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| *Case No.* | TO-2004-0207 |
| *Date Testimony Prepared:* | Dec. 18, 2003 |

**MISSOURI PUBLIC SERVICE COMMISSION**
**CASE NO. TO-2004-0207**

**Direct Testimony**
**Of**

**Michael Starkey**

**On Behalf Of**
**Sage Telecom, Inc.**

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# Phase I

# Direct Testimony of

# Michael Starkey

# Case No. TO-2004-0207

## I. INTRODUCTION

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.**

A. My name is Michael Starkey. My business address is QSI Consulting, Inc., 703 Cardinal Street, Jefferson City, Missouri. 65101.

**Q. WHAT IS QSI CONSULTING, INC. AND WHAT IS YOUR POSITION WITH THE FIRM?**

A. QSI Consulting, Inc. ("QSI") is a consulting firm specializing in regulated industries, econometric analysis and computer aided modeling. I currently serve as the firm's President.

**Q. PLEASE PROVIDE A SYNOPSIS OF YOUR EDUCATIONAL BACKGROUND AND RELEVANT WORK EXPERIENCE.**

A. Included with this testimony as Attachment MS-1 is a thorough description of my educational background and relevant work experience. In brief, in the past 12 years I have been employed by three state utility commissions (Missouri, Illinois and Maryland), most recently serving as the Director of Telecommunications for the Maryland Public Service Commission and before that, as Senior Policy Analyst for the Illinois Commerce Commission (Office of Policy and Planning). My experience with each of these state commissions included substantive analysis of federal and state administrative rules and law governing the relationship between incumbent local exchange carriers ("ILECs") and new entrant, competitive carriers. In addition, I have substantial experience with issues surrounding unbundled network elements ("UNEs") and their role in facilitating competition in the local exchange marketplace. Likewise, as a consultant for the past seven years I have represented competitive carriers, citizen groups, equipment manufacturers, state commissions and a host of other entities with respect to numerous telecommunications issues. Much of my experience with QSI's clients has involved direct implementation of the federal Telecommunications Act of 1996 (hereafter "TA96" or "the Act"), the Federal Communications Commission's ("FCC's") rules further implementing the Act's pro-competitive objectives, and a number of individual state requirements aimed at fostering competition in the local exchange marketplace.

**Q. PLEASE DESCRIBE YOUR PREVIOUS POSITION WITH THE MISSOURI PUBLIC SERVICE COMMISSION?**

A. From roughly 1991 through 1993 I was employed as an Economist III with the Commission's Telecommunications Staff within what was then, the Commission's Public Utilities Division.

**Q. ON WHOSE BEHALF WAS THIS TESTIMONY PREPARED?**

A. I have prepared this testimony on behalf of Sage Telecom, Inc. ("Sage").

**Q. PLEASE PROVIDE A BRIEF OVERVIEW OF SAGE TELECOM, INC.**

A. Sage is a Competitive Local Exchange Carrier ("CLEC") providing service to over 500,000 residential and small business customers in ten states (primarily in rural and suburban areas) and is planning to expand into an eleventh—Illinois—in the near future. The Company's headquarters are in suburban Dallas, Texas. Sage offers its customers a complete menu of local and long distance services, including a variety of bundled calling plans.

In September of this year, Sage was named to Deloitte & Touche's prestigious Technology Fast 50 Program for Texas, a ranking of the 50 fastest growing technology companies in Austin, Dallas-Fort Worth Metroplex, Houston and San Antonio. The Company's annual revenues have grown from $268,000 in 1998 to almost $190,000,000 in 2002, an astounding rate of growth that demonstrates as clearly as anything can that consumers value the competitive alternatives Sage brings to the marketplace. The Company attributes its growth to its innovative, low cost services as well as its primary commitment to high quality customer care.

**Q. WILL YOU PROVIDE A GENERAL OVERVIEW OF SAGE TELECOM, INC. IN MISSOURI?**

A. Yes. As will be discussed in more detail by Robert W. McCausland, who is also filing testimony on behalf of Sage in this Phase of the proceeding, Sage has a distinctive customer and business profile. In Missouri, Sage serves approximately 33,000 customers. Of this total, approximately 94% are residential and 6% are small business customers. Moreover, of that total, Sage services 52% in suburban areas, 10% rural, and 38% in urban areas in the State of Missouri. Therefore, Sage is a CLEC that is truly serving the Mass Market in Missouri and providing competitive choices to customers. As Mr. McCausland will further explain, Sage provides its telecommunications services to customers in Missouri exclusively through the use of SBC Missouri's ("SBC") unbundled network elements platform ("UNE-P").

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

A. In its *Triennial Review Order,*[1] the Federal Communications Commission ("FCC") delineated a number of actions that state commissions must undertake for purposes of evaluating "impairment" within the telecommunications markets under their jurisdiction. Consistent with that directive, the Missouri Public Service Commission (hereafter "Commission") ordered parties to first discuss the relevant market definitions that would be of value in evaluating impairment specific to certain UNEs.[2] This testimony focuses specifically on what Sage believes to be the most relevant geographic market for purposes of evaluating impairment for UNE switching used to serve residential and small business customers (what the FCC refers to as the mass market). In that regard, my testimony also provides the Commission with information useful in delineating the "enterprise" market from the "mass market" (*i.e.*, product market differentiation) within the larger context of the entire geographic market.

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[1] *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, and Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket Nos. 01- 338, 96-98 & 98-147, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, FCC 03-36 (rel. Aug. 21, 2003) ("*Triennial Review Order*" or "*TRO*").

[2] *Order Establishing Procedural Schedule*, Issued December 1, 2003.

**Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.**

A. The proper geographic market useful for evaluating local telecommunications services (especially those dominated today by incumbent carriers) is the ILEC's wire center. Within this testimony, I will encourage the Commission to find that a more granular, wire center analysis better suits the available data relative to market entry, and it provides the Commission with the most reasonable "starting point" for purposes of analyzing larger markets (if in the future the Commission finds such an analysis helpful). Further, I discuss a number of other considerations that realistically impact the proper geographic market definition, such as the presence of Integrated Digital Loop Carrier ("IDLC") Systems within the ILEC's network and the traditional price discrimination between residential and business customers that may also exist, at varying degrees, within given wire centers. These considerations serve to further delineate the mass-market in order to determine, in the subsequent phases of this proceeding, whether or not carriers should be counted toward the wholesale and self-provisioning triggers the FCC discusses in its *Triennial Review Order*.

