutover for differentiating the mass-market from the enterprise market.

SBC asserts that the geographic market for mass-market switching should in general be defined at the Metropolitan Statistical Area ("MSA") level. Although there are eight MSA's that are either entirely or partially located within Missouri,

SBC's focus is on those five for which it has a significant number of access lines. In my testimony, I will discuss why SBC's (and other parties') proposal to define the geographic market at the MSA level should be rejected.

I will also discuss the mass-market cutoff level. Determination of the mass-market cutoff level is a critical component of the impairment analysis to be performed by the Commission. This is because any improper exclusion of residential or small business customers from the mass market would result in these customers being considered part of the enterprise market and subject to the FCC's national finding of no impairment as to switching. The FCC established a national finding that competitors are not impaired with respect to DS1 enterprise customers that are served using loops at the DS1 capacity and above. *Triennial Review Order at* ¶451. In contrast, the mass market for local services is comprised primarily of consumers that purchase a limited number of POTS lines and can only be economically served via analog DS0 loops. *Triennial Review Order* at ¶459. The FCC has stated that the appropriate cutoff point for multi-line DS0 customers should be determined by the States and "may be the point where it makes economic sense for a multi-line customer to be served via a DS1 loop." *Triennial Review Order* at ¶497. SBC has not provided this type of economic analysis to support its selection of a mass-market cutoff at 3 DS0s: i.e., under SBC's (and others) proposal a customer with four DS0s or more would be classified as an enterprise customer. In my direct testimony I discussed the importance of the mass-market cutoff. I did not, however, provide the

Commission a specific number of DS0s; rather, I noted that the issue is an empirical one and should be resolved based on examination of the data.

Having reviewed the data, I believe that the most reasonable and appropriate mass-market cutoff is the break-even point at which customers are more efficiently served by means of one DS1 than by multiple DS0s, as suggested by the FCC. My testimony explains how this cutoff determination can be readily made. The method I discuss is essentially the same as the one proposed by ATT, Staff and Sprint in their testimonies.

Q. PLEASE SUMMARIZE YOUR TESTIMONY AND STATE YOUR RECOMMENDATIONS?

A. In my direct testimony, I have explained why the Commission should adopt wire centers as the appropriate geographic market for impairment analysis purposes. In this regard, I explain why the adoption of wire centers is consistent with the FCC's directives and represents a level of granularity that is necessary to fulfill the FCC's mandate to the States in the TRO. In responding to SBC's testimony, I further explain why the adoption of MSAs as geographic markets for impairment purposes is inappropriate and would not enable the Commission to make the type of granular impairment findings envisioned by the FCC.

My testimony also addresses the issue of mass market cutoff. SBC's proposal is inconsistent with the empirical marketplace data in this proceeding and should be rejected by the Commission.

My recommendations are the following:

-- The Commission should reject SBC's proposal that the relevant markets be defined as the MSA. The MSAs do not capture the granularity that the FCC has required. By contrast, my proposal that the markets be defined as the wire center allows the Commission to tailor its regulatory oversight and findings to the significant variations that exist both within MSAs and across all of the various geographic areas in Missouri, including those situated outside of the MSAs. Moreover, defining the market at the wire center level does not *preclude* the Commission from finding non-impairment for the MSA at large if the data on a wire center basis support such a finding.

-- The Commission should reject SBC's proposal for a mass-market cutoff of 3 DS0s (i.e., customers with four DS0s or more would be classified as an enterprise customers). In view of the data, the most reasonable and appropriate mass-market cutoff is the break-even point at which customers are more efficiently served by means of one DS1 than by multiple DS0s. I have not yet performed the precise analysis, but it appears that the most appropriate cutoff would be in the range of 8 to 12 DS0s; i.e., business

customers with more DS0s or DS1s would be enterprise customers. Further, all residential customers are mass-market customers (unless they are served by means of a DS1 loop or higher). Last, all customers served by DS1 loops or higher are enterprise customers.

III. ECONOMIC AND OPERATIONAL ISSUES PLAY A ROLE IN DEFINING THE MARKET AND IDENTIFYING TRIGGERS

Q. CAN THE COMMISSION IGNORE ECONOMIC AND OPERATIONAL ISSUES IN THIS PHASE OF THE PROCEEDING IN WHICH IT IS DEFINING THE MARKET?

A. No. These issues must be taken into account for two reasons. First, in defining the market, the Commission has to consider that under the FCC's directives it must use the *same* market definition in the *trigger analysis phase* of this proceeding as in the *economic and operational impairment analysis phase*. As the FCC notes: "Therefore the market definitions used for the analysis of the triggers must also be used for the second step of the analysis, if the triggers are not satisfied.[1]" Thus, the trigger analysis and economic and operational analysis all must use the same market definition. Clearly, therefore, the market must be defined with the latter in mind. To not consider economic and operational issues in defining the market would potentially cause the Commission to find that it cannot meaningfully conduct a subsequent economic and operational analysis.

[1] Triennial Review Order, footnote 1540.

On the issue of how to define the market, the FCC instructed state commissions as follows:[2]

> The triggers and analysis described below must be applied on a granular basis to each identifiable market. State commissions must first define the markets in which they will evaluate impairment by determining the relevant geographic area to include in each market. State commissions have discretion to determine the contours of each market, but they may not define the market as encompassing the entire state. Rather, state commissions must define each market on a granular level, and in doing so they must take into consideration the locations of customers actually being served (if any) by competitors, *the variation in factors affecting competitors' ability to serve each group of customers, and competitors' ability to target and serve specific markets economically and efficiently using currently available technologies.* While a more granular analysis is generally preferable, states should not define the market so narrowly that a competitor serving that market alone would not be able to take advantage of available scale and scope economies from serving a wider market. State commissions should consider how competitors' ability to use self-provisioned switches or switches provided by a third-party wholesaler to serve various groups of customers varies geographically and should attempt to distinguish among markets where different findings of impairment are likely. *The state commission must use the same market definitions for all of its analysis.* (Emphasis added.)

