BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 030851-TP

In the Matter of

IMPLEMENTATION OF REQUIREMENTS ARISING FROM FEDERAL COMMUNICATIONS COMMISSION'S TRIENNIAL UNE REVIEW: LOCAL CIRCUIT SWITCHING FOR MASS MARKET CUSTOMERS.

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VOLUME 7

Pages 1177 through 1335

PROCEEDINGS:	HEARING
BEFORE:	CHAIRMAN BRAULIO L. BAEZ COMMISSIONER J. TERRY DEASON COMMISSIONER LILA A. JABER COMMISSIONER RUDOLPH "RUDY" BRADLEY COMMISSIONER CHARLES M. DAVIDSON
DATE:	Tuesday, February 24, 2004
TIME:	Commenced at 9:35 a.m.
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida

FLORIDA PUBLIC SERVICE COMMISSION

REPORTED BY: LINDA BOLES, RPR
Official FPSC Reporter
(850) 413-6734

APPEARANCES: (As heretofore noted.)

I N D E X

WITNESSES

EXHIBITS

NUMBER:		ID.	ADMTD.
75	Exhibits to Prefiled Testimony of Witness Tennyson as adopted by Witness Jackson as Indicated in the Prehearing Order	1181	
76	Exhibits to Prefiled Testimony of Witness Fulp as Indicated in the Prehearing Order	1197	
77	Exhibits to Prefiled Testimony of Witness Taylor as Indicated in the Prehearing Order	1250	

P R O C E E D I N G S

(Transcript follows in sequence from Volume 6.)

MS. MAYS: The last BellSouth witness is, will be the witness Mr. Tennyson as adopted by Mr. Jackson. He has rebuttal and surrebuttal (sic.) testimony, and we would ask that it be admitted into the record as though read, and we would ask that those exhibits be identified as Number 75.

CHAIRMAN BAEZ: Show the rebuttal and surrebuttal (sic.) testimony of Witness Tennyson as will be adopted by Witness Jackson, without objection, it'll be entered into the record as though read. The accompanying exhibits will be identified as Composite 75.

(Exhibit 75 marked for identification.)

BELLSOUTH TELECOMMUNICATIONS, INC.

REBUTTAL TESTIMONY OF GARY TENNYSON

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 030851-TP

JANUARY 7, 2004

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

A. My name is Gary Tennyson. My business address is 1884 Data Drive, Birmingham, AL 35244. My title is Principal Member – Technical Staff. I am employed by BellSouth Telecommunications.

Q. PLEASE SUMMARIZE YOUR BACKGROUND AND EXPERIENCE.

A. I have a Bachelor of Science degree in Electrical Engineering from Mississippi State University and a Masters of Science degree in Electrical Engineering from the University of Alabama at Birmingham.

I have been employed in the telecommunications industry for more than 27 years, all with BellSouth, and one of its predecessors, South Central Bell. From 1976 through 1984, I held line and staff positions in Outside Plant Engineering, where I was responsible for the planning and engineering of local loop facilities. From 1984 through 1987, I held a staff position in Marketing. Since 1987, I have

been involved with representing BellSouth in various industry standards forums dealing with loop access and associated technical interfaces. During this time, I served a four-year term as the chair of T1E1.1, a Working Group of T1E1, an Industry Standards forum. This Working Group dealt with Analog Interfaces. Currently in BellSouth, I provide expertise on local loop transport issues, particularly in the area of Digital Subscriber Line ("DSL").

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE ANY STATE PUBLIC SERVICE COMMISSION, AND IF SO, BRIEFLY DESCRIBE THE SUBJECT OF YOUR TESTIMONY?

A. No.

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

A. I respond to portions of the direct testimonies of Mr. James D. Webber on behalf of MCI, and Mr. Mark David Van de Water on behalf of AT&T with regard to CLECs' proposal to mechanize the hot cut process.

Electronic Loop Provisioning

Q. AT&T ADVOCATES THE ELECTRONIC LOOP PROVISIONING ("ELP") PROCESS (VAN DE WATER, AT PAGE 70 OF HIS TESTIMONY). WHAT IS THIS PROCESS AND IS IT A VIABLE OPTION FOR THIS COMMISSION TO

CONSIDER?

A. In 2002, I participated in a meeting with AT&T Regulatory representatives at which the ELP concept was discussed in full. The ELP process is as follows: Where subscribers are served via copper loop facilities, i.e., no Digital Loop Carrier ("DLC") equipment is employed, ELP provides for the conversion of the analog voice grade signal to a digital format. When DLC is involved, the conversion is already done. After this conversion from analog to digital, the ELP concept provides for 'packetizing' the digital signal into Asynchronous Transfer Mode ("ATM") cells. (Note that despite AT&T's claims to the contrary, this packetization is not performed in any DLC systems used in BellSouth today). The ATM cells then transit an ATM switch. At the ATM switch, the ATM 'address' in the header of each cell is examined. Based on that destination address, the cell is then switched to the interface corresponding to the Incumbent Local Exchange Carrier ("ILEC") or Competitive Local Exchange Carrier ("CLEC") serving that subscriber. Finally, a 'de-packetizing' device is positioned between the ATM switch and each LEC's switching system, to convert the digital signal in the ATM cells back into the synchronous Time-Division-Multiplexed ("TDM") format necessary for interconnection to the switching system.

Since all carriers would be connected to the ATM switch, the manual hot cut process could be replaced with a set of commands, hence the term 'Electronic Loop Provisioning.' Note that this process would require that every loop be connected to an ATM switch, a switch that does not exist in BellSouth's network today.

Q. IS DEPLOYING ELP A REASONABLE OR JUSTIFIED PROPOSAL?

A. No. As I will explain throughout my testimony, AT&T's ELP process cannot be justified for either technical or economic reasons. First, as other BellSouth witnesses explain, the existing manual hot cut process is reliable. Second, ELP cannot be justified based on its cost. The hot cut costs incurred by the incumbent and passed onto the CLEC that would be avoided with ELP is only a one-time cost of $13 per loop transferred versus a recurring monthly charge of $6.66 on all lines. In other words, BellSouth would need to charge an additional $6.66 per loop per month forever to both its retail and wholesale customers. Moreover, it would cost BellSouth approximately $8 billion in capital expenditures to implement ELP in its network – a cost that would ultimately need to be borne by consumers through higher rates or special surcharges. Third, ELP is not the best architecture to enable DSL and would impede DSL innovation.

Q. HOW MUCH WOULD IT COST TO DEPLOY ELP?

A. The ELP cost estimate for copper loops is $339 per line; for DLC loops it is $299 per line. Based on the makeup of copper and DLC in BellSouth's region (roughly 60% of all loops are all-copper and 40% are on DLC), the melded cost per line is $323. To realize the stated goal of transferring the end user from the incumbents switch to a CLEC's switch via a 'software command', **all loops** must be modified to an ELP architecture. The estimated cost to implement ELP is approximately $8 billion region-wide. In addition, this strands about $1.6 billion in analog line equipment for BellSouth and provides no improvement in DSL availability.

Q. HOW LONG WOULD IT TAKE TO DEPLOY ELP IN BELLSOUTH'S REGION?

A. It would take at least several years, given the magnitude of such an undertaking given that each and every loop in BellSouth's region will need to be modified.

Q. DOES THE EQUIPMENT NECESSARY FOR ELP ALREADY RESIDE IN BELLSOUTH'S NETWORK AS THE CLECS' ALLEGE?

A. The CLECs' allegations are overly simplistic and therefore incorrect. BellSouth does not have any of the DLC equipment that ELP requires. Moreover, even though BellSouth has some limited ATM switching capability, BellSouth does not have the location, capacity, or quantity necessary to deploy ELP. Finally, BellSouth does not have the voice gateways necessary to connect ATM to voice in the right locations, capacity, or quantity.

Automated MDF

Q. ON PAGE 24 OF HIS TESTIMONY, MR. WEBBER OF MCI DISCUSSES THE "AUTOMATION" OF THE HOT CUT PROCESS AND REFERS TO "ELECTROMECHANICAL AND MICRO-RELAY TYPE MDFS." CAN YOU DESCRIBE THIS TECHNOLOGY?

A. Yes. What Mr. Webber wants is for BellSouth to replace the functionality of its Main Distributing Frames ("MDFs"). Some vendors are beginning to sell automated cross-connect devices that employ a physical, electrical connection.

It is important to distinguish these from the 'digital cross-connect' devices that are prevalent in the network today, and from the ATM switch employed in the AT&T ELP proposal. These new automated cross-connect devices provide for an electrical connection. They do not, therefore, require that the input signal conform to some defined format, e.g., DS-1, DS-3, etc, as do 'digital cross-connect' devices. They also do not require that the signal be in an ATM format, as does the ELP proposal. Importantly, BellSouth is not aware of any manufacturer that offers a device of sufficient scale to replace large MDFs. Thus, today this solution is not technically available.

Q. IS THE DETERRENT TO IMPLEMENTING THIS TECHNOLOGY TO PRECLUDE THE GROWTH OF UNE-L AS MR. WEBBER ALLEGES ON PAGE 25 OF HIS TESTIMONY?

A. No, the deterrent is scalability and feasibility. Let me explain. Consider a hypothetical situation involving a small Central Office ("CO") with only a thousand lines. If we assume that practically all of the loops would connect directly to the switch ports, then such an automated cross-connect may be economically feasible. In such an instance, the cross-connect device could be built with a thousand loop-side connections, a thousand switch-side connections, and could be built to be capable of cross-connecting any loop to any switch port. In fact, there are devices on the market today that have some limited capability in this regard, and BellSouth is looking at deploying such products in very small COs.

Problems arise when something other than a simple loop to switch port

connection is required. For example, when it becomes necessary to connect a loop to something other than a switch, such as a Digital Subscriber Line Access Multiplexer ("DSLAM"), the 'switching matrix' becomes much more complex. In larger COs, the size and complexity of the 'switching matrix' makes such products financially impractical. BellSouth is not aware of any implementation offering more than sixteen thousand (16,000) terminations, combined loop-side and switch-side. Another constraint, of course, would be the requirement to accommodate a number of interfaces to the various CLECs offering service in a given central office. Given that each carrier (including both the incumbent and the CLECs) would need some capacity above and beyond that currently used, the capacity would be considerably less the eight thousand (8,000) lines as suggested above. In summary, the technology is simply not capable of operating at the scale needed to address the need.