Last, I discuss the importance of properly distinguishing between mass-market customers and enterprise customers. I speak generally about defining a proper "cutover" used to quantitatively segregate these two customer segments, but I also caution the Commission that it is difficult to make a final determination on this issue in the abstract, without the benefit of empirical data, which I am not convinced that we have fully at this point. Specifically, I encourage the Commission to decide this issue based upon the actual choices made by both consumers and suppliers within the relevant market, determining that a single cutover across markets may have little validity. As such, until more data is available specific to the Missouri marketplace, I conclude that the only "bright line" that appears to definitively segregate enterprise and mass market customers can be drawn based upon the technology used to serve them, *i.e.*, all customers that are served at the DS1 level or higher levels of capacity should automatically be considered enterprise customers.

## II. <u>BACKGROUND AND SCOPE OF PROCEEDING</u>

**Q. WHAT IS YOUR UNDERSTANDING OF WHY THESE PROCEEDINGS ARE NECESSARY?**

A. The immediate impetus for these proceedings lies in certain mandates and directives to the states contained in the FCC's *Triennial Review Order.* However, in a broader sense, the need for these proceedings can be traced back to the requirements and objectives embodied in the 1996

Act and its intentions to foster competition in the local telecommunications marketplace.

**Q. WHY IS IT RELEVANT TO NOTE THAT THESE PROCEEDINGS STEM ULTIMATELY FROM REQUIREMENTS AND GOALS THAT WERE ESTABLISHED IN THE 1996 ACT?**

A. This is important to bear in mind because it is possible, in delving into the detailed analyses mandated by the FCC in the *TRO*, to lose sight of the "forest" (the objectives of the Act) while focusing on the "trees" (the trigger and market analyses). Ultimately, in the words of the FCC itself, the purpose of the *TRO* is to implement "the Act's goals of opening local exchange markets to competition, fostering the deployment of advanced services, and reducing regulation."

**Q. ARE YOU SUGGESTING THAT THIS COMMISSION IS NOT BOUND BY THE ANALYTICAL FRAMEWORK ESTABLISHED IN THE *TRO*?**

A. No. My point is that in striving to implement the letter and spirit of the *TRO*, this Commission will find itself faced with difficult decisions in highly contested matters. In its efforts to resolve these matters, the Commission should bear in mind that the analytical framework established in the *TRO* is a means to certain ends. One of the most important of those ends is *the maintenance and promotion of competition in local exchange markets.* The word "trigger" never appears in the Act. The word "competition" and its cognates (e.g., "competitor," "competitively," etc.) appears 38 times.

**Q. WHAT IS YOUR UNDERSTANDING OF THE FOCUS OF THIS PROCEEDING AS IT DERIVES SPECIFICALLY FROM THE *TRO*?**

A. This proceeding stems from the FCC's directive in the *TRO* specific to unbundled local switching ("ULS") and the extent to which competitors are impaired without access to ULS on an unbundled basis.

**Q. WHAT SHOULD BE THE SPECIFIC OBJECTIVE OF THE MISSOURI COMMISSION IN THESE PROCEEDINGS?**

A. Over the course of three phases identified in its Procedural Order, the Commission will need to determine whether the wholesale and self-provisioning triggers identified by the FCC have been met on a market-by-market basis, *taking into account all relevant factors, including operational and economic barriers.* To do so will require the Commission to establish definitions critical in determining the appropriate market to be utilized in the impairment analysis. Once the market definitions are established, the Commission will need to test each market to determine whether the ILEC's petition to reverse the national finding of impairment in that market should be granted.

**Q. PLEASE DISCUSS THE MOST IMPORTANT SPECIFIC FINDINGS IN THE *TRO* THAT ARE RELEVANT TO THIS PROCEEDING.**

A. The FCC established a national finding that competing carriers are impaired without access to ULS when serving mass market customers.[3] This finding was based primarily on the barriers to entry facing CLECs when attempting to use an UNE-Loop ("UNE-L") entry strategy to compete. The FCC has stated that these barriers include "increased cost due to non-recurring charges and high customer churn rates, service disruptions, and incumbent LEC's inability to handle a sufficient volume of hot cuts."[4]

**Q. WHAT DO YOU MEAN BY A UNE-L STRATEGY?**

A. The term "UNE-L" refers to a market entry strategy under which a CLEC seeks to compete for local customers by means of its own switching facilities in combination with the incumbent LEC's unbundled loop. This strategy stands in contrast with the UNE-P strategy under which a CLEC deploys neither its own loops nor switching facilities but enters the market by using the unbundled network elements of the incumbent LEC. The latter strategy has been successfully deployed by Sage in a number of states including Missouri. If the Commission, however, determines that

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[3] *Triennial Review Order*, ¶ 459.
[4] *Id.*, ¶ 422.

the FCC's national finding of impairment needs to be reversed, and UNE-P were no longer a service delivery option available to Sage, Sage's entire business plan would be in danger and the future of Sage in its entirety would be in jeopardy. A necessary result of this circumstance would be that hundreds of thousands of existing Sage customers in all of its service territory states would need to find another local carrier, most likely returning to SBC.

**Q. PLEASE CONTINUE WITH YOUR DISCUSSION OF KEY *TRO* FINDINGS THAT ARE RELEVANT TO THIS PROCEEDING.**

A. The FCC recognized that an analysis more granular than the national *approach was necessary to determine on a market-by-market* basis whether carriers are impaired without access to ULS. In an effort to target this analysis, the FCC relies largely upon an "actual deployment" standard, *i.e.*, if CLECs have actively deployed their own facilities within a market and are providing services to customers via those facilities, the FCC assumes that the economic and technical issues it raises within its order must have been overcome. As such, the FCC relies first upon "enumerated impairment triggers and criteria for the states to apply in individual markets."[5] In this regard the FCC requires that the states conduct their impairment analysis for mass market switching on a market-by-market basis, leaving it to each state commission to first define what it believes to be the relevant market to be studied.[6]

**Q. IS IT BECAUSE THE IMPAIRMENT ANALYSIS MUST BE CONDUCTED ON A MARKET-BY-MARKET BASIS THAT MARKET DEFINITION IS SO CRUCIAL TO THIS PROCEEDING?**

A. Yes. The *TRO* requires that competitive alternatives be evaluated within each defined geographic market wherein the ILEC identifies a carrier (or carriers) as a trigger. For this reason, it is essential that markets be defined in ways that are theoretically sound and reflect the actual competitive alternatives available to potential customers within those markets.