As for the variations in factors affecting competitors' ability to serve each group of customers that commissions should consider, the FCC notes all the major operational issues: variations in UNE loop rates, revenues, costs of service, collocation issues and hot cuts. Specifically, in paragraph 496, the FCC states the following:

> Thus, for example, a state commission may choose to consider how UNE loop rates vary across the state, how retail rates vary

[2] Id, paragraph 495.

geographically, how the number of high-revenue customers[3] varies geographically, how the cost of serving customers varies according to the size of the wire center and the location of the wire center, and variations in the capabilities of wire centers to provide adequate collocation space and handle large numbers of hot cuts.

Second, in identifying whether a company constitutes a trigger, the Commission will have to consider whether or not this company represents a model of market entry that can be replicated by other CLECs. For example, a CLEC that serves exclusively business customers in certain specific concentrated areas in no way signifies that market entry is possible on a broader basis for mass market customers. The difference in revenues from small business customers versus residential customers is significant. While at this point I do not yet have the exact data to quantify that difference for the Commission, the ratio can easily be two to one: that is, small business customers may easily generate twice the revenues that residential customers do.[4]

In view of these significant differences between various customer classes, the determination of whether the CLEC in question constitutes a trigger cannot be made in a vacuum. Rather, for the Commission to be able to make an informed decision it has to consider issues such as the relative revenues earned from small

[3] These include, for example, business customers, as well as those residential customers likely to take vertical features and ancillary services such as data and voice mail service.

[4] One reason for the differential is the difference in retail rates, which tend to be higher for business customers even though the costs for serving them, in terms of UNE rates, may be the same.

business versus residential customers, the location that the CLEC in question is operating in and the locations that the CLEC deliberately is not operating in. Only if those issues are considered can the Commission fairly conclude that the CLEC either is or is not a valid trigger company.

Again, to define markets and identify trigger companies without consideration of economic and operational issues would be to shoot in the dark with potentially fatal consequences for companies that are reliant on local circuit switching and customers that would be left without competitive choices. It would also be inconsistent with the FCC's instructions on how to define markets.

IV. MARKET DEFINITION – SBC'S MSA PROPOSAL IS NOT GRANULAR

A. Overview

Q. PLEASE RESPOND TO SBC'S POSITION THAT THE GEOGRAPHIC MARKET IN WHICH THE COMMISSION SHOULD CONSIDER SBC'S NON-IMPAIRMENT ARGUMENTS SHOULD BE THE METROPOLITAN STATISTICAL AREA (MSA).

A. As discussed in the testimony of Dr. Tardiff and echoed in the testimony of Mr. Fleming, SBC recommends that the Commission define the market at the level of the Metropolitan Statistical Area. On page 6 of his testimony, Mr. Fleming states:

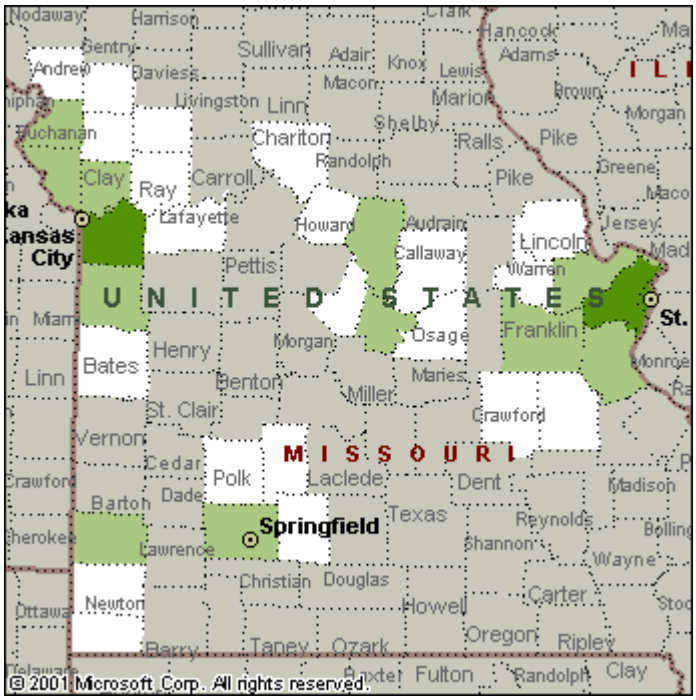
> SBC Missouri believes that the Commission should use Metropolitan Statistical Areas ("MSAs") to define the geographic markets for the purpose of the mass market switching analysis.

In what follows, I will discuss the problems with this market definition, explain why wire centers represent the appropriate granular market definition based upon available information and respond to SBC's criticism of the use of wire centers as the geographic market definition.

Q: IS THE MSA THE APPROPRIATE MARKET DEFINITION FOR AN IMPAIRMENT ANALYSIS?

A. No. The MSA is inappropriate for conducting the impairment analysis for local circuit switching.

The map of Missouri, shown below, helps to demonstrate why the MSA market definition is inappropriate. The map was produced using Microsoft MapPoint using county population data from the US Census Bureau and MSA boundaries as defined by the Office and Management and Budget (which correspond to those presented by SBC Missouri witness Fleming in his Exhibit GAF-1). There are a total of 135 counties in Missouri, of which 35 are in an MSA. The shading represents the extreme variations in population densities within counties that make up the eight MSAs that are entirely or partly in Missouri.



The *darkest* areas represent counties with high population densities—over 1,000 persons per square mile. The middle-shaded counties within MSAs have population densities of between 100 and 999 persons per square mile, and the white counties have population densities of below 100 persons per square mile.

For example, the following table shows each county in the Missouri portion of the St. Louis MO-IL MSA and its population density:

County	PopDensity
St. Louis city	5623
St. Louis County	2001
St. Charles County	507
Jefferson County	302
Franklin County	102
Lincoln County	62
Warren County	57
Washington County	31
Crawford County	31

The range of population densities is from over 5,600 persons per square mile to as low as 31 persons per square mile. Again, as the FCC noted, population density is a critical factor in how markets should be defined; the variations in population densities was precisely the reason why the FCC refrained from mandating specific geographic markets nationally:

> The exact parameters of these geographic markets, however, cannot be defined nationally for switching because, as both incumbent LECs and competitive LECs agree, there are extreme variations in population density, and thus wire center line densities, across the country. [5]

Clearly, for SBC to group together areas that are heterogeneous, if nothing else, in terms of population density is to go contrary to the FCC's instructions.