GR-303

Q. PLEASE DISCUSS THE SPECIFIC ELECTRONIC UNBUNDLING METHODS FOR GR-303 COMPLIANT IDLC MR. WEBBER DISCUSSES ON PAGE 41-42 OF HIS TESTIMONY.

A. Mr. Webber talks about improving loop unbundling using GR-303-compliant equipment. This is impractical for several reasons.

First, only a small percentage of IDLC systems, in Florida and elsewhere in BellSouth, are Next Generation Digital Loop Carrier ("NGDLC") systems, capable

of employing GR-303 Interface Groups. Second, wherever these systems do exist, there is a limit on the number of GR-303 Interface Groups that can be accommodated. BellSouth has deployed two (2) different types of NGDLC systems. In one type, the limit is one (1) Interface Group. For this type system, no CLEC could have its own dedicated Interface Group since only one (1) exists. In the other type, the limit is four (4) Interface Groups meaning that only three (3) CLECs could have their own dedicated Interface Group. Third, this option would require extensive Operation Support Systems ("OSS") development to manage each dedicated Interface Group.

To summarize, all of BellSouth's DLC (which comprises only about 40% of its network) is not NGDLC. Second, even where BellSouth has NGDLC, there are not sufficient facilities to serve all CLECs. Finally, even if BellSouth spent the money to replace its network with NGDLC, OSS would need to be developed.

IDLC

Q. DO THE UNBUNDLED LOOPS BELLSOUTH PROVIDES TO CLECS MEET APPROPRIATE TECHNICAL STANDARDS?

A. Yes. In an open industry forum, Technical Committee T1 has adopted certain minimum technical criteria for unbundled loops. This document is entitled T1 Technical Report # 60 "Unbundled Voicegrade Analog Loops." The loops BellSouth uses for its own retail service as well as the unbundled analog loops supplied to requesting CLECs conform to that Technical Report. BellSouth is not

aware of any unbundled loop facility that, by design, fails to meet the criteria contained in that document. Furthermore, loops like this, i.e., either loaded copper loops, or loops provided via Universal Digital Loop Carrier ("UDLC"), are very commonly used to provide BellSouth's retail service.

Q. ON PAGE 48, MR. WEBBER CONTENDS THAT BY ADDING AN ADDITIONAL ANALOG TO DIGITAL CONVERSION ON THE LOOP AT THE CENTRAL OFFICE TERMINAL ("COT") IN THE CO, BELLSOUTH DOES NOT PROVIDE SERVICE "EQUIVALENT TO DS0 CAPACITY." PLEASE COMMENT.

A. I disagree with Mr. Webber's conclusion. The term 'equivalent to DS0 capacity' is not tightly defined in industry fora. In fact, even using an IDLC loop, a V.90 modem can connect at about 50 kbps or so. If we construe the 'equivalent to DS0 capacity' to require exactly 64 kbps through a dial-up data connection, then no loop meets that requirement. One could also interpret the phrase 'equivalent to a DS0 capacity' to require that the ILEC not employ, through transcoding technology, less than 64 kbps in the DLC backhaul. In this sense, UDLC meets the requirement. As referenced above, a better-defined set of requirements for unbundled loops can be found in T1 Technical Report #60.

Q. MR. WEBBER ALLEGES, ON PAGE 32 AND PAGE 37 OF HIS TESTIMONY, THAT WHEN IDLC LOOPS ARE UNBUNDLED, "[I]N MANY CIRCUMSTANCES, THE FACILITY TO WHICH THE CUSTOMER IS REASSIGNED IS TECHNOLOGICALLY INFERIOR TO THE EXISTING FACILITY OR MAY SIMPLY BE A FACILITY THAT HAS BEEN POORLY MAINTAINED." IS HE

CORRECT?

A. No. First, the allegation that a loop in BellSouth's network is "poorly maintained" is not correct. BellSouth maintains its network facilities to the applicable technical standards. It would make no sense for BellSouth to allow deployed plant to deteriorate in the ground especially considering that BellSouth uses those same facilities over which it provides service to its own retail customers.

Second, the "technologically inferior" condition of the new facility to which Mr. Webber refers is applicable only to the situation in which the end user is using a dial-up modem. It is not applicable to voice services. What Mr. Webber is really complaining about is a degradation in a service for which MCI has not paid. Specifically, while true that, in some instances, the unbundled loop to which the subscriber is transferred cannot support dial-up data at the data rate that might have been possible when the subscriber was on IDLC, at present there is no technology solution to that situation. Recently I participated in cooperation with one CLEC (DeltaCom) to determine whether a solution is available. I will discuss the technical trial in more detail later in this testimony.

Q. MR. WEBBER CLAIMS, ON PAGE 36 OF HIS TESTIMONY, THAT CLECS ARE UNABLE TO BENEFIT FROM IDLC TECHNOLOGY. IS HE CORRECT?

A. No. IDLC is a very efficient serving arrangement, when practically all of the lines served by the DLC system terminate on the local switching system into which the IDLC is integrated. CLECs could benefit from the use of IDLC technology, if the

number of subscribers served at a DLC remote terminal site warrants an investment in a DLC system terminating in their switch.

Q. MR. WEBBER COMPLAINS ABOUT MODEM SPEED REDUCTION IN UNIVERSAL DLC ("UDLC") SYSTEMS. PLEASE COMMENT.

A. It is true that multiple A/D conversions — inherent to UDLC — make a dial-up data connection using the V.90 protocol impossible, and necessitates that the modems 'fall back' to a lower data rate. The key point here, however, is that CLECs are purchasing voice grade circuits from BellSouth and there is no degradation in the voice service.

Q. PLEASE BRIEFLY DESCRIBE THE GOALS OF THE IDLC TECHNICAL TRIAL THAT BELLSOUTH CONDUCTED WITH RESPECT TO REDUCED MODEM SPEEDS.

A. On January 13, 2003, I and others from BellSouth met with DeltaCom in Anniston, Alabama, to discuss the benefits and goals of BellSouth engaging in a technical trial of some technical alternatives that, if successful, might be useful in addressing DeltaCom's concerns regarding analog to digital conversions that are inherent when loops are provided over certain technology. Several other conference calls between BellSouth's and DeltaCom's technical experts ensued. In a spirit of cooperation, BellSouth agreed to shoulder the expense of this trial even though ordinarily a CLEC would detail the type loop it desired and, if that loop type is not currently offered, use the New Business Request process to

have BellSouth analyze the feasibility of such a development. I was chosen to coordinate the trial and marshalled appropriate resources within BellSouth to conduct the technical trial and to document the findings of that trial.

Essentially, the trial was meant to determine if loops provided over IDLC could be provisioned without any additional analog to digital conversions (compared to the quantity of analog to digital conversions when the end user was a BellSouth retail customer) using functionality referred to as "side-door" or "hairpin" arrangements within the BellSouth switch and additional equipment referred to as Digital Cross-connect System ("DCS") to aggregate unbundled loops for a given CLEC. For the trial, DeltaCom furnished a list of telephone numbers of 'friendly customers' who had BellSouth service. From this list, two (2) lines were selected. These customers were served via a Nortel DMS100 office in BellSouth's network, and DCS equipment was already installed in that building.

DMS100 switch peripheral (SMS) assignments were obtained for the loops in question. The availability of vacant DS1 terminations on the associated SMS was verified. DS1 terminations in the DCS were obtained, and BellSouth built circuits from the DCS to the SMS. The DS1 facilities between DeltaCom's collocation arrangement and the DCS were also built.

Q. WHAT WAS THE OUTCOME OF THE TECHNICAL TRIAL?

A. The trial was unsuccessful. Unfortunately, two (2) unforeseen issues arose. It turns out that the loops to be converted were working in Mode II, i.e.,

concentrated mode. Concentration, in this setting, is the sharing of transmission paths between the DLC Remote Terminal ("RT") and the switch. For example, two (2) end users might share a single path and this is referred to as 2:1 concentration. In the DMS100 switch, a Mode II channel must be in the four (4) right-most line card slots, i.e., channels 17-24, of the digital transmission facility in order to be 'hairpinned' in the switch.

BellSouth also learned during the trial that only one (1) customer may be assigned to the RT card (which normally accommodates two lines) serving the loop to be unbundled. This limitation arises due to the fact that the DMS100 'nails up' both channels on the line card. Because it's extremely unlikely that both end-users would be converting simultaneously to the same CLEC, this effectively means that the other channel must be vacant, resulting in stranded investment. To overcome these limitations, the end-users to be converted would have to be re-assigned to other DLC cards or other facilities. This would involve, among other things, a transfer at the crossbox.

When the unanticipated cost of the line rearrangements (necessary to 'hairpin' a mode II IDLC channel in a DMS100 office) became known, the process was viewed to be even less viable. No effort was made to transfer the end-users or continue the trial. Finally, when BellSouth better understood the effect of multiple links of robbed-bit signaling on V.90 modem performance, there was simply no point in continuing the work. BellSouth removed the temporary arrangements it had made and informed DeltaCom, in a conference call of both parties' technical subject matter experts participating, that the trial was unsuccessful.

Q. WHAT DOCUMENTATION OF THE TECHNICAL TRIAL DID BELLSOUTH PROVIDE TO DELTACOM?

A. The best description of the trial outcome is documented in the "white paper" that I produced at the end of the trial. A copy of that "white paper" was furnished to DeltaCom at the end of the trial and is attached to this testimony as Exhibit GT-1.

Q. HAS DELTACOM RESPONDED FORMALLY TO BELLSOUTH'S "WHITE PAPER" DISCUSSING THE OUTCOME OF THE TECHNICAL TRIAL?

A. No. I was on the conference call I mentioned earlier and I believe DeltaCom's representative appreciated the candor with which BellSouth explained its findings. From BellSouth's viewpoint, I believe the technical trial demonstrates that the technical solutions attempted are not technically feasible. At the conclusion of the conference call, BellSouth invited DeltaCom to suggest other technical solutions but so far, DeltaCom has made no such suggestion. To summarize, it is my belief that BellSouth and DeltaCom worked together in good faith to solve a technical problem for which at present there is no technically feasible solution.

Q. ON PAGE 33 OF HIS TESTIMONY, MR. WEBBER HYPOTHESIZES ABOUT THE DEVELOPMENT OF "TWO NETWORKS." IS HIS HYPOTHETICAL A LIKELY OUTCOME?