## III. THE ROLE OF THE MISSOURI COMMISSION AND A "GRANULAR ANALYSES"

**Q. WHY DOES THE FCC REQUIRE A GRANULAR ANALYSIS SPECIFIC TO IMPAIRMENT?**

A. The granular analysis called for by the FCC is grounded in the DC Circuit Court's Decision in *United States Telecom Association v. Federal Communications Commission.*[7] The DC Circuit vacated the FCC's

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[5] *Id.*, ¶ 424.
[6] *Id.*, ¶ 493.
[7] *United States Telecom Ass'n v. FCC,* 290 F.3d 415 (D.C. Cir. 2002)("USTA"), *cert. denied sub nom.*

interpretation of the impair standard embodied in the *UNE Remand Order*,[8] which had applied the "impair" analysis at a national level, both adding and removing elements from a "national list" of UNEs. The *USTA* court found that under the FCC's approach, "UNEs will be available to CLECs in many markets where there is no reasonable basis for thinking that competition is suffering from any impairment ...."[9] In short, the *USTA* court criticized the FCC's impairment interpretation because it did not consider market-specific variations that may lead to varying impairment findings across markets smaller than a national market. Accordingly, in its *TRO*, the FCC revised its previous interpretation of the impairment standard by requiring a more granular approach.[10]

**Q. DOES THE FCC SPECIFY THE TYPES OF GRANULAR ANALYSIS THAT MUST BE CONDUCTED BY THE STATES?**

A. Yes. The FCC discussed three types of granularity that bear on any impairment analysis: (1) customer class distinctions, (2) geographic granularity, and (3) service considerations.

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[8] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd 3696, 3699, ¶ 1 (rel. November 5, 1999) (citing *AT&T v. Iowa Utils. Bd.*, 119 S.Ct. 721 (1999)) ("*UNE Remand Order*"),
[9] *Id.* at 422.
[10] *Triennial Review Order*,¶ 118.

**Q. PLEASE EXPLAIN CUSTOMER CLASS DISTINCTIONS.**

A. The FCC delineates three distinct customer classes: (1) mass market customers, (2) small/medium business customers, and (3) large business customers.[11] The FCC found this level of granularity appropriate because these customer classes are differentiated on the basis of services purchased, costs of providing service, and revenue generated. My testimony addresses only the mass market customer segment.

**Q. PLEASE SUMMARIZE THE GEOGRAPHIC ASPECT OF THE FCC'S GRANULAR ANALYSIS.**

A. The FCC has determined that impairment varies geographically across the nation and that geographic market boundaries should be taken into account when revisiting the unbundling rules. As will be explained in more detail below, the FCC has delegated to the states the authority to define the market for assessing impairment for unbundled local circuit switching used to serve mass market customers.

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[11] *Id.*, ¶ 124.

**Q. YOU STATED THAT THE THIRD TYPE OF GRANULARITY THAT NEEDS TO BE TAKEN INTO ACCOUNT PERTAINS TO SERVICE CONSIDERATIONS. WHAT ARE THESE?**

A. The FCC has determined that to gain access to UNE's, carriers must provide "qualifying services" with that UNE. "Qualifying services" are defined as telecommunications services offered by requesting carriers in competition with those telecommunications services that have been traditionally the exclusive or primary domain of the incumbent LECs.[12] Such services include local exchange service (*e.g.*, "plain old telephone service," or "POTS") and access services, such as xDSL.

**Q. WHAT IS THE RELATIONSHIP BETWEEN THE REQUIREMENT TO CONDUCT A GRANULAR ANALYSIS AND THE NEED TO ESTABLISH MARKET DEFINITIONS?**

A. The FCC requires that states implement its analytical framework in two steps: 1) establish the market definition that will apply to the framework, and 2) apply this market definition to the trigger and potential deployment analyses.

[12] *Id.*, ¶ 135.

**Q. WHY DID THE FCC DECIDE NOT TO ESTABLISH MARKET DEFINITIONS THAT MUST BE ADOPTED BY THE STATES?**

A. The FCC indicated that it did not rule on what should constitute a market for this analysis because the record in the Triennial Review Proceeding did not provide sufficient evidence with respect to the varying characteristics of particular markets. Specifically, the FCC stated that

> There is no doubt that state commissions possess the ability and the competence to undertake such analyses for specific network elements successfully. Moreover, for the elements we have specified, state commissions are well situated to conduct the granular analysis required.[13]

**Q. WHY IS MARKET DEFINITION IMPORTANT TO THE IMPAIRMENT ANALYSIS?**

A. If a market is defined too broadly, the variations in characteristics between markets which the FCC aims to capture in its granular analysis will not be recognized. The consequences of the failure to recognize these differences are discussed in greater detail later in my testimony. For purposes of the *trigger* analysis, the market must be defined so that "[i]f triggers are satisfied, the states need not undertake any further inquiry, because no impairment should exist in the market."[14] Thus, the market must be defined in such a way as to make sure that a finding of no impairment results in real competitive alternatives that actually serve the

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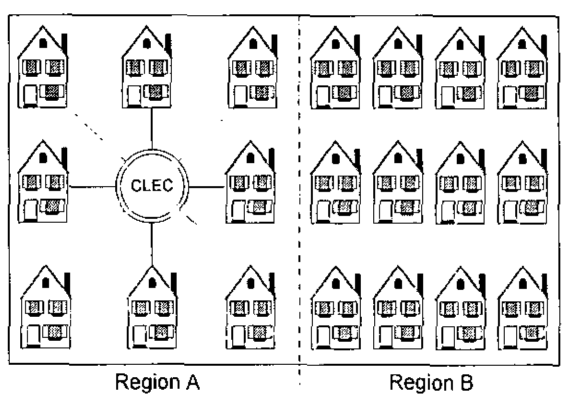
[13] *Id.*, ¶ 190.
[14] *Id.*, ¶ 494.

customers in that market. More specifically, if the trigger analysis is undertaken properly relative to defining the appropriate market, no mass market customer should be left with fewer than three facilities-based alternatives to the ILEC's local telecommunications services in an area where the state commission finds "no impairment." Similarly, with respect to the potential deployment analysis, the same market definition must be used to determine whether barriers exist in the absence of ULS that are "likely to make entry into a market uneconomic" or whether the market is "suitable for multiple, competitive supply."[15]

**Q. WHY IS IT SO IMPORTANT TO ENSURE THAT MARKETS ARE NOT DEFINED TOO BROADLY?**

A. An illustration may help to clarify my concern in this regard.

**Figure 1**




[15] *Id.*, ¶¶ 84, 506.

Figure 1 illustrates the potential danger of defining a market too broadly. The lines extending from the CLEC to the households in Region A represent the potential of that CLEC to provide service to those households. The absence of lines extending from the CLEC to the households in Region B illustrates the inability of this CLEC to serve those households. If the market were defined as encompassing both Regions A and B, the CLEC in Region A would count towards a trigger for a finding of non-impairment in Region B (as well as Region A). However, since the households in Region B cannot, in fact, be served by this CLEC, such a finding runs the risk of leaving the households in Region B without access to viable competitive alternatives.