This map is introduced for illustrative purposes only and in no way is it intended to suggest that the county would be an appropriate market definition. Indeed, population densities and other factors will still vary greatly across each county. As discussed in my direct testimony, and herein, the superior market definition is the wire center.

In general, SBC's proposal to use the MSA as the market definition is inappropriate for the following reasons:

[5] *Triennial Review Order*, Footnote 1536.

1. **The MSA obscures variations affecting impairment:** It disguises the variations that are critical for assessing impairment: population density (important for operational analysis that must use the same market definition); mix of customers (important to determine potential revenues); and de-averaged UNE rates (important to determine potential costs).

2. **Economies of Scale:** The marketplace has revealed the *wire center* as the optimal size of the operations to exploit the full economies of scale of the switch. By contrast, the MSA is not a telecommunications construct and relates in no way to the underlying technology and the economies of scale inherent in those technologies.

3. **Not all areas of the state are in an MSA:** Many communities within Missouri are not included within a MSA and these communities therefore would not be included in a trigger or other impairment analysis.

4. **The wire center is administratively convenient:** The wire center is the natural administrative unit for which most of the data is collected and analyzed. Data for the MSA are mostly just simple wire center aggregates.

In sum, the MSA is an artificial construct that is not suited for impairment analysis purposes and its use would not provide the Commission with the granular

type of analysis that is needed in order to determine where actual mass market competition is occurring through carriers that are providing their own switching facilities and using UNE-L. In fact, if the Commission were to find that for all wire centers in an MSA CLECs are non-impaired in the MSA, then it would make no difference whether the Commission had selected the MSA or the wire center as the market definition. However, if the Commission were to find that impairment exists for some wire centers and not for others, then a MSA market definition would have produced an erroneous and inferior outcome. In that situation, using the MSA would have (1) unfairly deprived CLECs of being able to compete in some wire centers where they are impaired, and (2) unjustifiably deprived rate payers of choices in certain wire centers where there is impairment of competitive alternatives.

Before the Commission reverses the FCC's national finding of impairment in any geographic market based on the self-provisioning test, it should be certain that all mass market customers in that market have a real and current choice between three self-provisioning carriers who are leasing the ILEC's loop plant. While we do not yet have all the data to know how broad competitive entry in the state of Missouri may or may not be, it is quite possible that if the Commission were to adopt SBC's MSAs as the market definition, then the great majority of mass market customers within the MSAs may very well find themselves without any real competitive choices under a finding of non-impairment. There is simply no reason for the Commission to adopt a self-provisioning trigger approach that

would produce such a counterproductive result. A more granular wire center approach to market definition makes sense and enables the Commission to fairly conduct a self-provisioning trigger analysis that does not exclude significant portions of the State and allows it to examine where mass market customers are actually being served by carriers that deploy their own switches.

Each of the above reasons will be discussed in more detail in separate sections below.

Q. WOULD A WIRE CENTER BASED MARKET DEFINITION BE BETTER FITTED TO THE GRANULARITY AND VARIATIONS THAT EXIST ACROSS WIRE CENTERS?

A. Yes. Even if the Commission were to agree with the methods used by SBC to identify trigger companies, a wire center based market definition would allow the Commission to far more accurately assess the facts. I see no virtue at all in using SBC's sloppy and imprecise way of making important and long lasting decisions.

In what follows, I will discuss each of the aforementioned deficiencies of the MSA market definition in more detail.

B. The MSA Obscures the Granular Analysis Required Under the TRO

Q: WILL SBC'S PROPOSAL TO DEFINE THE MARKET AS THE MSA OBSCURE THE GRANULAR INFORMATION REQUIRED TO MAKE IMPAIRMENT DECISIONS?

A. Yes, SBC's market definition is inconsistent with a granular analysis of impairment.

The definition of the market should be subservient to the objective of the impairment analysis: to examine when and where carriers are impaired without access to the ILEC's local circuit switching element. The issue of impairment is defined by the FCC as follows:

> 84. We find *a requesting carrier* to be impaired when lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are likely to make entry into a market uneconomic. That is, we ask *whether all potential revenues from entering a market exceed the costs of entry*, taking into consideration any countervailing advantages that *a new entrant* may have.

Throughout the TRO, the FCC stresses *two related aspects* of the impairment analysis:

1. **Profitability:** The analysis should focus on the ability of the requesting carrier to enter profitably: "That is, we ask *whether all potential revenues from entering a market exceed the costs of entry.*"

2. **Granularity:** The analysis should be granular:

> State commissions must define each market on a granular level, and in doing so they must take into consideration the locations of customers actually being served (if any) by competitors,[6] the *variation in factors* affecting competitors' ability to serve each group of customers, and competitors' ability to target and serve specific markets ***economically*** and ***efficiently*** using currently available technologies.[7] (Emphasis added.)

To define the market, as SBC proposes, at the MSA level is to make it impossible for the Commission to consider profitability at a granular level.

Q. PLEASE STATE THE REASONS THAT DEFINING THE MARKET AS THE MSA MAKES IT IMPOSSIBLE TO CONSIDER PROFITABILITY (IMPAIRMENT) AT A GRANULAR LEVEL, AS REQUIRED BY THE FCC.

A. In general, the MSA market definition fails to capture the variation in demographics that exists across different areas of the MSA and across the wire centers in the MSA. This means that the MSA market definition is critically flawed because, again, virtually all the critical factors that impact a carrier's ability to enter profitably vary at the wire center level:

-- **Revenues:** the mix of residential and business customers varies by wire center and will impact the expected revenue for a carrier.

[6] For example, if competitors with their own switches are only serving certain geographic areas, the state commission should consider establishing those areas to constitute separate markets.

[7] When the FCC uses terms such as "economically" and "efficient" they must be understood in terms of a CLEC's ability to enter viably, i.e., profitably.

-- **Costs:** variations in de-averaged UNE rates are best captured at the wire-center level. The costs of collocation will also vary by wire center, depending on such factors as customer mix and the types of services offered.

-- **Operational issues:** The availability of collocation space, the availability of alternative transport, the presence of remote switches, the state of the hot cut process, etc., can all vary by wire center.

In what follows, I will first discuss the variation in demographics across the MSAs in Missouri for which SBC claims that carriers are not impaired. Next, I will discuss the revenue, costs and operational issues. (Again, operational issues have to be considered as part of the market definition because, under the TRO, the same market definition must be used in the impairment phase of these proceedings.)