A. One can only guess that the two networks to which Mr. Webber alludes are 1)

Loops provided via IDLC, and 2) Loops provided via loaded copper and UDLC. As mentioned above, though, BellSouth uses the latter technologies extensively to provide its own retail offering. Given that it is in BellSouth's best interest to provide the best service possible, I do not agree that this hypothesis is a likely outcome.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

MS. MAYS: That completes the BellSouth witnesses.

CHAIRMAN BAEZ: Okay. Mr. Chapkis.

MR. CHAPKIS: The first Verizon witness is Orville D. Fulp. He filed direct, rebuttal and surrebuttal. His testimony has exhibits. It does not have an errata. We would ask that his testimony be entered into the record as though read, and that his exhibits be entered as a composite exhibit, the next exhibit in order.

CHAIRMAN BAEZ: Show the direct, rebuttal and surrebuttal testimony of Orville Fulp entered into the record as though read, and show his accompanying exhibits as a Composite 76.

(Exhibit 76 marked for identification.)

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, EMPLOYER AND TITLE.

A. My name is Orville D. Fulp. My business address is 600 Hidden Ridge Drive, Irving, Texas 75038. I am employed by Verizon as Director – Regulatory.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE IN THE TELECOMMUNICATIONS INDUSTRY.

A. I have a Bachelor of Arts degree in Economics from the University of California, San Diego, and a Master of Science degree in Economics from the University of Wyoming.

In 1981, I began working at the Illinois Commerce Commission in the Economics and Rates Department as Senior Economist, where I analyzed filings and testified in utility rate proceedings in the areas of pricing, cost of service, and demand analysis. In January of 1984, I transferred to the Policy Analysis and Research Division as Director of the Pricing Program. My responsibilities included developing policy concerning pricing in the telecommunications and energy fields.

In 1985, I joined Contel as Manager-Revenue Requirements/Pricing for the company's eastern region, and was responsible for rate case activity, tariff maintenance, surveillance of regulatory activities, and pricing of local exchange, toll and access services in six states.

In 1991, I became a Manager-Access Pricing for GTE Telephone Operations, and was responsible for the development of access pricing plans and rates for interstate and intrastate purposes in 40 states. Since that time I have held various positions in GTE and Verizon involving pricing and product management and operations. In December 2001, I assumed my current position of Director -- Regulatory. My current responsibilities include national public policy and pricing matters.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE STATE UTILITY COMMISSIONS?

A. Yes. I have testified on national public policy and pricing matters, including several generic access charge dockets and other pricing related dockets over the last 15 years, on behalf of various Verizon telephone companies before state commissions in California, Florida, Illinois, North Carolina, South Carolina, Georgia, Alabama, Maine, Vermont, New Hampshire, Pennsylvania, and Washington.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to demonstrate that Verizon is not required to unbundle mass market switching for the markets described herein under the standards set forth in the Federal Communications Commission's ("FCC") *Triennial Review* Order ("TRO"). *See Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338; *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98; *Deployment of Wireline Services Offering*

Advanced Telecommunications Capability, CC Docket No. 98-147, FCC 03-36 (rel. August 21, 2003) ("TRO").

The TRO establishes mandatory triggers for determining impairment for all of the network elements, including mass market switching, that are at issue in the nine-month proceedings. These triggers are "a principal mechanism for use by states in evaluating whether requesting carriers are in fact not impaired in a particular market." *TRO* ¶ 498. In adopting these triggers, the FCC has emphasized they are "keyed to objective criteria" and "provide bright-line rules;" these triggers allow state commissions to "avoid the delays caused by protracted proceedings and can minimize administrative burdens." *TRO* ¶ 498. Triggers have the potential to provide a simple solution to the Commission's review: If a trigger is satisfied, then the Commission must make a finding of no impairment; if not, the Commission must continue on and consider certain operational and economic issues identified by the FCC, if the ILEC decides to pursue its claim of no impairment after the Commission has determined that the relevant trigger has not been satisfied.

My testimony addresses the FCC's "triggers" for mass market switching. First, I describe the two mass market switching triggers established by the FCC. Second, I describe the relevant market definitions for applying the triggers, including the geographic market and the cutoff point for differentiating between "mass market" and "DS1 enterprise" customers within the relevant geographic market. Third, I describe the evidence that Verizon has gathered to support its showing under the self-provisioning trigger for mass market switching. Fourth, I identify the markets

in Florida that meet the FCC's switching trigger based on the evidence.

My testimony demonstrates that the FCC's mass market triggers are satisfied, and therefore it does not attempt to provide evidence relevant to the second step of "potential deployment." In particular, it demonstrates that: (1) there are a substantial number of CLECs using their own switching to serve mass market customers within Verizon's serving territory in the Tampa-St. Petersburg-Clearwater Metropolitan Statistical Areas ("MSA"); and (2) as a result, that market area satisfies the FCC's switching trigger.

II. MASS MARKET SWITCHING TRIGGERS

Q. PLEASE EXPLAIN THE FCC'S TRIGGER ANALYSIS FOR MASS MARKET SWITCHING.

A. In the *Triennial Review Order*, the FCC found that "there are few barriers to deploying competitive switches to serve customers in the enterprise market at the DS1 capacity and above, and thus no operational or economic impairment on a national basis." TRO ¶ 451. By contrast, the FCC determined that, on a national basis, CLECs are impaired without access to unbundled local circuit switching for mass market customers (*i.e.*, residential and business customers served over loops operating below the DS1 level). TRO ¶ 459. Nevertheless, the FCC recognized that "a more granular analysis may reveal that a particular market is not subject to impairment in the absence of unbundled local switching." TRO ¶ 461. Therefore, the FCC directed the states to apply a two-step process to determine whether there is no impairment in a particular market within a state.

First, state commissions must apply two mandatory, objective "triggers," which are based on evidence of actual facilities-based competition in the market. Under the "self-provisioning trigger," a state "*must* find 'no impairment' when three or more unaffiliated competing carriers are serving mass market customers in a particular market with the use of their own switches." TRO ¶ 501. Under the "competitive wholesale trigger," states must find no impairment where there are two or more unaffiliated CLECs that offer wholesale switching service to other carriers in a particular market using their own switches. TRO ¶ 504. There are currently few wholesale providers of switching, other than ILECs. Therefore, Verizon is not attempting at this time to make a showing under the competitive wholesale facilities trigger for switching, but will rely instead on the self-provisioning trigger.

It is only after the Commission has examined the objective trigger evidence, and made a determination that neither trigger is met in a market, that the Commission may then conduct an analysis of the potential for CLECs to deploy their own switches to serve mass market customers in the relevant geographic market, given economic and operational conditions in that market. TRO ¶ 506. Of course, if the triggers have been met – indicating that a number of real world CLECs are already operating their own switches in a market – there is no need to prove in theory that they potentially might operate in that market. Verizon does not intend to offer a potential deployment case in Florida at this time, and therefore, this testimony does not analyze the potential for new switch deployment in this testimony. It presents only objective evidence of actual existing CLEC switch deployment under the trigger test.

Q. IN APPLYING THE SELF-PROVISIONING TRIGGER, MAY THE COMMISSION LOOK AT SUBJECTIVE EVIDENCE OF IMPAIRMENT?

A. No. The self-provisioning trigger is deliberately objective. It is assessed entirely through the application of data, rather than by the consideration of more subjective experiences, theories, estimates, opinions, and predictions. This objectivity allows trigger determinations to be made quickly and accurately, and avoids the need for "protracted proceedings." TRO ¶ 498. In fact, other than the objective count of CLECs, "states *shall not* evaluate any other factors, such as the financial stability or well-being of the competitive switch providers." TRO ¶ 500 (emphasis added).

In its September 17, 2003 *Errata*, the FCC clarified that subjective considerations, such as a CLEC's economic and operational ability to serve all customers in a market, or a CLEC's willingness to do so, *do not apply* to the self-provisioning switching trigger. *Errata* at No. 21. Instead, this trigger is straightforward: the Commission *must* find "no impairment" for unbundled switching when three or more unaffiliated competing carriers are serving mass market customers in a particular market, except in extraordinary circumstances, which do not exist in Florida. TRO ¶ 501.

A. Market Definition

Q. HOW IS THE RELEVANT GEOGRAPHIC MARKET DEFINED FOR THE TRIGGER ANALYSIS?

A. The FCC instructed the states to apply the switching triggers on a granular basis to each identifiable geographic market in the state. Rule 319(d)(2)(i) provides:

> Market definition. A state commission shall define the markets in which it will evaluate impairment by determining the relevant geographic area to include each market. In defining markets, a state commission shall take into consideration the locations of mass market 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 profitably and efficiently using currently available technologies. A state commission shall not define the relevant geographic area as the entire state.

47 C.F.R. § 51.319(d)(2)(i). The FCC gave further guidance in the text of the Order, cautioning "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." TRO ¶ 495. Moreover, the FCC made clear that the market definition for switching would be broader than for transport (which is narrowly defined by the FCC on a route-by-route basis), since "a switch can theoretically serve wide areas." TRO ¶ 495 n.1536.

The FCC observed that a state commission may choose to consider various factors, including "how UNE loop rates vary across the state" and "how retail rates vary geographically." TRO ¶ 496. However, it is not necessary to reinvent the wheel, since the FCC authorized state commissions to use existing geographic market definitions for the purposes of the trigger analysis. TRO ¶ 496.

Q. WHAT IS THE APPROPRIATE GEOGRAPHIC MARKET DEFINITION FOR FLORIDA?

A. The Commission should adopt an existing geographic market definition for application of the self-provisioning trigger. Among the existing definitions, Metropolitan Statistical Areas ("MSAs") are the most appropriate for several important reasons.

First, MSAs have well-established geographic boundaries set by the federal Office of Management and Budget ("OMB") that are available from publicly available sources, and they are specifically designed to capture economic communities of interest. *See* Office of Management and Budget, Standards for Defining Metropolitan and Micropolitan Statistical Areas: Federal Register: December 27, 2000 (Volume 65, Number 249), p. 82238. For this reason, MSAs are often used to define local markets for purposes of telecommunications regulation. For example, the FCC itself has used MSAs for its existing unbundled switching carve-out for end users with 4 or more DS0 lines. *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, Third Report and Order and Fourth Notice of Proposed Rulemaking (rel. November 5, 1999) (the "*UNE Remand Order*") at ¶¶ 276-98; *TRO* at ¶ 497.