## IV. A PROPER DEFINITION OF THE MARKET IS CRITICAL TO A VALID IMPAIRMENT ANALYSIS

### *A. MASS MARKET*

**Q. WHY IS IT NECESSARY TO ESTABLISH A DEFINITION FOR MASS MARKET CUSTOMERS IN THIS PROCEEDING?**

A. The FCC did not provide a binding definition for mass market customers, but left this up to the states to decide. Since the FCC has distinguished mass market customers from enterprise customers for purposes of analyzing impairment, this definition is critical to the outcome of this proceeding.

**Q. PLEASE EXPLAIN. WHY IS THIS DEFINITION CRITICAL?**

A. For the same reason that the proper geographic determination is critical. Consider the following Figure:

**Figure 2**

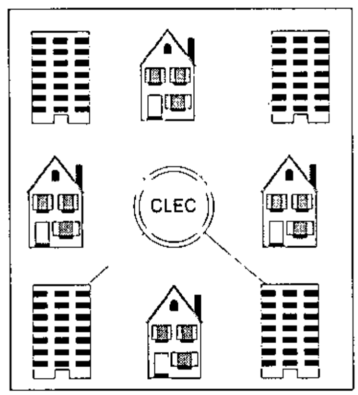



Figure 2 is analogous to Figure 1, only here I am illustrating the possible consequences of a failure to properly recognize the distinction between mass market and other classes of customers. In this hypothetical, the CLEC serves only customers larger than those included in the mass market. Counting this CLEC towards a trigger for a finding of non-impairment relative to mass market customers runs the risk of leaving mass market customers without viable competitive alternatives. Applying this analysis to Sage is also illustrative. As Mr. McCausland will explain, from Sage's perspective, all of its customers are mass market customers in that Sage provides service only to customers served through the use of DS0/voice grade level loops. Unlike other carriers, Sage does not focus its provision of services to large business customers. Therefore, to the extent that the term "enterprise customer" or the cross-over point between mass market and enterprise customer (which I will discuss later) is defined too broadly, it will significantly prevent Sage from providing competitive choices to its true mass market customers. While the CLEC in Figure 2 above apparently chooses to provide service to the businesses, and not to the mass market residential customers, Sage has not and does not have this same market focus or strategy.

**Q. DID THE FCC PROVIDE THE STATES WITH ANY DIRECTION AS TO WHAT CONSTITUTES A MASS MARKET CUSTOMER?**

A. Yes, it did. First, the FCC identified those customers that are NOT mass market customers, *i.e.*, those customers who are served by DS1 and higher facilities. Second, the FCC further specified that mass market customers include "residential customers and very small business customers" and recognized that mass market customers typically purchase a common set of services; namely, POTS service, a few vertical features, and possibly an additional line for data services.[16] Third, according to the FCC, "mass market customers are analog voice

[16] *Id.* ¶ 127.

customers that purchase only a limited number of POTS lines, and can only be economically served via DS0 loops."[17]

**Q. AS PART OF DETERMINING WHAT THE MASS MARKET IS IN A PARTICULAR AREA, WHAT MUST THE STATES DETERMINE IN DEFINING THE MASS MARKET?**

A. The FCC also required the states to determine the appropriate cut-off (commonly referred to as the crossover point) for certain multi-line customers. With respect to customer size, the FCC stated as follows:

> Therefore, as part of the economic and operational analysis discussed below, a state must determine the appropriate cut-off for multi-line DS0 customers as part of its more granular review. 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. We expect that in those areas where the switching carveout was applicable (i.e., density zone 1 of the top 50 MSAs), the appropriate *cutoff will be four lines absent significant evidence to the* contrary. [18]

Therefore, the FCC requires state PUCs to determine whether the mass market is best defined at or below the DS1 level and, if below the DS1 level, how many DS0s a customer could purchase at a given location *which would make crossing over to a DS1 economic.*

[17] *Id.*, ¶ 497.
[18] *Id.*, ¶ 497.

**Q. IS THE FCC'S 4-LINE CUTOVER DISPOSITIVE?**

A. No. In actuality, the FCC's "4-line" cutover has little empirical support. The FCC has never attempted to show that its original decision to use 4 lines as a definition for the mass market was in any way based upon the purchasing decisions of consumers (*i.e.*, demand) or the provisioning practices of competing carriers (*i.e.*, supply). As such, despite the FCC's encouragement to use it for purposes of defining the mass market in this context, I would recommend the Commission give it little weight.

**Q. IF THE MISSOURI COMMISSION SHOULD NOT RELY UPON THE FCC'S 4-LINE CUTOVER FOR PURPOSES OF DEFINING THE MASS MARKET, WHAT NUMBER SHOULD IT USE?**

A. Economists study markets to determine their rational segmentation based upon the demand and supply characteristics of the various market participants. As such, defining a particular DSO-cutover to be used in providing a rational cutover between one market versus another, before having reviewed the relevant data exhibited by the market (*e.g.*, what types of services/technologies given types of customers choose, the types of service marketed by carriers to certain customers, relative price differences, *etc.*) is a fool's errand. To my knowledge, this type of data is not yet available in this proceeding and hence, determinations specific to a given cutover are premature. As such, I spend time in a portion of the remainder of this testimony discussing how such a cutover could be determined when data does become available. It is likewise my hope that before the next round of testimony in this proceeding must be filed, relevant market data in this regard will be available and I can provide a more definitive recommendation.

### B. *SERVICE AND INTER-MODAL COMPETITION CONSIDERATIONS*

**Q. THE FCC DEFINED QUALIFYING SERVICES TO DETERMINE FOR WHICH COMPETITIVE SERVICES UNES WOULD BE MADE AVAILABLE. CAN THIS SAME CONCEPT BE USED IN THE FCC'S TRIGGER IMPAIRMENT ANALYSIS?**

A. Yes. The purpose of the FCC's trigger analyses is to determine in which markets impairment no longer exists for unbundled local switching due to actual competitive deployment or wholesale provisioning. To qualify for the trigger analysis, a carrier or wholesaler must be providing service in the market in question and providing a suitable substitute to the ILEC's unbundled local switching. Defining the market as the FCC does in its qualifying service analysis (namely, as telecommunications services that have been traditionally the exclusive or primary domain of incumbent LECs) ensures that the trigger-qualified company has overcome operational and economic barriers to entry in the particular market for purposes of providing a competitive alternative to the ILEC's unbundled local switching element. Therefore, when examining whether certain carriers qualify for triggers, the Commission should include a determination that the potential trigger carriers can provide qualifying services, as defined by the FCC.