I will also demonstrate that the wire center market definition is superior to the MSA for purposes of the impairment analysis.

1. There Are Significant Variations in Demographics Across Wire Centers in the MSA

Q. IS THERE A SIGNIFICANT VARIATION IN DEMOGRAPHICS ACROSS THE MSA?

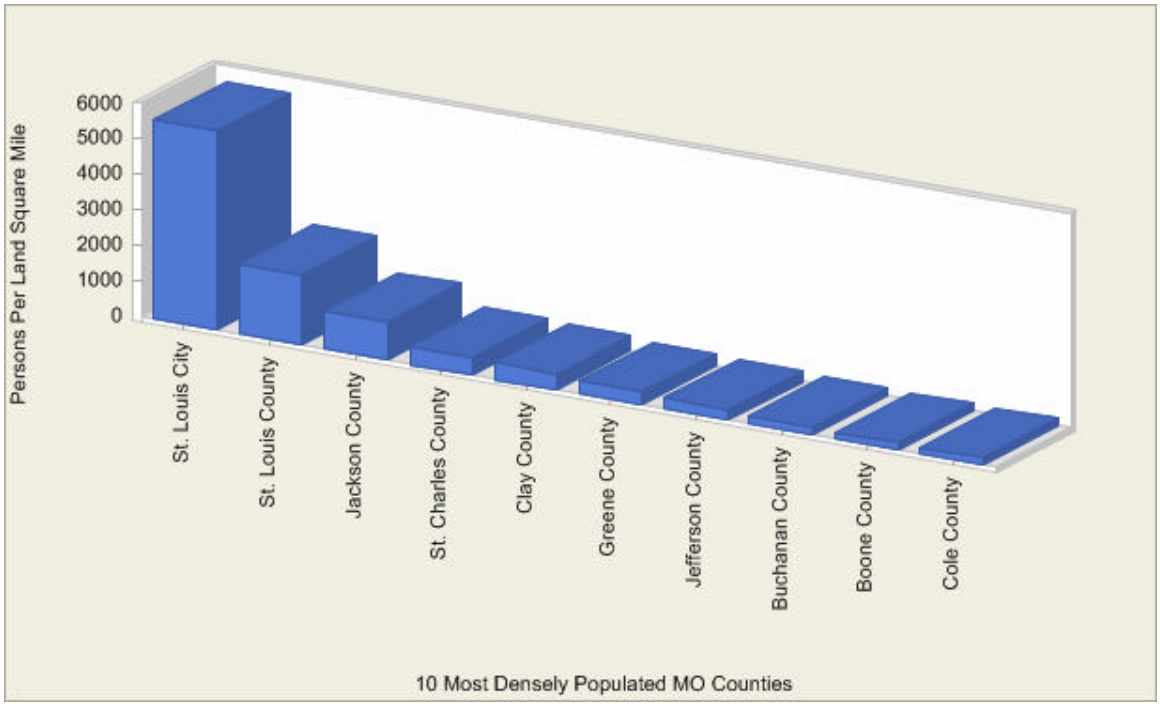
A. Yes. There is an enormous degree of variation in population density across the various counties in Missouri. This is shown in the following two tables. There are 35 counties in Missouri in an MSA, so to conserve space I present the 10 most densely populated counties for comparison with the 10 most sparsely populated:[8]

10 Most Dense Counties in an MSA in MO		
County	***MSA***	***PopDensity***
St. Louis City	St. Louis, MO-IL	5623
St. Louis County	St. Louis, MO-IL	2001
Jackson County	Kansas City, MO-KS	1083
St. Charles County	St. Louis, MO-IL	507
Clay County	Kansas City, MO-KS	464
Greene County	Springfield, MO	356
Jefferson County	St. Louis, MO-IL	302
Buchanan County	St. Joseph, MO-KS	210
Boone County	Columbia, MO	198
Cole County	Jefferson City, MO	182

10 Most Sparse Counties in an MSA in MO		
County	***MSA***	***PopDensity***
Andrew County	St. Joseph, MO-KS	38
Moniteau County	Jefferson City, MO	36
Washington County	St. Louis, MO-IL	31
Crawford County	St. Louis, MO-IL	31
Dallas County	Springfield, MO	29
DeKalb County	St. Joseph, MO-KS	27
Howard County	Columbia, MO	22
Osage County	Jefferson City, MO	22
Caldwell County	Kansas City, MO-KS	21
Bates County	Kansas City, MO-KS	20

[8] *US Census Bureau* year 2002 data. Population densities are presented on the basis of square miles of *land* area, rather than total area (in Missouri it makes little difference whether total or land area is used).

The following bar graph, which shows just the variation in population densities for the 10 most densely populated counties, illustrates visually the degree of heterogeneity.



Of course, what these data disguise is an even larger degree of heterogeneity (variation) that exists inside the counties. In any event, this data should demonstrate conclusively that grouping together such widely disparate geographic areas would lead without doubt to incorrect findings about impairment to the detriment of all involved: ratepayers, CLECs and the ILECs.

2. Revenues Vary by Wire Center

Q. PLEASE EXPLAIN WHY DEFINING THE MARKET AS THE MSA OBSCURES THE VARIATIONS IN REVENUES THAT EXIST AT THE WIRE CENTER LEVEL

A. As the FCC recognized throughout the TRO, potential revenues earned from residential customers are different than those from business customers. Thus, the mix of customers will determine to a large extent the potential revenues associated with a market. This means that a wire center that serves a larger percentage of small business customers will afford CLECs easier market entry. This also means that the presence of a CLEC in a particular wire center in no way indicates non-impairment in another wire center that happens to be in the same MSA but may have a very different mix of residential and business customers. That is, just because a CLEC is able to operate profitably in the first wire center (which has more business customers) does not mean that this CLEC – or any other CLEC – could replicate this in a wire center that has a lower percentage of business customers. Yet, by defining the market as the MSA, SBC groups together widely disparate wire centers and market conditions. As such, SBC has ignored much of the granularity that the FCC is looking for in the impairment analyses.