Second, MSAs meet each of the criteria for defining the market established by the FCC. MSAs reflect the geographic reach of newspaper, radio, and television advertising. This permits CLECs to "target specific markets economically and efficiently" throughout the MSA. TRO ¶ 495. Moreover, MSAs strike a sensible balance between the interests of limiting "variation in factors affecting

competitors' ability to serve each group of customers" (TRO ¶ 495) and ensuring that the implementation of both the impairment test – and subsequent regulatory relief – do not impose undue administrative burdens on the Commission and the parties. The FCC has found that MSAs are "narrow enough so that the competitive conditions within each area are reasonably similar, yet broad enough to be administratively workable." *Pricing Flexibility* Order at 74. By contrast, "defining geographic areas smaller than MSAs would force incumbents to file additional pricing flexibility petitions, and, although these petitions might produce a more finely-tuned picture of competitive conditions, the record does not suggest that this level of detail justifies the increased expenses and administrative burdens associated with these proposals." Id.

Third, MSAs are particularly compelling as a market definition in Florida because they "take into consideration the locations of customers actually being served . . . by competitors." TRO ¶ 495. The evidence and maps described later in this testimony show an unmistakable correlation between the population centers represented by certain MSAs and the location of customers actually served by competitors using their own switches. Similarly, the Commission's 2003 Annual Report on Competition ("Report") shows that the majority (59%) of CLEC lines in the 10 largest exchanges are served using CLEC switches (Report Page 20), and concludes that "CLECs concentrate on larger metropolitan areas for a number of reasons including higher population densities, which improve economies of scale and scope." (Report Page 11).

As stated above, the MSA is the most appropriate geographic market definition for application of the self-provisioning trigger, and thus should be adopted by this Commission. If the Commission nevertheless chooses to define the market more narrowly, the Commission should adopt the UNE pricing Density Zones as the relevant geographic market.

As with the MSA as a whole, Density Zones satisfy the criteria for defining the market established by the FCC. They reflect "the locations of customers actually being served" by competitors using their own switches. That evidence shows that, in Verizon's territory, the customers served by self-provisioned CLEC switches within a particular MSA are more concentrated within the more dense Density Zones than in the least dense areas within the MSA.

Density Zones also take into account "variation of factors affecting competitors' ability to serve each group of customers." TRO ¶ 495. Both Verizon retail rates and UNE loop rates vary by Density Zone, and thus CLECs face similar competitive conditions within Density Zones within a particular MSA. As the FCC recognized, "if UNE loop rates vary substantially across a state, and this variation is likely to lead to a different finding concerning the existence of impairment in different parts of the state, the state commission should consider separating zones with high and low UNE loop rates for purposes of assessing impairment." TRO ¶ 496 n.1538. Moreover, revenue potential and ease of serving customers in an area are likely to vary based on population density, which is already reflected in the existing Density Zone designations established by the Commission.

Finally, competitors may be able to target particular customers within particular Density Zones, as the FCC itself recognized. TRO ¶ 495 n. 1539. Therefore, Density Zones within particular MSAs meet the criteria established by the FCC in the Order.

Q. SHOULD THE COMMISSION DEFINE THE RELEVANT GEOGRAPHIC MARKET AT THE WIRE CENTER LEVEL?

A. No. The wire center serving area is the geographic area served by a telecommunications carrier's switch (or group of switches). Unlike MSAs, which have discrete and universally recognized boundaries, the boundaries of a wire center are defined in terms of an individual carrier's network. A wire center serving the same group of customers may vary in scope and size, sometimes considerably, from carrier to carrier, depending on the carrier's choice of architecture and network design.

Defining the relevant geographic market in terms of wire centers would present considerable difficulties. This Commission would have to decide which carrier's wire centers to use. If, for example, ILEC wire centers were chosen as the relevant geographic market, such a choice would be inconsistent with the FCC's admonition. It would ignore the economies of scale and scope the CLEC would enjoy by serving a wider market or deploying a different network design. It would ignore similar competitive conditions in other areas within the same "community of interest" and in adjoining areas with similar densities of customers and potential revenues. It would ignore that CLECs make their decisions to deploy switches to serve a particular market on a much less granular level – they

do not make these decisions at the ILEC wire center or even at the rate center level. As AT&T argued in an arbitration proceeding with Verizon before the New Jersey Board of Public Utilities, "[e]fficiency demands that CLECs deploy switches to serve broad geographic areas, and not within each specific rate center for which Verizon has built out its network." Panel Rebuttal Testimony of AT&T Communications of NJ, L.P. et al., Docket No. TO00110893 (March 18, 2003), at 46. Therefore, the ILEC wire centers are woefully under-inclusive for purposes of the impairment analysis, and would result in a finding of impairment where there clearly is none based on the objective criteria presented in this testimony.

Q. HOW SHOULD THE COMMISSION DIFFERENTIATE BETWEEN MASS MARKET CUSTOMERS AND DS1 ENTERPRISE CUSTOMERS IN FLORIDA?

A. According to the FCC, "DS1 enterprise customers are characterized by relatively intense, often data-centric, demand for telecommunications service sufficient to justify service via high-capacity loops at the DS1 capacity and above." TRO ¶ 451. Therefore, for the purposes of its impairment analysis, DS1 enterprise customers are "those customers for which it is economically feasible for a competing carrier to provide voice service with its own switch using a DS1 or above loop." TRO ¶ 451 n. 1376.

Mass market customers, on the other hand, "are analog voice customers that purchase only a limited number of POTS lines, and can only be economically served via DS0 loops." TRO ¶ 497. "Mass market" refers not only to residential customers, but also to business customers that do not use DS1

capacity facilities. The FCC recognized that, "[a]t 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." TRO ¶ 497. However, the FCC left it to the states to determine where the cutoff point should be between mass market and enterprise customers, which "may be the point where it makes economic sense for a multi-line customer to be served via a DS1 loop." *Id.*

At its simplest, this "cutoff" should be between customers actually being served with one or more voice grade DS0 circuits and customers actually being served by DS1 loops. It is the objective behavior of the CLEC that should drive the determination of whether or not it "makes economic sense" for that CLEC to serve particular customers over DS1 loops, rather than over multiple voice grade DS0 lines. If a CLEC is currently serving a customer using DS0 loops – regardless of how many – it has already made the determination on its own that it is most economical to serve the customer as a mass-market customer, rather than as a DS1 enterprise customer. In other words, if it made "economic sense" to serve the customer over a DS1, then the CLEC would, in fact, be doing so. This objective test is more reliable, and grounded in the realities of the marketplace, than an arbitrary "cutoff" at a particular number of lines, regardless of whether the customer is actually being served as a DS1 customer. Indeed, AT&T has argued that the FCC should define mass market customers as "any customer location that a CLEC serves with voice-grade loops."

Comments of AT&T Corp. at 204-205, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, WC Docket No. 01-338 (FCC filed Apr. 5, 2003). Moreover, other CLECs have argued for a crossover point as high as 18 lines or more, claiming, for example, that a lower cut-off for mass market customers "does not reflect the real-world economics of serving a customer through self-provisioned switching, and should be changed [to 18 lines] to reflect those economic realities." Comments of Z-Tel Communications Inc., *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, WC Docket No. 01-338 (FCC filed Apr. 5, 2003), at 50-51 (emphasis added).

Therefore, based on the CLECs' own representations, the mass market "cut-off" should reflect the economic realities of serving real world customers – as reflected by the CLECs' marketplace choice between deploying DS0 loops or DS1 loops to particular customer locations. If the CLEC has made the economic decision to treat the customer as a mass market customer and to serve the customer location using voice-grade loops, then the DS0 lines at that customer location should be counted as such for the purposes of the switching impairment analysis.

B. Evidence Of Actual Deployment In Florida

Q. HAS THERE BEEN SUBSTANTIAL DEPLOYMENT OF CLEC-OWNED SWITCHES IN FLORIDA?

A. Yes. The record of competitive switch deployment in Florida establishes that competitors are already serving customers of all kinds using their own switches on

a widespread basis throughout the state. Competing carriers operate at least 20 *known* local circuit switches that are physically located within Verizon's serving territory in Florida, and approximately 15 competing carriers of all sizes have deployed local circuit switches in Verizon's serving territory in Florida, as illustrated below:

CLECs That Have Deployed Local Circuit Switches in Verizon's Service Area in Florida

CLEC	Switch Total	CLEC	Switch Total
AT&T	3	ITC^DeltaCom	1
KMC	2	XO	1
WorldCom	2	Mpower	1
Florida Digital Network	2	NewSouth Communications	1
BTI	1	Urban Media Long Distance	1
e.spire	1	US LEC	1
Global Crossing	1	Winstar	1
Interloop	1	Intermedia Communications	1
Allegiance Telecom	1		

Source: February 2003 LERG.

The foregoing information reflects data as it appears in the Local Exchange Routing Guide ("LERG"). There may be instances in which a CLEC switch is assigned to a particular CLEC in the LERG, but where it has in fact been assigned for use by another competitive carrier, such as a successor carrier. *See* Telcordia, *February 2003 LERG*.

The foregoing information is consistent with the Commission's 2003 Annual Report on Competition. That Report explains that "Almost 74% of total CLEC

lines in Florida are now served by CLECs that have deployed at least one switch." (Report Page 19). It also explains that CLECs are rapidly expanding their facilities in Florida:

> CLECs in Florida have continued their push into facilities-based service through significant investment in switches over the last three years. Based on data from Telecordia's Local Exchange Routing Guide (LERG), 74 CLEC voice switches were in deployed in Florida as of January, 2002. By June 30, 2002, there were 25 switch-based CLECs operating *116 switches* Florida. As of June 30, 2003, 31 switch-based CLECs were operating in Florida with a combined total of 126 switches. (Report Page 21)

Moreover, this information is also consistent with the record nationwide, where competing carriers operate approximately 1,300 circuit switches, including more than 500 within Verizon's 30-state region. *See* Telcordia, *February 2003 LERG*; *New Paradigm Resources Group, Inc. CLEC Report 2003* at Chapter 5.

In addition to the circuit switches discussed above, CLEC packet switches are another very significant competitive alternative to ILEC circuit switches, as the FCC has recognized. Packet switches substitute for circuit switches to the extent that traffic can be routed directly to a packet switch, without first being routed through a circuit switch. All forms of telecommunications traffic can now be transmitted and switched, end-to-end, in digital rather than analog format.

To illustrate the significant deployment of switches of all kinds, the map attached as Exhibit 1 shows the locations of CLEC switches being used to provide local service in Florida (including packet switches, circuit switches, remote switches and "soft" switches), based on data obtained from the LERG.