**Q. SHOULD THE PRODUCT OR SERVICES MARKET DEFINITION BE EXPANDED TO INCLUDE SERVICES PROVIDED BY CMRS, CABLE TELEPHONY, AND FIXED WIRELESS?**

A. No. The FCC's analysis with regard to intermodal competition focuses on whether these alternatives are "comparable in cost, quality, and maturity to incumbent LEC services."[19] The FCC states:

> When an intermodal technology is limited in availability to only one or a few telecommunications carriers—either because of the historical economic characteristics of their providers or legal restrictions—we will consider whether that technology contributes to a wholesale market in accessing the customer. We may give less weight to intermodal alternatives that do not contribute to the creation of a wholesale market in accessing the customer or do not provide evidence that self-deployment of such access is possible to other entrants. In addition, if the record evidence shows that there are limitations on the number or types of customers that can be served by a particular technology, we will consider whether an entrant could use this technology profitably to target only those customers that can be served by the alternative technology.[20]

The discussion in the passage above with regard to the wholesale market refers to the "crucial function" of ILEC switching, which provides a means of accessing the local loop. Thus, to be included in this analysis,

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[19] *Triennial Review Order*, ¶ 97.

an intermodal carrier's technology must: (1) provide competitive access to customers' loops; (2) allow access to other entrants; and (3) have overcome the difficulties inherent in the hot cut process. Overall, however, from my perspective, the critical aspect of any analysis of intermodal technology is that the ILEC (which would presumably be using the existence of the intermodal carrier or technology to overcome the national presumption) would have to show that access to and services of the intermodal carriers are economically and operationally available to CLECs throughout a geographic market, while addressing each of the factors listed above.

**Q. THERE ARE SEVERAL TYPES OF INTERMODAL CARRIERS OR TECHNOLOGY DISCUSSED IN THE *TRIENNIAL REVIEW ORDER*. WOULD YOU PLEASE DISCUSS EACH ONE AND EXPLAIN WHY THOSE SPECIFIC TYPES OF CARRIERS/TECHNOLOGY SHOULD NOT BE CONSIDERED IN THE ANALYSIS.**

A. The FCC discusses CMRS providers, cable telephony, and fixed wireless. Let me first address CMRS providers.

**Q. WHY SHOULD CMRS PROVIDERS BE EXCLUDED FROM THIS ANALYSIS?**

A. Quite simply, the FCC excluded them from consideration within the trigger analysis. As the FCC noted: "CMRS does not yet equal traditional

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[20] *Id.*, ¶ 98.

incumbent LEC services in quality, its ability to handle data traffic, its ubiquity, and its ability to provide broadband services to the mass market."[21] Although we are still waiting to review all of the empirical data in Missouri (and SBC's initial case on this issue), I doubt that the FCC's statement will be proven wrong in Missouri. Furthermore, CMRS is limited in its availability to only a few telecommunications carriers due to spectrum limitations and does not contribute to a wholesale market in accessing customer loops.

**Q. WHY SHOULD CABLE TELEPHONY BE EXCLUDED FROM THE PRODUCT MARKET DEFINITION?**

A. Cable telephony should be excluded from this analysis primarily because it is limited in availability to one telecommunications carrier within the carrier's service territory due largely to government franchise agreements. As the FCC states, ". . . cable telephony is only available to cable TV companies that, because of their unique economic circumstances of first-mover advantages [exclusive franchises and a captive market] and scope economies, have access to the customer that other competitive carriers lack."[22] Moreover, cable telephony does not provide a wholesale market in accessing customer loops. Since cable telephony overbuilds the ILEC

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[21] *Id.*, n. 1549.
[22] *Id.*, ¶ 310.

network in areas where the cable carrier operates, cable telephony is not an alternative to Sage or to any other carrier.

**Q. WHY SHOULD FIXED WIRELESS BE EXCLUDED FROM THE PRODUCT MARKET DEFINITION?**

A. Fixed wireless, according to the FCC, has "*not proven to be viable or deployable on a mass market scale*."[23] I am not aware of any empirical evidence that has been provided or can be provided that would establish that fixed wireless in the State of Missouri would meet the requirements of deployment on a mass market scale. Therefore, the Commission should conclude, as the FCC concluded, that fixed wireless is not comparable to the ILEC's service in cost, quality, or maturity.

**Q. NOW THAT YOU HAVE DISCUSSED PRODUCT ALTERNATIVES, ARE THERE OTHER ASPECTS OF THE PRODUCT MARKET DEFINITION THAT SHOULD BE CONSIDERED?**

A. I anticipate that some carriers will contend that the product market definition should be expanded to include consideration of packet switches.

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[23] *Id.*

**Q. SHOULD THE PRODUCT MARKET DEFINITION BE EXPANDED TO INCLUDE PACKET SWITCHES?**

A. Not automatically. The FCC requires the states to "consider packet switches *to the extent they are used to provide local voice service to the mass market*."[24] The intent of this requirement is to ensure that the packet switch is serving the crucial function mentioned above and has overcome the barriers brought about by the hot cut process. Therefore, a further inquiry is necessary on a case-by-case basis to determine what services and customers are being provided service over a packet switch. If the packet switch is providing only data services to mass market customers or only serves enterprise customers, it should not be included in this analysis.

### *C. GEOGRAPHIC GRANULARITY*

**Q. YOU STATED ABOVE THAT THE FCC DID NOT SPECIFICALLY DEFINE A GEOGRAPHIC MARKET FOR THE "MARKET-BY-MARKET" IMPAIRMENT ANALYSIS. PLEASE REITERATE WHY THIS DEFINITION IS SO IMPORTANT.**

A. As I illustrated in my introductory comments around Figure 1, the definition of the geographic market will effectively determine the scope of territory over which a CLEC's presence may count as a trigger. This

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[24] *Id.*, n. 1549 (emphasis added).

determination will likely be the most highly-contested issue in this proceeding, because it will have a very large impact on what geographic areas of Missouri will have access to unbundled local switching for mass market customers.

**Q. WHAT GUIDANCE HAS THE FCC PROVIDED TO THE STATES IN THEIR EFFORTS TO DEFINE THE GEOGRAPHIC MARKET?**

A. The FCC established a spectrum within which states can define the geographic market for purposes of determining impairment for mass market customers. At one end of the spectrum, states are precluded from defining the geographic market as large as the entire state. At the other end of the spectrum, states may not define a market so narrowly that a competitor serving that market alone would not be able to take advantage of scale and scope economies that would be available from serving a wider market.[25] Any market definition chosen by the Commission must fall somewhere between the upper and lower boundaries of this spectrum.