3. Costs Vary by Wire Center

Q. PLEASE EXPLAIN WHY DEFINING THE MARKET AS THE MSA OBSCURES THE VARIATIONS IN COSTS THAT EXIST AT THE WIRE CENTER LEVEL

A. The costs of serving customers in a large wire center may be very different than those of serving customers in a less dense wire center. The cost differences will stem from two sources:

1. The ILEC's UNE rates. The costs of UNE rates vary greatly across the rate zones by wire center. This is particularly true for the UNE loop rates but for other UNEs as well. The MSA definition ignores all such cost differences and as such fails to reflect impairments that stem from those cost differences.

2. The CLECs' own costs of doing business, which incorporates the UNE costs, will also vary by wire center. For example, even though the collocation rates may not be de-averaged, the costs to the CLEC will vary greatly depending on the degree to which the CLEC is able to utilize its collocation spaces efficiently (in terms of the number of customers served at the collocation site.)

In short, not only do the revenues vary by wire center, so do the CLECs' costs. Given that the MSA definition ignores such critical differences, the Commission

will find that when it comes to the next phase of these proceedings – the trigger analysis -- it will be unable to investigate impairment at a granular level if the MSA definition is adopted.

4. Operational Issues Vary by Wire Center

Q. PLEASE EXPLAIN WHY DEFINING THE MARKET AS THE MSA OBSCURES THE VARIATIONS IN OPERATIONAL ISSUES THAT EXIST AT THE WIRE CENTER LEVEL

A. There are a number of operational issues that will vary on a wire center by wire center basis. This has been acknowledged by the FCC and forms the basis for the FCC's refusal to define markets on a national level.[9] They are the following:

1. The availability of collocation spaces.
2. The availability of alternative transport options.
3. The presence of remote switches.
4. The state of the hot cut process put in place by the ILEC.

The reason these issues are appropriately considered in this phase of the proceeding is, again, because under the FCC's directives the same market definition *must* be used in subsequent phases. Thus, to not consider these issues would be to saddle the trigger analysis with an inappropriate and ill-considered market definition.

[9] *Triennial Review Order*, paragraph 496. Also see footnote 1536.

C. Economies of Scale Do Not Correspond to the MSA

Q. DOES THE FCC REQUIRE THAT THE MARKET DEFINITION CONSIDER THE ECONOMIES OF SCALE OF TELECOMMUNICATIONS OPERATIONS?

A. Yes. In paragraph 495, the FCC found the following:

> While a more granular analysis is generally preferable, states should not define the market so narrowly that a competitor serving that market alone would not be able to take advantage of available *scale and scope economies* from serving a wider market. (Emphasis added.)

Thus, the FCC directs commissions to consider the scale and scope economies in defining markets. Specifically, the FCC is suggesting that the geographic area should not be defined too small so as to ignore the scale and scope economies that could otherwise be achieved. For example, if the Commission were to select specific neighborhoods served by the same wire center as separate markets, then this would not be correct because it would ignore the economies of scale and scope that can be achieved by considering a larger area.

Q. DOES THE WIRE CENTER REFLECT THE ECONOMIES OF SCALE INHERENT IN TELECOMMUNICATIONS OPERATIONS?

A. Yes. The wire center has emerged precisely because ILECs found that the wire center represents a reasonably efficient operation given the economies of scale and scope inherent in telecommunications technology and operations.

Q. IF THE WIRE CENTER HAD NOT REFLECTED THE ECONOMIES OF SCALE INHERENT IN TELECOMMUNICATIONS OPERATIONS WOULD ILECS' NETWORKS HAVE EVOLVED DIFFERENTLY?

A. Yes. If the wire center had not represented a reasonably efficient operation – say, because it did not yet fully exploit the economies of scale and scope of telecommunications technology and operations – then, clearly, the ILECs would have expanded the reach of their switches and/or a different configuration would have emerged (thus, though the semantics, i.e., the term "wire center" might have been same, the geographic areas would have been different as possibly would be the network architecture itself).

Q. DOES THE MSA REFLECT THE ECONOMIES OF SCALE INHERENT IN TELECOMMUNICATIONS OPERATIONS?

A. No. The MSA is not a telecommunications construct and the geographic area stands in no causal relationship to the telecommunications technologies.

D. The MSA is Geographically Incomplete and Covers Only Part of Missouri

Q. ARE ALL AREAS IN THE STATE INCLUDED IN MSAs?

A. No. There are many communities within Missouri that are not included within a MSA. I have already presented a map which identifies the eight MSAs and 115 in Missouri. Only 35 Missouri counties are included in MSAs, which leaves 80 Missouri counties not in any MSA.

Q. DOES THIS MEAN THAT IF THE COMMISSION WERE TO ADOPT THE MSA AS THE MARKET DEFINITION THAT NO IMPAIRMENT ANALYSIS CAN BE PERFORMED FOR THOSE AREAS?

A. Yes. Given that the communities in those counties fall out side the MSAs, those communities would not be included in a trigger or other impairment analysis. This exclusionary definition of geographic markets in a triggers phase is especially problematic because the FCC requires that the same geographic market definition be used in an economic and operational impairment determination. That is, the MSA definition would create artificial blind spots that will prohibit the Commission from examining large portions of the state for no good reason. By contrast, all end users in the state are covered by the wire centers market definition.

E. SBC's MSA Definition Conceals That Virtually All Data Will Be Collected and Computed on a Wire Center Basis

Q. WILL MOST DATA USED IN THE SUBSEQUENT PAHSES OF THIS PROCEEDING IN FACT BE COLLECTED ON A WIRE CENTER BASIS?

A. Yes. Most of the important data that parties are presenting in this proceeding and that the Commission will be using in determining whether CLECs are impaired without access to local circuit switching will in fact be collected on a wire center basis. To the extent that SBC may present to the Commission data for the MSA the data will in fact be no more than aggregations across the MSAs wire centers.

Q. IS THE WIRE CENTER THEN IN FACT THE ADMINISTRATIVE UNIT THAT UNDERLIES MOST OF THE ANALYSES?

A. Yes. Essentially most if not all of the relevant data to be used in these proceedings will be collected on the wire center level.

Q. DOES THE FACT THAT MOST DATA ARE COLLECTED AND COMPUTED ON A WIRE CENTER BASIS DEMONSTRATE THAT THE WIRE CENTER IS ADMINISTRATIVELY CONVENIENT, A CONSIDERATION MENTIONED BY THE FCC?