Q. CAN CLECS USE SWITCHES LOCATED IN OTHER STATES TO SERVE FLORIDA CUSTOMERS?

A. Yes. CLECs can serve customers in Florida using switches located in other states. Indeed, a single switch can serve an entire LATA or state, or multiple LATAs and/or states. *See UNE Remand Order* ¶ 261 ("[S]witches deployed by competitive LECs may be able to serve a larger geographic area than switches deployed by the incumbent LEC, thereby reducing the direct, fixed cost of purchasing circuit switching capacity and allowing requesting carriers to create their own switching efficiencies."). For example, AT&T claims that the switches of its CLEC affiliate, TCG, can "connect virtually any qualifying customer in a LATA." Panel Direct Testimony of AT&T Communications of NJ, L.P. et al., Docket No. TO00110893 (February 25, 2003), at 75.

Q. ARE CLECS USING THEIR OWN SWITCHES TO SERVE MASS MARKET CUSTOMERS IN FLORIDA?

A. Yes. Several carriers have publicly stated that they are serving mass market customers using their own switches in Florida:

- Allegiance "competes against the Bell companies in the small and medium-sized business market," including several in Florida, "by deploying our own switches, buying transport from third parties where available and leasing the

'last mile' loop from the Bell monopoly." R. Holland, *Toward True Telecom Competition*, Washington Times (Feb. 2, 2003) http://www.algx.com/about/telecom_competition.jsp.

- FDN Communications (formerly Florida Digital Network, which also acquired Mpower's assets in Florida) "caters to small and midsized business" in Florida using its own "installed Class 5 telephone switching gear, providing the underlying engineering foundation upon which the company offers service." FDN Communications Press Release, *FDN Closes Deal To Buy Mpower's Assets in Georgia and Florida* (Apr. 8, 2003); FDN Communications Press Release, *The Orlando Sentinel: FDN Tops 100,000 Customers* (Oct. 21, 2002).
- NewSouth Communications "has made a substantial investment in its own facilities, including the deployment of thirteen voice and fourteen data switches . . . in order to serve small and medium business customers in the Southeast," including Tampa. Comments of NewSouth Communications at 4-5, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket No. 01-338 (FCC filed April 5, 2002); NewSouth Communications, *Our Locations, Tampa, Fl,* http://www.newsouth.com/company/locations/tampa.asp.
- ITC^DeltaCom "provides voice and data telecommunications services on a retail basis to businesses and residential customers in the southern United States," including Tampa. ITC^Deltacom, Inc., Form 10-K (SEC filed Mar. 31, 2003). According to ITC's president and chief operating officer, Drew Walker, "we have substantial facilities of our own. We can use their last-mile loop and provide our own switching and network equipment.'" *For Whom the*

Bell Tolls, Birmingham Bus. J. (Dec. 7, 2001).

Q. WHAT TYPE OF EVIDENCE DID VERIZON USE TO SATISFY THE SELF-PROVISIONING TRIGGER?

A. Verizon has collected and analyzed data, at the wire center level, using its internal databases to determine where, and to whom, Verizon leases stand-alone UNE loops in Florida (the "Line Count Study").

Q. HOW DOES THE LINE COUNT STUDY SHOW WHERE CLECS ARE PROVIDING THEIR OWN MASS MARKET SWITCHING?

A. Voice service carriers that lease stand-alone UNE loops from Verizon, without unbundled switching from Verizon, are necessarily using their own switches to provide service to the customers connected to those loops. Therefore, to determine where CLECs are serving mass market customers, Verizon identified, by wire center, all CLECs leasing loops below the DS1 level, that is, 2-wire or 4-wire stand-alone voice grade loops (including EELs), from Verizon as of June 30, 2003. In addition, Verizon counted the number of individual UNE loops ordered at each customer address (not merely each building address, since there may be multiple customer addresses within a building). Verizon counted affiliated carriers as a single carrier to avoid double-counting affiliates within a particular wire center. In addition, Verizon did not count CLECs that provide only data services over copper loop facilities, without offering voice services.

Q. WHAT DOES THE LINE COUNT STUDY SHOW?

A. The results of the Line Count Study are set forth in the chart attached hereto as

Exhibit 2. In addition, the map attached as Exhibit 3 illustrates graphically the markets where, based on this data, CLEC activity meets the self-provisioning trigger in Florida. In particular, Exhibit 3 shows the number of CLECs serving mass-market customers in Density Zones 1 and 2 within the Tampa-St. Petersburg-Clearwater MSA boundaries in Florida (as currently defined by OMB) based on the data in Exhibit 2.

As the data and the map demonstrate, Verizon meets the mass market switching trigger in the Density Zone 1and 2 areas within the Tampa-St. Petersburg-Clearwater MSA. More specifically, the data show that there are a total of 8 unaffiliated CLECs currently serving mass market customers with their own switches in this area. In addition to the objective evidence that they are serving mass market customers from the Line Count Study, each of these carriers holds themselves out as providing voice service to residential or business customers, or both, in Florida. *See* Exhibit 4 (CLEC Tariff References). This is more than sufficient to satisfy the self-provisioning trigger in these markets.

Q. ARE THERE ANY OTHER CARRIERS PROVIDING VOICE SERVICE TO MASS MARKET CUSTOMERS IN THE RELEVANT GEOGRAPHIC MARKET USING THEIR OWN SWITCHES THAT ARE NOT CAPTURED BY THIS DATA?

A. Yes. The data do not capture competition from packet-switched, Internet Protocol telephony service, such as the service provided by Vonage – "the broadband phone company." *See* Vonage, *Vonage DigitalVoice: The Broadband Phone Company*, http://www.vonage.com/.

Vonage provides phone service to customers over residential broadband Internet connections, such as cable modem service. Vonage claims to be the "fastest growing telephone company in the US," with more than 70,000 lines in 1,900 active rate centers in over 100 US markets. It claims to be adding 10,000 lines per month, and that it transmits more than 3.0 million calls per week over its VoIP network. Vonage Press Release, *Vonage announces Private Label Agreement with CableAmerica* (December 2, 2003).

Vonage represents that its service is not just comparable in quality, but superior to, Verizon service. Vonage refers to itself as an "all-inclusive home phone service" that is "like the home phone service you have today - only better!" http://www.vonage.com/learn_tour.php. It claims to be the "key to easy and affordable communications, by offering flat-rate calling plans that include all of the features, as well as many features not available from Verizon like online voicemail retrieval and area code selection." Vonage Press Release, *Vonage DigitalVoice Launches Service in Harrisburg, Pennsylvania* (Mar. 7, 2003) (quoting Vonage chairman and CEO Jeffrey Citron). Vonage claims to offer "better home phone service including unlimited calling, reduced International calling rates, all of the latest features and great service and sound quality – without the worry of being nickel-and-dimed for features." Vonage Press Release, *Vonage DigitalVoice Launches Service in Southern Florida* (June 18, 2002) (quoting Vonage chairman and CEO Jeffrey Citron). Vonage states that it is "filling a need in the Tampa-St. Petersburg market for affordable, flat rate calling plans that include all of the features that customers install themselves – all things they cannot get from their current local carrier." Vonage Press Release, *Vonage*

DigitalVoice Launches Service in Tampa, Florida (Feb. 26, 2003) (quoting Vonage chairman and CEO Jeffrey Citron). In addition, the company recently announced a partnership with Intrado to provide 911 emergency calling services to Vonage customers. Vonage Press Release, *Intrado and Vonage Digital Voice Partner To Provide Emergency Calling Solution* (Mar. 25, 2003).

Vonage is actively marketing its services in Florida. According to press releases, Vonage launched its DigitalVoice service using VoIP technology in the Miami area in June 2002, Orlando in December 2002, and Tampa in February 2003. *See* Vonage Press Release, *Vonage DigitalVoice Launches Service in Southern Florida* (June 18, 2002); Vonage Press Release, *Vonage DigitalVoice Launches Service in Orlando* (Dec. 2, 2002); Vonage Press Release, *Vonage DigitalVoice Launches Service in Tampa, Florida* (Feb. 26, 2003). Vonage provides service in the following Florida area codes: 305, 321, 561, 727, 772, 786, 813, 863, 941 and 954. Vonage, *Available Area Codes*, http://www.vonage.com/area_codes.php.

To date, however, Verizon has not been able to identify the physical location of actual Vonage customers based on Verizon's own data, and thus Verizon has not counted Vonage toward its trigger showing at this time. The Commission, however, should count Vonage among the carriers providing widespread mass market switched service in Florida.

Q. ARE THERE ANY OTHER REASONS WHY VERIZON'S TRIGGER DATA UNDERCOUNT THE NUMBER OF MASS MARKET CUSTOMERS SERVED BY COMPETITIVE SWITCHES?

A. Yes. The Line Count Study fails to capture a large number of mass market customers located in apartment buildings and multi-tenant office buildings, whose lines are aggregated on DS1 facilities, and then disaggregated onto separate DS0 lines to serve multiple customers within the building. These residential and business customers do not meet the definition of DS1 enterprise customers because they are not, on an individual customer line-count basis, served using a DS1. Indeed, approximately 30-35 percent of the population lives in multi-dwelling units that might be served in this manner. *See, e.g.*, Robert Currey, Vice Chairman, RCN Corporation, Prepared Testimony before the Senate Subcommittee on Antitrust, Business Rights, and Competition, Committee on the Judiciary, *Cable and Video: Competitive Choices*, Federal News Service (Apr. 4, 2001) ("About 30-35 percent of the population lives in multiple dwelling units (MDUs), such as apartments, cooperatives or condominiums."). It is only when they are aggregated with other mass-market customers that it is makes economic sense to use a DS1 to serve them collectively. Although several CLEC affiliates of incumbent LECs have taken this approach (New Paradigm Resources Group, Inc., *Competitive IOC Report 2001,* Ch. 4 at 2 (1st ed. 2001)), the information regarding the number and location of these customers is uniquely within the knowledge of the CLECs, and Verizon has limited ability to capture this data for the purposes of its initial case.

The Commission should require the CLECs to provide this and all other relevant data on their provision of switched voice service in Florida for the Commission's consideration. Accordingly, Verizon reserves the right to supplement this testimony based on additional information provided by the CLECs.