Moreover, the FCC mandates that market definitions must take into account the locations of customers actually being served by competitors, any variations in factors affecting competitors' ability to serve each group

[25] *Id.* ¶ 495.

of customers, and competitors' ability to target and serve specific markets economically and efficiently using currently available technologies.[26]

Finally, the FCC encouraged states to consider how the ability to use self-provisioned or third-party-provisioned switches varies geographically and attempt to distinguish markets where different findings of impairment are likely"[27], while conducting this granularity analysis in an "administratively workable fashion."[28]

**Q. DID THE FCC PROVIDE ANY ADDITIONAL GUIDANCE WITH RESPECT TO THE GEOGRAPHIC MARKET DEFINITION?**

A. Yes. The FCC presented examples of factors that vary geographically, such as, UNE loop rates, retail rates, and the number of high-revenue customers. Most importantly, the FCC focused on wire center distinctions by encouraging the state commissions to examine "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."[29]

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[26] *Id.*
[27] *Id.*
[28] *Id.*, ¶ 121.
[29] *Id.*, ¶496.

**Q. ARE YOU RECOMMENDING A GEOGRAPHIC MARKET DEFINITION IN YOUR TESTIMONY?**

A. Yes. I recommend that the Commission define the appropriate geographic market at the incumbent wire center level.

**Q. IS YOUR RECOMMENDATION CONSISTENT WITH THE FCC'S DIRECTIVES REGARDING THE GEOGRAPHIC MARKET DEFINITION?**

A. Yes. The wire center represents the most logical, administratively practical geographic market for several reasons. First, the wire center is where access to the incumbent LEC's network takes place. It is within a wire center that competitors must access unbundled loops via collocation to serve customers via UNE-L if unbundled local switching is no longer available. Second, a UNE-L competitive carrier must make entry decisions at the wire center level, since the costs to interconnect—a substantial amount of which are fixed and sunk—are incurred on a wire center-by-wire center basis. The CLEC will therefore be required to determine whether the expected revenue derived from customers in that wire center will cover the costs of serving the customers in that wire center. The cost and revenues to be derived from this endeavor will depend heavily on the characteristics of that wire center (*e.g.*, customer density and number of lines per wire center), but will be largely independent of some larger market geography.

Third, barriers to entry (*e.g.*, the lack of collocation, a high proliferation of IDLC-served ILEC loops, high UNE loop rates) often vary according to wire centers. Assuming that the sum total of all barriers to entry is not sufficiently high as to discourage entry, the wire center provides a basis for competitors to target and serve specific markets (*i.e.*, wire centers) economically and efficiently using currently available technologies. An example of this targeted approach is a CLEC collocating a switch in the central office of a particular wire center in order to offer competitive services to customers in that wire center.

**Q. ARE THERE ANY OTHER ADVANTAGES OF DEFINING THE GEOGRAPHIC MARKET AT THE WIRE CENTER LEVEL?**

A. Yes. The wire center definition recognizes that the ability to use self-provisioned or third-party-provisioned switches varies geographically and can readily distinguish markets where different findings of impairment are likely. This can be accomplished by examining the factors present in each wire center that affect the ability of CLECs to avail themselves of a competitive alternative to the incumbent's switching, and by examining the extent to which competitors are in fact providing qualifying services to customers in that wire center over self-provisioned or third-party provisioned switches.

**Q. PLEASE PROVIDE AN EXAMPLE OF THE TYPE OF EXAMINATION YOU ENVISION.**

A. For example, the Commission must at some level examine whether competitively sustainable revenues when compared to service costs are sufficient to justify market entry. Both of these factors (both revenue and costs) vary largely based upon customer density which can vary dramatically amongst wire centers. Since customer density – and thus revenues and costs -- vary by wire center, a competitor's decisions to compete will vary from wire center to wire center as well. In many ways, the wire center must serve as the building block for a carrier's competitive entry strategy. As a carrier decides whether it should deploy facilities to serve a given market (via UNE-L), in a very real way, the carrier must decide which wire centers it will target to serve customers (based largely upon its costs to reach those wire centers compared to the customer-specific revenues it believes it can generate within the wire center). While the carrier may then group multiple wire centers together within its growth strategy, for purposes of achieving greater economies of scale and scope, nonetheless, its most relevant economic decision-making (*i.e.*, enter or not) is made at the wire center level.

**Q. IS THE DATA AVAILABLE TO DEFINE GEOGRAPHIC MARKETS AT THE WIRE CENTER LEVEL?**

A. Yes. Tracking pertinent data on a wire center basis is nothing new to ILECs. For instance, collocation facilities deployed and available collocation space is tracked by wire center. Additionally, UNE loop rates and retail rates are available on a wire center level basis. Finally, the customer demographics referred to above which affect CLECs' entry decisions can be examined on a wire center basis from publicly available data sources.

**Q. WOULD IT BE APPROPRIATE TO DEFINE THE GEOGRAPHIC MARKET ON A LARGER BASIS?**

A. I don't believe so. First, as I explained above, any larger market definition would be, in reality, simply an aggregation of individual wire centers averaged to some larger, non-homogeneous grouping. As such, as criteria critical to sustainable entry varies amongst individual wire centers, some of those differences are necessarily lost in the averaging process required to arrive at a large geographic market definition. The wire center level is simply the most logical increment of analysis because it is the finest, administratively practical level wherein realistic data relative to the investment and entry decisions exist. Furthermore, the wire center fits within the boundaries of the spectrum mentioned above and addresses each one of the FCC's market-defining criteria. Most importantly, however, a larger market definition than the wire center level could produce results in the impairment analysis that are potentially harmful to the competitive market.

**Q. PLEASE ELABORATE. HOW COULD AN OVERLY BROAD DEFINITION OF THE MARKET BE HARMFUL TO COMPETITION?**

A. Defining a market too broadly could cause the Commission to find no impairment in some geographic areas wherein consumers do not enjoy the competitive services of three facilities based providers or two wholesale providers. For instance, if the market were defined as the metropolitan statistical area ("MSA"), densely populated wire centers with high levels of competitive switching deployed—wherein it could be argued impairment is absent—could "trigger" other wire centers where there are actually few, if any, alternative providers. The fact that multiple competitors provide switch-based service in a particular area in an MSA tells us almost nothing about the level of competitive entry in other wire centers within the same MSA. Therefore, if the market were to be defined to broadly at the MSA level, and that MSA were found to have sufficient competitive entry to meet the FCC's trigger analysis (based upon only the most densely populated wire centers in the MSA), customers in less densely populated wire centers within the MSA would be without adequate competitive alternatives. In this scenario, the entire rationale supporting the FCC's trigger analysis would have failed. These customers would be forced back to the ILEC or UNE-L based competitors, if any, as UNE-P based providers would be forced to exit the market without sufficient switching alternatives. Moreover, these CLECs are likely never to return to the market, as customer relationships are difficult to rekindle once they have been severed. These negative consequences could be avoided by defining the market at the wire center level, as I have recommended.