A. Yes. Much of the data presented in the current proceeding supports my recommendation that the adoption of wire centers as geographic markets is administratively convenient and not unduly burdensome. Aggregation of this data at the MSA level, however, renders it less granular and almost totally useless. It would not serve the consumers of Missouri now or in the long run for the Commission to perform a useless impairment analysis at SBC's suggestion.

F. Dr. Tardiff's Arguments Are Flawed and Fail to Establish the MSA as the Appropriate Market Definition

Q. DR. ANKUM, DO YOU AGREE WITH SBC WITNESS TARDIFF'S CHARACTERIZATIONS OF MASS MARKETS ENTRY BY OTHER CARRIERS IN MISSOURI?

A. No. In discussing the issue of market definition, Dr. Tardiff notes:

> **Q. DOES THE FACT THAT CLECS DO NOT PRESENTLY SERVE WITH THEIR OWN SWITCHES MASS-MARKET CUSTOMERS IN EVERY WIRE CENTER IMPLY THAT THE GEOGRAPHIC SCOPE OF A MARKET SHOULD BE SMALLER THAN THE MSA?**

> A. No. As I indicated earlier, a relevant geographic market for purposes of competitive analysis includes not only where competitors currently serve customers, but also where they readily could serve customers if the incumbent were to raise prices. The geographic coverage of CLEC switches, the geographic coverage of radio, television and print media, and the existence of collocation throughout the MSA, as well as the CLEC-owned NXX codes, show that *CLECs could easily expand into other areas in the MSA* (and likely will do so even if SBC Missouri's prices remain the same).[10] (Emphasis added.)

I disagree with many of his characterizations.

Q. PLEASE EXPLAIN WHY YOU DISAGREE WITH DR. TARDIFF.

A. First, when Dr. Tardiff asserts that "*CLECs could easily expand into other areas in the MSA*" he has effectively short circuited the entire impairment analysis. Clearly, the purpose of the impairment analysis is precisely to examine whether or not that statement is true – not to assume it. Asking the Commission at the outset of these proceedings to accept this statement as true is the regulatory equivalent to the proverbial joke about economists providing a solution to how to open a can when you don't have a can opener: "just assume a can opener."

At this stage in the proceedings, Dr. Tardiff's remarks are totally out of place. He is effectively muddling the trigger analysis phase-where the FCC has mandated that the Commission consider actual mass market competition in specific geographic market areas- and a potential deployment analysis, in which

[10] Tardiff Testimony, p. 21.

the States may consider "whether the market in question is suitable for 'multiple, competitive supply.'" *Triennial Review Order at* ¶506.

Of course, the truth is that there remains a substantial amount of work to be done in Missouri before UNE-dependent CLECs could ever be in a position to *viably* compete with SBC in the mass markets. Contrary to Dr. Tardiff's unsubstantiated generalizations, there is no evidence in the record before the Commission that competitors of SBC can "readily serve customers" or that they "could easily expand" beyond the wire centers where they have some forms of business today.

Q. WHY DO YOU DISAGREE WITH DR. TARDIFF THAT IT IS "EASY" FOR CLECS TO EXPAND THEIR OPERATIONS?

A. Dr. Tardiff's testimony is flawed in many respects. At page 10 of his testimony, Dr. Tardiff takes the unfounded position that geographic markets for impairment purposes can be defined by the theoretical ability of a carrier to use a switch to serve a very wide geographic area merely because it is technically possible to connect that switch to various transport arrangements. He completely fails to consider the question of whether the combined cost of switching and transport would effectively preclude a carrier from competing with SBC for mass market local service customers.

Similarly, Dr. Tardiff posits that the geographic market definition should be predicated on the scope of mass market advertising. One can only assume that if carriers advertised on buses or by way of the internet, Dr, Taylor would expand the geographic market for impairment analysis purposes even further. The logic of his analytical construct is that the entire State of Missouri should be viewed as one market, but for the fact that the FCC expressly prohibited this result. He has ignored one of the central tenets of the *Triennial Review Order*, that a granular analysis should be employed to examine where other carriers with switches are actually competing in the mass markets, both residential and business.

Q. DR. TARDIFF POSITS AT PAGE 9 OF HIS TESTIMONY THAT WHEN A CLEC PLACES A SWITCH, IT "INCURS FIXED COSTS (COSTS INSENSITIVE TO THE NUMBER OF CUSTOMERS)" AND HAS "IMPLICITLY CHOSEN TO REACH ALL POTENTIAL CUSTOMERS IN THE GEOGRAPHIC AREA SERVED BY THE MEDIA." PLEASE COMMENT.

A. Dr. Tardiff ignores entirely the extensive costs that a competing carrier would incur if it chose to serve mass market customers from its switch. Apart from transport costs that Dr. Tardiff has not analyzed, he also has not considered any of the other economic costs or impairments that constitute barriers to the provision of mass market services, as opposed to services provided to larger business customers that are not part of the mass markets. A number of these costs vary with the number of customers. A far more detailed analysis of additional evidence must be conducted than Dr. Tardiff has presented.

Q. WHAT ABOUT DR. TARDIFF'S STATEMENT THAT A CLEC THAT DEPLOYS A SWITCH HAS IMPLICITLY CHOSEN TO REACH ALL POTENTIAL CUSTOMERS IN THE GEOGRAPHIC AREA SERVED BY THE MEDIA?

A. This statement is ludicrous on its face. Placing an ad in the Jefferson City News Tribune or the Kansas City Star does not signify that a competing carrier is positioned to extend its service to every mass market local service customer that may read these newspapers. While it is likely that the placement of ads in these papers is designed to attract potential customers, it is a wide leap of logic to presume, as Dr. Tardiff does, that placement of an advertisement eliminates all of the serious economic and operational impairments that exist. The granular analysis required by the FCC involves more than counting switches and reading newspaper ads. Moreover, as I have just mentioned, the actual activity in the mass markets in Missouri contradicts Dr. Tardiff's unsupported generalizations.

Q. PLEASE COMMENT ON DR. TARDIFF'S STATEMENT THAT USING WIRE CENTERS AS GEOGRAPHIC MARKETS WOULD BE INCONSISTENT WITH THE SPECIFIC DIRECTIVES OF THE FCC'S TRIENNIAL REVIEW ORDER.