C. Conclusion Regarding Local Switching Triggers

Q. PLEASE SUMMARIZE YOUR CONCLUSION REGARDING THE LOCAL SWITCHING TRIGGERS.

A. As the data in Exhibits 2 and 3 show, Verizon meets the mass market switching trigger in the Density Zone 1 and 2 areas of the Tampa-St. Petersburg-Clearwater MSA. There are a total of eight unaffiliated CLECs currently serving mass market customers with their own switches in this area. Therefore, the Commission must find no impairment in this market in Florida.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

I. INTRODUCTION

Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

A. This testimony is submitted on behalf of Verizon Florida Inc. ("Verizon") in response to the direct testimony of MCI, AT&T, Sprint, and the Florida Competitive Carriers Association ("FCCA") (collectively "the CLECs") concerning the elimination of unbundled mass market circuit switching pursuant to the *Triennial Review Order*'s("*TRO*") "self-provisioning" trigger.

Q. WHO IS SPONSORING THIS TESTIMONY?

A. This testimony is sponsored by Orville D. Fulp.

Q. DID YOU PROVIDE DIRECT TESTIMONY IN THIS PROCEEDING ON DECEMBER 4, 2003?

A. Yes.

Q. PLEASE DESCRIBE THE SCOPE OF THIS TESTIMONY.

A. In this proceeding, Verizon seeks the elimination of unbundled mass market switching in the Tampa-St. Petersburg-Clearwater Metropolitan Statistical Area ("MSA") under the self-provisioning trigger of the FCC's *TRO*. As I stated in my direct testimony, Verizon does not intend to present a "potential deployment" case in this nine-month proceeding. Whether the self-provisioning trigger is satisfied turns exclusively on whether there are three or more unaffiliated competing carriers serving the market with their own switches. As I demonstrated in my direct

testimony, (i) there are a substantial number of CLECs using their own switching to serve mass market customers within Verizon's serving territory in the Tampa-St. Petersburg-Clearwater MSA, (ii) as a result, that market area satisfies the FCC's self-provisioning switching trigger, and (iii) the Commission must therefore find that CLECs are not impaired without unbundled circuit switching for mass market customers in this market.

This testimony responds to the CLECs' broad allegations of economic and operational barriers to competitive entry into the mass market that, according to the CLECs, support the continued availability of unbundled mass market circuit switching. As explained in my direct testimony and as I elaborate below, claims regarding alleged economic and operational barriers have no place in this case, which addresses ***only*** the application of the mandatory and objective self-provisioning trigger. Because allegations of economic and operational barriers to entry have no bearing on Verizon's satisfaction of this trigger, this testimony does not attempt to address the substance of these irrelevant CLEC arguments. (And Verizon is filing a motion to clarify that operational and economic impairment issues are beyond the scope of Verizon's mass market switching case. *See* Motion of Verizon Florida Inc. To Clarify The Scope Of The Proceeding (Jan. 7, 2004). Verizon's decision not to engage in debates that are irrelevant to the application of the FCC's triggers in this case should not, however, be interpreted as agreement with or acquiescence in the CLEC contentions.

In addition, this testimony addresses the appropriate cutoff point for differentiating between "mass market" and "DS1 enterprise" customers within the relevant geographic market. As explained further below, the distinction between mass market customers and DS1 enterprise customers should be based on how those customers are *actually* being served, not on an arbitrary cutover point based on the number of analog lines used by the CLEC, as a number of CLECs have asserted in their direct testimony.

II. THE SCOPE OF THIS PROCEEDING

Q. PLEASE EXPLAIN THE *TRO'S* MANDATORY "TRIGGERS" ANALYSIS.

A. As I discussed in my direct testimony, and as Verizon discusses in greater detail in its January 7, 2004 motion to clarify the scope of the proceeding, the *TRO* establishes mandatory triggers for determining impairment for all of the network elements, including mass market switching, that are at issue in the nine-month proceedings. Briefly, under the "self-provisioning trigger," a state *"must* find 'no impairment' when three or more unaffiliated competing carriers are serving mass market customers in a particular market with the use of their own switches." *TRO* ¶ 501 (emphasis added). Under the "competitive wholesale trigger," states *must* find no impairment where there are two or more unaffiliated CLECs that offer wholesale switching service to other carriers in a particular market using their own switches. *TRO* ¶ 504. It is only after the Commission has determined that neither trigger

is met in a market that it may – if the ILEC continues to request mass market switching relief – conduct an analysis of the "potential" for CLECs to deploy their own switches in the relevant geographic market, given economic and operational conditions in that market. *TRO* ¶ 506.

Q. IS VERIZON OFFERING ANY EVIDENCE OF "POTENTIAL DEPLOYMENT" IN THIS CASE?

A. No. As Verizon has stated from the outset, *see* Letter from Richard A. Chapkis to Blanca S. Bayo of 10/10/03, it does not intend to present evidence of potential deployment in this case. We rely exclusively on our satisfaction of the self-provisioning trigger.

Q. THE CLECS RAISE VARIOUS ALLEGED ECONOMIC AND OPERATIONAL BARRIERS TO COMPETITIVE ENTRY INTO THE MASS MARKET, SUCH AS ISSUES REGARDING THE CUTTING OVER OF LOOPS TO A CLEC'S SWITCH, AVAILABILITY AND COST OF COLLOCATION SPACE, FUNCTIONALITY OF VERIZON'S OPERATIONS SUPPORT SYSTEMS ("OSS"), DEPLOYMENT OF IDLC, AND COSTS TO CLECS OF DEPLOYING THEIR OWN SWITCHES (*E.G.*, AT&T BRADBURY DIRECT AT 22-50; AT&T TURNER DIRECT AT 10-43; AT&T VAN DE WATER DIRECT AT 1-72; AT&T WOOD DIRECT AT 1-11; MCI LICHTENBERG DIRECT AT 1-50; MCI WEBBER DIRECT AT 14-56; MCI BRYANT DIRECT AT 53-91; SUPRA STAHLY DIRECT AT 34-45). ARE THESE CLAIMS

RELEVANT TO THE SELF-PROVISIONING TRIGGER RELIED ON BY VERIZON IN THIS PROCEEDING?

A. No. As noted above, Verizon seeks the elimination of unbundled access to mass market circuit switching in the Tampa-St. Petersburg-Clearwater MSA based on its satisfaction of the *TRO*'s self-provisioning trigger. As my initial testimony demonstrated, the trigger is met by a wide margin – with *eight* CLECs providing mass market switching service in this market. This means that, regardless of the arguments the CLECs might offer to avoid the application of the triggers, the trigger analysis shows that CLECs are currently operating in the market in numbers far beyond what the FCC requires for relief. Thus, the CLECs' allegations of operational or economic impairment do not undercut – indeed, are not relevant to – Verizon's showing that the FCC's mandatory triggers have been met. The *TRO* unequivocally "*require[s]* state commissions to find 'no impairment' in a particular market when either [the self-provisioning trigger or the competitive wholesale facilities] trigger is satisfied." *TRO* ¶ 498 (emphasis added)

Here, Verizon has shown that well more than three CLECs have deployed their own switches in the market consisting of the Tampa-St. Petersburg –Clearwater MSA. Thus, the self-provisioning trigger is satisfied, and the various CLEC claims of operational and economic problems associated with the elimination of unbundled switching in this market are irrelevant. While these alleged problems may be relevant to

a potential deployment case, they have no bearing on the triggers analysis on which Verizon relies in this proceeding.

III. THE DISTINCTION BETWEEN MASS MARKET CUSTOMERS AND DS1 ENTERPRISE CUSTOMERS.

Q. SPRINT'S WITNESSES STAIHR (AT 26-27) AND DICKERSON (AT 1-6) AND THE FCCA'S WITNESS GILLAN (AT 24-27) ALL TESTIFY THAT THE CUT-OFF POINT BETWEEN MASS MARKET AND DS1 ENTERPRISE CUSTOMERS SHOULD BE SET AT A PARTICULAR NUMBER OF ANALOG LINES BASED ON A MATHEMATICAL FORMULA, WITHOUT REGARD TO WHETHER THE CLEC HAS CHOSEN TO SERVE THOSE CUSTOMERS USING DS1 OR DS0 ENTERPRISE FACILITIES. DO YOU AGREE?

A. No. A fixed crossover point based on a pre-determined number of analog lines, based on some calculation of average costs, would ignore the actual economic choices made by the CLECs and their customers. As I explained in my direct testimony, the Commission should establish that mass market customers are those customers that are actually being served with one or more voice grade DS0 circuits, while enterprise customers should be those customers actually being served by DS1 or higher capacity loops. It is the objective behavior of the CLEC that should drive the determination of whether or not it "makes economic sense" for that CLEC to serve particular customers over DS1 loops, rather than multiple voice grade DS0 lines. This objective test is far more reliable, and grounded in realities of the marketplace, than an

arbitrary "cutoff" at a particular number of lines regardless of how the customer is actually being served as a DS1 enterprise customer or a DS0 mass market customer.

The mathematical calculations proposed by Sprint and the FCCA rely on a theoretical determination of whether it might make sense to serve a customer using multiple analog voice grade loops rather than a DS1 circuit, not whether a CLEC has actually determined that it makes economic sense to do so in any particular case. For example, Mr. Dickerson claims that, based on a cost model using Sprint's own average costs (not necessarily the costs of other carriers), "purchasing individual loops is more cost effective than purchasing single DS-1" whenever there are "12 DS-0s at a customer's location." (Sprint Dickerson Direct at 32) However, if this were true, then a rational CLEC would never use more than 12 analog voice grade loops to serve a single customer – yet they do in Florida. Obviously, Sprint's "one-size-fits-all" methodology does not capture the actual economic decisions made by CLECs in the field.

Even Mr. Gillan, who advocates the use of a mathematical formula to calculate the "cut-off" at a particular number of lines (although he does not perform the calculation himself), admits that his own proposed formula will necessarily be both under- and over-inclusive. He states that "this simple calculation does not take into account a number of factors that, in the real world, would explain why a customer with multiple voice loops would not want to move its POTS service to a

higher-capacity facility." (FCCA Gillan Direct at 30) In many cases, according to Mr. Gillan, "the customer would have good reasons to preserve its analog POTS service, even if it were at or above the theoretical cut-over point . . . ." (FCCA Gillan Direct at 31) Therefore, as Mr. Gillan concedes, establishing a break-point at an arbitrary number of lines based on some average cost calculation will ignore the fact that many customers are still being served as mass market customers using a larger number of analog lines, and that there are legitimate economic reasons for doing so.