**Q. YOU HAVE DISCUSSED THE CONSEQUENCES OF AN INCORRECT FINDING OF NON-IMPAIRMENT IN A PARTICULAR MARKET. WHAT WOULD HAPPEN IF THE COMMISSION DETERMINES THAT A MARKET IS IMPAIRED WHEN IT ACTUALLY IS NOT?**

A. If, after the detailed granular analysis the Commission performs in this docket (*i.e.*, the trigger analysis and the analysis of potential deployment), the Commission concurs with the national finding in that CLECs are impaired without access to ULS, it must then determine whether "rolling access" to ULS will solve the problems facing CLECs relying upon their own switching facilities.[30] If the national finding of impairment is retained for a given market, the state is mandated to conduct ongoing reviews of the status of ULS impairment:

> We emphasize that the framework set forth here contemplates ongoing state review of the status of unbundled switching.... Therefore, after completion of the initial review described here, we expect states to conduct further granular reviews, pursuant to the procedures the

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[30] *Triennial Review Order*, ¶ 521.

> state adopts, to reevaluate whether competitive LECs are *impaired without access to unbundled local circuit* switching, and whether such impairment, if found, could be cured by rolling access to such facilities.[31]

*In other words, putting aside the administrative burdens of such a* finding, the FCC appears to have created a framework that effectively gives ILECs unlimited "bites at the apple" to prove non-impairment in a particular market. Therefore, if the Commission determined a market was impaired without ULS access, when in fact there was no impairment, this situation could be rectified in future reviews and the inefficiencies caused would only be temporary. The FCC has, in this manner, created somewhat of a safety net. Obviously, there is a much higher risk of damaging the competitive market through premature findings of no impairment because competitors are forced from the market. The same danger does not exist in the converse (*i.e.*, Commissions keep ULS longer than otherwise preferred by the FCC). I would caution the Commission again, however, of the importance of this decision as once a competitor has been forced to leave a market due to a determination of "non-impairment", the carrier will be averse to returning to that market, even when the determination of non-impairment has been reversed or changed due to further review by the Commission. I also would urge the Commission to bear this disparate risk in mind when defining the

[31] *Id.*, ¶526.

appropriate market. It may be impossible to attain complete certainty in an analysis of this kind, but the Commission should be as certain as it possibly can that mass market customers in a given market have real, multiple competitive alternatives before reversing the national finding of impairment in any market. Again, defining the market at the wire center provides the most reasoned protection in this regard.

**Q. ARE THERE ANY EXCEPTIONS TO YOUR MARKET DEFINITION?**

A. Yes. I believe that there may be two exceptions. The first exception is when in a particular wire center, the UNE-L carrier will not have access to all customers served from that wire center. The definition of a market at the wire center level requires CLECs to be able to compete on a UNE-L basis and expand service to any customer in that wire center. Without the ability for UNE-L competitors to access all customers served from a wire center, a subset of the defined market would be without competitive switching alternatives and the results of the impairment analysis would be flawed. An example of how this scenario will affect the market definition is when Integrated Digital Loop Carrier ("IDLC") is present within the incumbent LEC's loop architecture in a particular wire center. As Sage will describe in more detail in Phase II of this proceeding, in areas wherein the ILEC uses a large percentage of IDLC technology, the challenges associated with a UNE-L deployment strategy are substantially increased. As such, even though a CLEC may serve the wire center with its own facilities, certain customers served by IDLC within the wire center may have difficulty receiving competitive services. Exceptions to the general wire center definition would need to be made in these circumstances so as to meet with our overarching objective, *i.e.*, only in areas where customers have access to three facilities based carriers that are actually serving the mass market does it make sense to conclude impairment has been overcome.

**Q. ARE THERE ANY OTHER EXCEPTIONS?**

A. Yes. In any market, the existence of price discrimination, which is defined as charging different buyers different prices for the same product, could create an exception to the wire center geographic market definition that would need to be addressed separately. The FCC specifically recognized this possibility when it stated that "competitors often are able to target particular sets of customers, or customers in particular wire centers or rate zones."[32]

**Q. PLEASE EXPLAIN HOW PRICE DISCRIMINATION COULD CREATE AN EXCEPTION TO YOUR PROPOSED MARKET DEFINITION.**

A. For example, consider a case where the ILEC engages in price discrimination within the wire center and charges business customers

[32] *Triennial Review Order*, n. 1539.

higher prices for the same service than residential customers. A competitor's ability to compete for these two customer groups will be affected by the difference in competitive margins (*i.e.*, potential revenues relative to potential costs). If a competitor singles out the business customers being charged a higher price for the service in question and chooses not to compete for the lower-priced residential customers, these customer groups should be separated into two separate market groups (because the costs incurred to serve both is relatively similar, but the potential revenues may vary greatly, the likelihood of entry specific to serving the two customer groups is likely to be very different). The FCC recognized this type of potential market segmentation in the following excerpt:

> Very small businesses typically purchase the same kinds of services as do residential customers, and are marketed to, and provided service and customer care, in a similar manner. There, we will usually include very small businesses in the mass market for our analysis. We note, however, that there are some differences between very small businesses and residential customers. For example, very small businesses usually pay higher retail rates, and may be more likely to purchase additional services such as multiple lines, vertical features, data services, and yellow page listings. *Therefore, we may include them with other enterprise customers, where it is appropriate in our analysis.*"[33]

[33] *Id.*, ¶ 432 (emphasis added).

This is an economic scenario with real-world implications, as many CLECs do in fact target business customers to the exclusion of residential customers (although Sage does not, and, in fact, as I have explained above, Sage primarily targets the residential and small business customers). Thus, if the data provided in this proceeding demonstrates that price discrimination is present within the wire center and competitors are targeting only a subset of customers that might otherwise be considered as the "mass market," the Commission should follow the FCC's lead and conclude that those competitors should not be considered for satisfaction of the self-deployment or wholesale trigger analyses. To do otherwise could leave residential customers without competitive local options.