A. Dr. Tardiff makes this statement at page 26, lines 5-8 of his testimony. Nowhere in the Triennial Review Order did the FCC ever suggest that wire centers cannot or should not be used by a State Commission as a geographic market for conducting an impairment analysis. Nowhere did the FCC draw any conclusions from its past decisions cited by Dr. Tardiff-not involving the impairment issue-that wire centers should not be used as a geographic market in conducting an impairment analysis. The FCC was very clear that while a State is free to consider

whether geographic areas that it has used for other purposes might be suitable definitions for geographic markets in their impairment analyses, this does not mean that a geographic area adopted for an entirely different purpose may be assumed appropriate for impairment analysis purposes. In its discussion at paragraph 104 of the *Triennial Review* Order, the FCC noted that its impairment analysis for unbundling is far more granular than its pricing flexibility analysis. When the Commission follows the FCC's precept that adoption of the most granular approach practicable is preferable and examines the serious flaws associated with the adoption of too large a market area, it becomes evident that the use of wire centers satisfies the FCC's criteria.

G. Wire centers Provide More Granularity Than Exchange Areas

Q. DOES STAFF SEEM TO RECOMMEND THE EXCHANGE AREA INSTEAD OFF THE WIRE CENTER?

A. Yes. On page 2, Staff witness Cecil notes:

> In contrast to recommendations for wire centers or metropolitan statistical areas, I will recommend the Commission use the exchange area as defined in Section 386.020(16) RSMo, 2000, as the appropriate definition for defining the appropriate geographic market.

Staff's preference for this definition seems to hinge in part on the claim that the wire center is an ambiguous term or concept.[11] I respectfully disagree. I believe that the wire center concept is well defined and is in fact the more stable construct

[11] Rebuttal Testimony of Walter Cecil at 11 ("Cecil Rebuttal").

since it relates to the underlying operations and the actual facilities that make up the network.

Q. WOULD THE WIRE CENTER DEFINITION PROVIDE FOR MORE GRANULARITY IN THE ANALYSES?

A. Yes. As discussed previously, the impairment analyses will have to consider both revenue and costs and operational issues. All three issues will generate different results and considerations varying from wire center to wire center. While often the exchange area may exist of the only one wire center, in many instances the exchange area will group together more than one wire center. In those instances there is a clear loss of granularity when the wire centers are grouped together into an exchange area. Given that there seems to be little gain in doing so, the exchange area is inferior to the wire center definition.

V. MASS-MARKET CUTOFF

A. SBC' Proposal Is Inconsistent With Market Place Data

Q. WHAT MASS-MARKET CUTOFF DOES SBC PROPOSE?

A. SBC defines the mass-market cutoff at three DS0s. Specifically, on page 27 of Mr. Fleming's testimony, SBC states:

> SBC Missouri proposes a cutoff of four DS0 lines per customer, meaning that a customer served by *four or more* DS0 lines at a given location would be in the enterprise market, while a customer served by one to three DS0 lines would be in the mass market. [Emphasis added; footnote omitted.]

As will be discussed presently, I disagree with SBC.

Q. WHAT SUPPORT DOES SBC PROVIDE FOR ITS MASS-MARKET CUTOFF OF THREE OR FEWER DS0s?

A. SBC's support is confusing. The Company discusses the many ways in which CLECs serve business customers but it never quite explains its conclusion that the mass-market cutoff should be three or fewer DS0s. The conclusion is tacked on at the end without a logical tie to the discussions that precede it.

For example, much of the discussion provided by SBC witness Fleming concerns the ability of CLECs to serve customers at the DS1 level. This discussion for the most part misses the point. Of course, CLECs can from a technical perspective serve any customer at the DS1 level. That is simply not the issue.

SBC is sliding back and forth between four lines and four DS0s. Of course, the latter can indeed be served over a higher capacity line; and to the extent that a customer with four or more DS0s is served over a DS1, I too propose that the customer is classified as an enterprise customer. I do have a problem, however, with counting a customer that is served by four DS0 level lines as an enterprise customer. Under this definition, a household with separate lines for the parents and the children and a fax and modem line would be counted as an enterprise customer. Likewise, a small business customer with two lines, fax line and a modem line would be an enterprise customer. Surely, this is not what the FCC had in mind when it saw a need to differentiate between mass-market customers and enterprise customers.

Q. DO SBC'S DISCUSSIONS OF THE SERVICES THAT CLECS OFFER TO SMALL AND MEDIUM SIZE CUSTOMERS SUPPORT THE "THREE OR FEWER DS0S" MASS-MARKET CUTOFF THAT THE COMPANY IS PROPOSING?

A. No. Again, SBC never explains how it derives at the conclusion that "three or fewer DS0s" is the mass-market. Surely, none of the discussion concerning DS1 level services illuminates their position.

B. The Method's Proposed by Staff, ATT and Sprint Are Essentially the Same and Should Be Adopted

Q. HAVE STAFF, ATT AND SPRINT ALL DISCUSSED ESSENTIALLY THE SAME METHOD FOR DETERMINING THE MASS-MARKET CUTOFF?

A. Yes. Staff witness Thomas, AT&T Witness Finnegan and Sprint Witness Maples all discuss a method that considers determining the mass market cutoff by means of finding the breakeven point at which it is more efficient to serve the customers at the DS1 level.

Q. IS THERE COMPLETE UNANIMITY AMONG THOSE THREE PARTIES AS TO ALL THE ASPECTS OF THE CALCULATIONS?

A. No. [12] Of course, complete unanimity is not necessarily required on this issue. However, in essence all three parties agree to the same approach and considerations for determining the mass-market cutoff. I recommend that the Commission adopts this general approach that places the mass-market cutoff at

[12] Thomas Rebuttal at 7. Mr. Thomas lists a number of issues on which Staff is seeking clarification and/or modification.

some point between 8 – 12 DS0s, depending on what assumptions one uses for inputs into the analysis.

C. Recommendation Regarding Mass-Market Cutoff

Q. HOW DOES THE FCC DISCUSS THE MASS-MARKET CUTOFF ISSUE IN THE TRO?

A. In paragraph 497 of the TRO, the FCC notes the following:

> For purposes of the examination described here, mass market customers are analog voice customers that purchase only a limited number of POTS lines, and can only be economically served via DS0 loops.