Q. SPRINT'S WITNESS STAIHR CLAIMS THAT A SINGLE, STATEWIDE CROSS-OVER POINT FOR ALL CLECS IS MORE EFFICIENT FOR CLEC MARKETING PURPOSES. WHAT IS YOUR REACTION?

A. That is a clear case of the regulatory tail wagging the business dog. The determination of how a carrier markets its services to a particular customer – whether using multiple analog lines or a DS1 enterprise circuit – should be made by the carrier on a case-by-case basis according to the particular business needs of the carrier and the customer, not on regulatory fiat that pre-determines how a carrier theoretically should serve the customer.

Q. IS THERE CONSENSUS AMONG THE CLECS AS TO THE CUT-OFF POINT BETWEEN MASS MARKET CUSTOMERS AND DS1 ENTERPRISE CUSTOMERS?

A. Tellingly, there is not. As an initial matter, only two of five parties submitting testimony (Sprint and the FCCA, which is a coalition of multiple CLECs) proposed a method for establishing the crossover point between mass market and DS1 enterprise customers in Florida. Sprint proposed a cost model using weighted average UNE prices across the state and a calculation of its own equipment costs for installing a channel bank at a customer premises, amortized over nine years, to establish a proposed a crossover point at 12 DS0s at a single customer premises. (Sprint Dickerson Direct at 4-6). The FCCA, on the other hand, proposed a different mathematical formula to establish a crossover point at a particular number of lines, without advocating any particular output. (FCCA Gillan Direct at 23-27).

Moreover, experience in other states demonstrates that CLECs do not agree on the appropriate crossover point. For example, in the nine-month proceeding in California, Sprint proposed a crossover point at 15 DS0s at a particular customer location. See Direct Testimony of Brian K. Staihr on Behalf of Sprint Communications Company L.P. Regarding Mass Market Switching, at 7-8, and Direct Testimony of Kent W. Dickerson on Behalf of Sprint Communications Company L.P. Regarding Mass Market Switching, at 4, Case Nos. 95-04-043 and 95-04-044, filed December 12, 2003 (California Public Utilities Commission). AT&T, on the other hand, proposed two different crossover points – 11 DS0s per customer in Verizon territory and 19 DS0s in SBC territory. *See* Opening Testimony of Brian F. Pitkin on

Behalf of AT&T, at 15, Case Nos. 95-04-043 and 95-04-044, filed December 12, 2003 (California Public Utilities Commission). Clearly, if the CLECs themselves do not agree on any particular "magic number" between DS0 mass market customers and DS1 enterprise customers, the economic decisions that drive CLECs to serve customers using multiple analog lines rather than over a DS1 are not susceptible to a single formula. This further demonstrates that the FCC's original four-line cutoff is not an appropriate basis for distinguishing between mass market and DS1 enterprise customers because it does not reflect the manner in which CLECs actually serve their customers.

As a result, the Commission should ignore those proposals and look at how the CLECs are actually serving their customers. If customers are being served using analog voice grade lines rather than DS1 circuits, they should be treated as mass market customers for regulatory purposes, not as DS1 enterprise customers. Verizon's proposal does not speculate on what might theoretically make economic sense for a CLEC, or why a particular customer may want to be served in a particular manner, but rather relies on actual market realities and actual economic decisions made by CLECs to serve customers as mass market customers using analog voice grade loops.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, EMPLOYER AND TITLE.

A. My name is Orville D. Fulp. My business address is 600 Hidden Ridge Drive, Irving, Texas 75038. I am employed by Verizon as Director – Regulatory.

Q. DID YOU SUBMIT DIRECT TESTIMONY IN THIS DOCKET ON DECEMBER 4, 2004 AND REBUTTAL TESTIMONY ON JANUARY 7, 2004 ON BEHALF OF VERIZON?

A. Yes.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. The purpose of this testimony is to rebut several claims raised in the rebuttal testimony submitted by various other parties to this proceeding on January 7, 2004 and to further support Verizon's triggers case regarding mass market switching. In particular, I respond to the CLECs' attempts to read limitations and qualifications into the FCC's self-provisioning trigger for mass market switching that simply do not exist. Specifically, I explain that the CLECs are misconstruing the self-provisioning trigger in an improper attempt to exclude from the trigger tests carriers that are clearly and unequivocally serving the mass market with competitive alternatives to Verizon's unbundled local switching.

III. THE SCOPE OF THIS PROCEEDING

Q. PLEASE EXPLAIN THE *TRO'S* MANDATORY "TRIGGERS".

A. As I discussed in my direct testimony, the *TRO* establishes two mandatory switching triggers. Under the "self-provisioning trigger," a state *"must* find 'no impairment' when three or more unaffiliated competing carriers are serving mass market customers in a particular market with the use of their own switches." *TRO* ¶ 501 (emphasis added). Under the "competitive wholesale trigger," a state *must* find no impairment where there are two or more unaffiliated CLECs that offer wholesale switching service to other carriers in a particular market using their own switches. *TRO* ¶ 504. It is only after the Commission has determined that neither trigger is met in a market that it may – if the ILEC continues to request mass market switching relief – conduct an analysis of the "potential" for CLECs to deploy their own switches in the relevant geographic market, given economic and operational conditions in that market. *TRO* ¶ 506.

In this proceeding, Verizon seeks the elimination of unbundled mass market switching in the Tampa-St. Petersburg-Clearwater Metropolitan Statistical Area ("Tampa MSA") under the self provisioning trigger. As discussed in my Direct and Rebuttal Testimony, Verizon has provided specific evidence demonstrating that: (1) CLECs are providing local exchange service to mass market customers throughout the Tampa MSA; and (2) the *TRO*'s self-provisioning triggers are met within that MSA. More specifically, Verizon has now identified 10 CLECs currently providing local exchange service to mass market customers in the Tampa MSA using their own switching (8 CLECs were identified in Mr. Fulp's Direct Testimony filed on December 4, 2003, and Verizon has identified two additional CLECs that meet the switching triggers based on CLEC responses to Staff's switching data requests). *See* Proprietary Attachment 1.

IV. MASS MARKET SWITCHING

A. RESPONSES TO GENERAL CLEC ARGUMENTS

Q. SEVERAL CLECS CLAIM THAT A CLEC MUST SERVE BOTH RESIDENTIAL AND BUSINESS MASS MARKET CUSTOMERS WITH ITS OWN SWITCH TO COUNT TOWARD THE SELF-PROVISIONING TRIGGER. IS THAT CORRECT?

A. No. MCI witness Bryant (Bryant Rebuttal at 16-18), FCCA witness Gillan (Gillan Rebuttal at 22), and AT&T witness Bradbury (Bradbury Rebuttal at 6) argue that for a CLEC to count towards the self-provisioning switching trigger, that CLEC must be serving both business *and* residential mass market customers within the relevant market. However, there is no such requirement in the *TRO*. To the contrary, the FCC clarified that CLECs serving multi-line mass market business customers count toward the triggers regardless of whether they serve residential customers. *See TRO* at ¶ 497, n. 1546.

Moreover, the Ohio Public Utilities Commission recently rejected the same argument presented by MCI:

> The Commission disagrees with the request to separately analyze markets distinguishing services provided to residential subscribers and small business customers. The Commission notes that in the *Triennial Review Order*, the FCC defines mass market customers to include residential and small business voice grade customers that "purchase only a limited number of POTS lines and can be economically served via DS0 loops." The

> Commission stresses that the purpose of the impairment analysis is to assess whether or not CLECs are impaired in providing service to mass market customers if the unbundled local switching element is no longer available to them at TELRIC rates. Therefore, it is the Commission's opinion that once an unaffiliated CLEC is determined by the Commission to be providing service to mass market customers (customers with a limited number of POTS lines regardless of whether they are residential or small business) in a particular geographic market using its own switching equipment, the CLEC will be considered as one of the "three self-provisioners of switching" for the purpose of the trigger analysis.

Opinion and Order, *In the Matter of the Implementation of the Federal Communications Commission's Triennial Review Regarding Local Circuit Switching in the Mass Market*, Case No. 03-2040-TP-COI *et al.*, issued January 14, 2004 ("Ohio Order"), at 33-34.

This Commission should likewise reject the CLECs' attempts to rewrite the mass market switching trigger to require that a CLEC serve both residential and business mass market customers. There simply is no such requirement anywhere in the *TRO*, and this Commission does not have the discretion to create such a requirement in applying the FCC's mandatory self-provisioning trigger. *TRO* ¶ 500 ("For the purposes of these triggers, we find that states shall not evaluate any other factors . . .").

Q. MR. BRYANT CLAIMS (REBUTTAL AT 10-11) THAT CABLE TELEPHONY PROVIDERS DO NOT COUNT TOWARD THE SELF-DEPLOYMENT TRIGGER. IS HE CORRECT?

A. No. Mr. Bryant argues that cable providers should not be included in the triggers analysis because they do not use the incumbent's loop facilities. His reliance on this argument is misplaced. The FCC held that "states also shall consider carriers that provide intermodal voice service using their own switch facilities" for the purposes of the triggers. *TRO* ¶ 499 n. 1549 (emphasis added). Moreover, in setting the trigger at three self-provisioning CLECs, the *TRO* recognized that some of those triggering carriers would be using their own loops:

> We recognize that when one or more of the three competitive providers is also self-deploying its own local loops, this evidence may bear less heavily on the ability to use a self-deployed switch as a means of accessing the incumbent's loops. Nevertheless, the presence of three competitors in a market using self-provisioned switching and loops, shows the feasibility of an entrant serving the mass market with its own facilities. [*TRO* ¶ 501, n. 1560]

In other words, the FCC found that the trigger is met even if *all* of the triggering carriers are using their own loop facilities to serve the mass market.

Mr. Bryant also argues that cable providers should not count toward the trigger tests because cable telephony is not *identical to* traditional telephone service. This claim should be rejected because a competing service does not have to be

identical to traditional telephone service to be included in the triggers analysis; rather it only has to be "comparable" to traditional telephone service.

Mr. Bryant cannot reasonably dispute that cable telephony is comparable to traditional telephone service in terms of service characteristics, quality and price. Indeed, customers have demonstrated that cable telephony is a substitute for traditional telephone service by "voting with their feet" and switching services.

Q. DO THE CLECS MISCONSTRUE THE FCC'S TRIGGER ANALYSIS IN OTHER WAYS IN AN IMPROPER ATTEMPT TO MAKE IT MORE DIFFICULT FOR ILECS TO MEET THE TRIGGER TESTS?