**Q. MUST THE COMMISSION DETERMINE WHETHER VERY SMALL BUSINESS CUSTOMERS ARE IN THE SAME MARKET AS RESIDENTIAL CUSTOMERS?**

A. Not at this point. Again, information taken directly from the marketplace should provide guidance as to whether differences in potential entry amongst individual customer groups warrant some further market segmentation. Consider this issue in the first instance, without the benefit of market data would be a mistake.

**Q. IS YOUR MARKET DEFINITION CONSISTENT WITH ESTABLISHED ECONOMIC PRINCIPLES?**

A. Yes. There is a large body of economic analysis that applies to the question of defining markets. The essential criterion for whether a product belongs in a relevant market is whether the product can serve as an alternative to consumers in that market. One authoritative treatment of established economic principles for defining markets can be found in the Horizontal Merger Guidelines ("HMG") of the U.S. Department of Justice and the Federal Trade Commission. The market definition analysis presented above is consistent with the procedures of the HMG.

### *D. THE WIRE CENTER MARKET DEFINITION IS CONSISTENT WITH THE HMG*

**Q. HOW DOES THE HMG REQUIRE A MARKET BE DEFINED?**

A. The HMG calls for markets to be defined as a set of products, and locations at which those products are offered, that consumers regard as close enough substitutes. Procedurally, such a set of products and locations is defined by beginning with a specific product and location as a tentative market definition. The HMG "begin[s] with each product (narrowly defined) produced or sold by each merging firm" for the product dimension and "the location of each merging firm (or each plant of a multiplant firm)" for the geographic dimension.[34]

This initial tentative market definition is expanded by asking whether consumers regard other products or locations as close enough substitutes that a price increase in the narrowly defined tentative market definition would be met by consumers switching to other products or locations. The notion of "close enough" substitutes is given precision by asking whether a "small but significant and nontransitory" price increase in the narrowly defined tentative market definition would be met by a strong enough substitution response by consumers to make the price increase unprofitable, if it were implemented by a hypothetical monopoly provider controlling all of the products and locations in the tentative narrow market definition. The tentative market definition is too narrow if it fails to incorporate substitutes that consumers regard as "close enough," as measured by consumers switching in response to a price increase. If a tentative market definition is found to be too narrow, the definition is expanded to incorporate the next best products or locations that consumers regard as "close enough" substitutes.

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[34] *See* HMG 1.11 Product Market Definition Standards and 1.21 Geographic Market Definition Standards.

**Q. DID THE FCC ACCEPT THE HMG ANALYSIS, *IN TOTO*, FOR ANALYZING IMPAIRMENT?**

A. No. Although the FCC rejected certain applications of the HMG for purposes of an impairment analysis, the Triennial Review Order explicitly endorses the relevance of the HMG to the market definition that must underlie any impairment analysis. The FCC states: "[w]e take this lesson of geographic granularity from the HMG without adopting the HMG wholesale."[35]

**Q. HOW IS YOUR RECOMMENDED DEFINITION OF MARKETS CONSISTENT WITH THE HMG?**

A. I believe that it is very consistent. The logical starting point for defining the market in accordance with HMG principles, for the purposes of our analysis, is the product and location that a requesting carrier could serve with unbundled access to the incumbent's local switching network element. Therefore, the initial location would be the customer's premises to which the unbundled local switching element would provide service, and the product would be the qualifying services that the FCC requires be provided via UNEs. The HMG calls for expansion of this definition based on whether customers regard other products as close enough substitutes that a price increase in the narrowly defined tentative market definition

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[35] *Id.*, n.439.

would be met by consumers switching to other products or locations. With regard to expanding the product definition, I have explained above why the service provided by intermodal competitors should not be included in my proposed definition of the market. For the same reasons, intermodal services would not be included in the HMG analysis because competitors generally do not consider them to be close enough substitutes.[36] Therefore, the HMG analysis supports my product definition to include telecommunications services that have been traditionally the exclusive or primary domain of incumbent LECs (*i.e.*, qualifying services).

**Q. WHAT INSIGHT DOES THE HMG ANALYSIS SHED ON THE DETERMINATION OF THE GEOGRAPHIC MARKET?**

A. The HMG analysis states that "a relevant market is a group of products and a geographic area that is no bigger than necessary to satisfy the test"[37] (that is, the test of the market's response to a non-transitory price increase). One could argue that since the unbundled switching UNE provides access to an individual customer's loop, each individual customer could be considered a market. As mentioned above, with regard to price discrimination and IDLC issues, this customer-specific market definition would produce more accurate results. However, to

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[36] *Triennial Review Order*, ¶ 98.
[37] HMG, 1.0.

comply with the FCC's requirement of administrative practicality, the geographic market should be expanded to include customer groupings. In the absence of price discrimination and operational barriers such as IDLC, the logical grouping of customers would be the wire center. Absent competitive switch providers, the group of customers included in a wire center are provided telecommunications services from the same switch of the incumbent. Our impairment analysis therefore must focus on close enough substitutes to the incumbent LEC's switching for the purposes of accessing customer loops and providing qualifying services to each customer location. Since the wire center represents the point at which access to customer's loops must occur, customers must base their substitution decisions on what competitive alternatives are served from their particular wire center. Therefore, the wire center provides a sound basis for expanding the geographic market definition. Expanding the definition even further to include a larger area, however, would be inconsistent with HMG and FCC directives.

**Q. DOES THE HMG ANALYSIS ADDRESS THE ISSUE OF PRICE DISCRIMINATION?**

A. Yes. The HMG analysis recognizes the possibility of price discrimination, and states that price discrimination requires the analysis to be expanded to include additional geographic and product markets (HMG 1.12 and 1.22). This is consistent with my recommendation to not count carriers who do not provide services to the entire market towards the satisfaction of the triggers.

## CONCLUSION

**Q. PLEASE SUMMARIZE YOUR TESTIMONY?**

A. In this testimony I have demonstrated that the relevant geographic market for purposes of determining whether the FCC's national finding of impairment should be reversed is best defined at the wire center level. I have also discussed a number of additional considerations that should be kept in mind when defining the market, such as the presence of IDLC and the traditional price discrimination between residential and business customers.

Last, I have discussed the issue of the appropriate mass-market cutoff level and concluded that a recommendation in this regard would, at this time, be premature. I reserve the right to review the market information specific to Missouri's larger telecommunications marketplace before reaching a final conclusion in this regard. I do, however, describe for the Commission the proper decision criteria by which such market segmentation should be accomplished, and suggest at this time, the only conclusion that can be logically reached is that customers using DS1 or higher capacity connections to the public switched network should be considered enterprise, not mass market participants.

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

A. Yes, it does.