The FCC notes that POTS lines (DS0 loops) are used by both residential and very small business customers. It then goes on to discuss the issue of the mass-market cutoff as a means of *differentiating enterprise customers from mass-market customers*:

> Some mass market customers (i.e., very small businesses) purchase multiple DS0s at a single location. The previous Commission determined that incumbent LECs that make the EEL combination available are not obligated to provide unbundled local circuit switching to requesting carriers for serving customers with four or more DS0 loops in density zone one of the top fifty MSAs. The previous Commission found that under such circumstances, lack of access to unbundled local circuit switching would not impair requesting carriers in these specific areas. *At some point, customers taking a sufficient number of multiple DS0 loops could be served in a manner similar to that described above for enterprise customers* – that is, voice services provided over one or several DS1s, including the same variety and quality of services and customer care that enterprise customers receive. (Emphasis added.)

Q. WHAT METHOD SHOULD THE COMMISSION USE TO DETERMINE THE MASS-MARKET CUTOFF IN MISSOURI?

A. As discussed above, the Commission should adopt a method roughly comparable to those described by Staff, ATT and Sprint. While generally deferring to the states on issues of market definition, the FCC has provided some guidance on this issue. The FCC notes the following:

> This cross over point may be the point where it makes economic sense for a multi-line customer *to be served via a DS1 loop.* (Emphasis added.)

Thus, the FCC seems to suggest that a mass-market cutoff point may be set by calculating the *breakeven point* at which it makes economic sense for a CLEC to serve a small business customer with a DS1 loop as opposed to multiple DS0 loops. The breakeven point here would be expressed in terms of the number of DS0 loops.

Q. HOW COULD SUCH AN ANALYSIS BE PERFORMED?

A. As suggested by the FCC, a relevant mass-market cutoff level may be determined by calculating the breakeven point at which a small business customer is served more efficiently with a DS1 instead of multiple DS0s. This analysis, which is fairly straightforward, involves identifying the recurring and non-recurring costs of a DS0 and the recurring costs and non-recurring costs of a DS1 and dividing the former into the latter to see at which number of DS0s it is cheaper to serve the customer with a DS1 loop. Specifically, the information needed for this analysis is the following:

DS0 Loop costs: The *present value* of the recurring and non-recurring costs of serving a customer with a DS0 UNE loop. The costs to be used here should be the ILEC's TELRIC UNE recurring and non-recurring rates for the DS0 loop.

DS1 Loop costs: The *present value* of the recurring and non-recurring costs of serving a customer with a DS1 UNE loop. The costs to be used here should be the ILEC's TELRIC UNE recurring and non-recurring rates for the DS1 loop. Further, the costs should include all costs associated with engineering, furnishing and installing ("EF&I) of customer premises equipment for the DS1 loop.

The mass-market cutoff can then be determined as follows:

Mass-market cutoff = PV DS1 Loop Costs / PV DS0 Loop costs

To discount recurring costs to the present, one might use a best estimate for customer location life (calculated based on customer churn rates), and for cost of capital.

Obviously, since UNE rates are de-averaged in Missouri, this calculation may potentially generate different mass-market cutoff levels per rate zone. Unless the different mass-market cutoff levels vary significantly from zone to zone, the Commission may want to calculate a simple average (calculated across the rate zones) to be applied for a particular ILEC's entire serving area in Missouri.

Q. IS THIS METHOD IN ESSENCE THE SAME AS THE ONE DESCRIBED BY STAFF, ATT AND SPRINT?

A. Yes. While I have provided my own description of this method (see above), I am comfortable with both the description and the results of the analyses provided by Staff, ATT and Sprint.

Q. DOES THIS METHOD, WHICH MIGHT ADJUST UPWARD THE PREVIOUSLY ESTABLISHED MASS-MARKET CUTOFF POINT, CAUSE UNBUNDLED SWITCHING TO BE MADE AVAILABLE IN MORE GEOGRAPHIC AREAS?

A. No. This claim that adjusting the mass-market cutoff upward would increase the availability of unbundled switching is incorrect. The FCC explicitly addressed this issue and noted the following:[13]

> This claim makes no sense. If a state finds that the appropriate cut-off for distinguishing enterprise from mass market customers in density zone 1 of the top 50 MSAs is four lines, there will be no more unbundled switching available than there was under the previous carve-out. Indeed, since the previous carve-out was conditioned on the availability of EELs and appears to have actually been in effect in very few areas of the country […], setting the cut-off at an unconditional four lines would result in more customers being treated as enterprise customers subject to our finding of no impairment. If, on the other hand, a state finds based on record evidence that a cut-off of *more than four lines* is appropriate, more multi-line customers will be treated as mass market customers. But in no way will this result in an "expansion" of unbundled switching.

Thus, it is not true that adjusting the mass-market cutoff will necessarily increase the availability of unbundled switching. In fact, under certain circumstances, it may decrease this availability.

[13] TRO paragraph 497, footnote 1546.

Q. BRIEFLY SUMMARIZE YOUR RECOMMENDATION ON THE MASS MARKET CUTOFF.

A. With respect to the mass-market cutoff, I recommend the following:

-- All residential customers are mass-market customers (unless they order DS1 loops);

-- All customers served with DS1 loops are enterprise customers.

-- For the business customers that are served by means of DS0 loops, the mass-market cutoff should be determined by calculating the breakeven number of DS0 at which point it is more efficient for them to be served on a DS1 loop.

Ultimately, however, I still believe that it is premature to make a final decision prior to having had an opportunity to review all of the empirical data concerning what customers are served with which types of services. Again, ultimately it is market data that should provide the final answer.

VI. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY?

A. In this testimony I have demonstrated that SBC's proposal to use the MSA as the market definition should be rejected. The wire center is the superior market definition that provides the Commission with an optimal degree of freedom in the impair analyses; it also provides for the greater degree of granularity.

Further I have discussed why SBC's recommendation for the mass-market cutoff of "three DS0's or fewer" is in fact not correct. The appropriate approach is to let the market speak for itself (a "listening" exercise that is enhanced by the analyses put forth by Staff, ATT and Sprint).

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.