A. Yes. For example, FCCA witness Gillan (Gillan Rebuttal at 1, 22) claims that a CLEC cannot count toward the triggers if it is using an "enterprise switch" to serve mass market customers. Similarly, AT&T witness Jay Bradbury (Bradbury Rebuttal at 6-8) claims that the Commission should exclude all CLEC switches that predominately serve enterprise customers even if those switches also serve mass market customers. And, Messrs. Gillan (Rebuttal testimony at 21-22) and Bryant (Bryant Rebuttal at 13) claim that a CLEC only counts toward the triggers if it self provisions service throughout the relevant market.

These claims must be rejected because they have no foundation whatsoever in the TRO.

First, if a CLEC is actually serving mass market customers from its own switch, then it is irrelevant that the CLEC *also* uses that switch to serve enterprise customers. The FCC expressly noted that "[t]he evidence in the record shows that the cost of providing mass market service is *significantly reduced* if the necessary facilities are already in place and used to provide *other higher revenue services* [i.e., enterprise services]." *TRO* ¶ 508 (emphasis added).

Second, if a CLEC is serving mass market customers from its own switch, it is also irrelevant that the switch is used primarily to serve enterprise customers. The out-of-context statements from the *TRO* that Gillan cites in his direct testimony (at 38) (*TRO* ¶ 435, 437, 441, 508) concern whether switches that serve *exclusively* enterprise customers are sufficient evidence of non-impairment for mass market switching in a potential deployment analysis. They do *not* concern whether switches that *actually* serve mass market customers using analog lines count toward the triggers even if they also serve enterprise customers – they unequivocally do.

Third, if a CLEC is serving mass market customers from its own switch, it is also irrelevant how many customers are being served. There is no "market share" or "de minimus" qualification in the *TRO* trigger analysis, nor is there any requirement that a CLEC currently serve, or be capable of serving, customers throughout the market. The FCC's *Errata* makes it clear that the FCC did not impose any requirement that a carrier must currently be serving customers throughout the market to qualify as a triggering CLEC. As the FCC explained in its October 9, 2003 filing in the D.C. Circuit Court opposing the

USTA Writ of Mandamus:

> The corrected paragraph [¶ 499] does *not* require that, for purposes of the switching triggers, self-provisioning competitors must be ready and willing to serve all retail customers in the market. The Commission made similar corrections in the *Order's* discussion of how states should analyze impairment in areas where the triggers are not met...These deletions eliminate any suggestion in the *Order* that a state's finding of no impairment is contingent on a determination that a facilities-based competitor could economically serve all customers in the market.

Opposition of Respondents to Petitions for a Writ of Mandamus, United States Telecom Ass'n v. FCC, No. 00-1012 (D.C. Cir.) (filed October 9, 2003), at 23. Therefore, a triggering CLEC need not "offer services to all, or virtually all, customers within the defined market" nor does the Commission have the discretion to refuse to apply the FCC's trigger "by declining to count companies that do not offer services to all, or virtually all, mass-market customers within the geographic market that the Commission adopts," as MCI witness Bryant suggests (Bryant Rebuttal at 13).

Q. MCI WITNESS BRYANT (REBUTTAL AT 19-20) SUGGESTS THAT "UNLESS A POTENTIALLY TRIGGERING COMPANY IS PROVIDING SWITCH-BASED SERVICE TO MASS-MARKET CUSTOMERS OVER IDLC AS WELL AS ALL-COPPER LOOPS, THERE IS NO ACTUAL MARKETPLACE EVIDENCE THAT THE COMPETITOR HAS

OVERCOME BARRIERS TO ENTRY FOR CUSTOMER LOCATIONS SERVED VIA IDLC." DO YOU AGREE?

A. No. Mr. Bryant is arguing that CLECs are operationally impaired if a customer is served by Integrated Digital Loop Carrier ("IDLC") facilities. This claim is irrelevant. As explained above, the Commission need only evaluate operational impairment if it determines that the ILEC has not satisfied the FCC's triggers. Moreover, while Verizon does not provision UNE analog voice grade loops over IDLC facilities, it routinely provisions such loops to CLECs' customers over alternative copper loops or Universal Digital Loop Carrier ("UDLC") even when the end user gets its Verizon service over IDLC. This is expressly permitted under the FCC's hybrid loop unbundling rules. TRO ¶ 297. Therefore, while MCI may take issue with those loop unbundling rules, its claim is irrelevant to the mass market switching trigger analysis.

Q. SEVERAL OF THE CLECS ARGUE THAT THE COMMISSION SHOULD EXAMINE CLEC BUSINESS PLANS AND UNE-L CUSTOMER BASES TO DETERMINE WHETHER A CLEC IS "ACTIVELY PROVIDING VOICE SERVICE". IS THIS ALLOWED BY THE TRO?

A. No. The requirement that a CLEC is "actively providing voice service" is satisfied by evidence that it is currently serving mass market customers using its own switching. Verizon has proven this for each of the qualifying carriers in my initial Direct Testimony. CLEC responses to Staff interrogatories confirm the evidence submitted by Verizon. *See* Proprietary Attachment 1. Moreover, determining whether a carrier is "likely to continue" providing voice service to mass market customers does not give the Commission the discretion to examine

the viability of a particular CLEC's business plan or whether the CLEC is adding new customers. Indeed, the FCC specifically rejected CLEC arguments that its impairment analysis be based on a CLEC's individual business plan. *TRO* ¶ 115 ("We will not, as some commenters urge, evaluate whether individual requesting carriers or carriers that pursue a particular business strategy are impaired without access to UNEs...[W]e agree with commentators that argue we cannot order unbundling merely because certain competitors or entrants with certain business plans are impaired. ") The FCC also found that states could not look at issues such as the "financial stability or well-being of the competitive switching providers" in applying the triggers. *TRO* ¶ 500. The FCC was clear that, in examining whether a CLEC is "likely to continue" to "offer[] and [be] able to provide service," the Commission may look only at whether a CLEC has affirmatively indicated that it is exiting the market altogether, not at whether the carrier may be losing customers to its competitors, or increasing its reliance on a UNE-P strategy.

Q. EVEN THOUGH AT&T SERVES MASS MARKET BUSINESS CUSTOMERS USING ITS OWN SWITCHING, AT&T ARGUES THAT IT SHOULD NOT BE CONSIDERED A TRIGGERING CARRIER BECAUSE IT WOULD RATHER SERVE CUSTOMERS USING UNE-P THAN UNE-L. DOES AT&T'S CLAIM HAVE MERIT?

A. No, under the TRO, a carrier that serves mass market customers using its own switching is a triggering carrier, even if it is also using UNE-P to serve other customers and may prefer that strategy. As the Ohio Commission recently ruled, "the market entry of competitors using UNE-P to serve customers, and their

business plans that are focused on using the highest profitability entry method, are irrelevant to the determination whether the competitive provider is impaired without access to the unbundled local switching." Ohio Order at 33. In other words, the fact that AT&T has found it more profitable to rely on UNE-P to serve the majority of its mass market customers is irrelevant to the trigger analysis, which looks at whether AT&T serves any mass market customers using its own switching. Differences in profitability between the two strategies is not the standard for application of the trigger. Moreover, as noted above, the fact that AT&T articulates a "business plan" that it states does not include serving mass market customers with its own switches is irrelevant. Indeed, to conclude otherwise, would invite CLECs to articulate similar "business plans" in an effort to undermine a demonstration that the self provisioning switching triggers have been met.

B. RESPONSES TO SPECIFIC FACTUAL ALLEGATIONS IN CLEC TESTIMONY

Q. IN ADDITION TO THE MORE GENERAL ARGUMENTS ADDRESSED ABOVE, THE CLECS RAISE ADDITIONAL CLAIMS THAT SPECIFIC CARRIERS IN VERIZON'S LINE COUNT STUDY SHOULD BE DISQUALIFIED. DO YOU AGREE?

A. No. As demonstrated in Proprietary Attachment 1 and Attachment 2, the CLEC responses to the discovery requests received to date are consistent with results of Verizon's Line Count Study, and demonstrate that each of the carriers identified in Verizon's Direct Testimony does, in fact, serve mass market customers in the MSAs identified by Verizon. Because the CLEC's own data confirms that

Verizon meets the FCC's mass market switching trigger in the Tampa MSA, the Commission should make a finding of no impairment in that market. It bears mention that in response to the discovery requests propounded by the Staff, and other parties, several CLECs identified the Verizon wire center locations where they provide voice grade DS0 service to mass market customers using their own switches, or the switches of an affiliate. In addition, some of those CLECs provided even more granular information, identifying the total number of voice grade equivalent lines that they provide to customers in each wire center. In contrast, other CLECs have provided deficient responses that make a side-by-side comparison with the results of Verizon's Line Count Study difficult, as described later in our testimony. Verizon will seek to obtain detailed information from carriers that have not provided complete data so that that this information is available to the Commission.

Q. PLEASE RESPOND TO CLAIMS THAT CERTAIN CLECS SHOULD BE EXCLUDED FROM THE MASS MARKET SWITCHING TRIGGER.

A. These claims are addressed below on a carrier-by-carrier basis:

- **Allegiance**

Based on Verizon's Line Count Study, there can be no serious question that Allegiance is actively serving mass market business customers using its own switching in the Tampa MSA. Moreover, Allegiance itself does not dispute that it is a qualifying carrier for the purposes of the self-deployment trigger for mass market switching. Nevertheless, FCCA witness Gillan (Rebuttal at 45-46) claims that, because Allegiance is in bankruptcy and has entered into an agreement for the sale of some of its assets to Qwest, it cannot count toward the

triggers. This is precisely the type of information that the Commission *may not* consider as part of its trigger analysis. Indeed, in holding that "states *shall not* evaluate any other factors, such as the financial stability or well-being of the competitive switching providers," the FCC explicitly recognized that "[r]egardless of [a competing carrier's] financial status, the physical assets remain viable and may be bought by someone else and remain in service." *TRO* ¶ 500. Therefore, it is irrelevant that Qwest and Allegiance have entered into an agreement for the sale of the Allegiance assets as part of Allegiance's Chapter 11 plan.

Mr. Gillan also claims that Qwest will cease providing service to the mass market. (Gillan Rebuttal at 45-46). This claim is pure speculation. To Verizon's knowledge, Allegiance has not filed a notice to terminate service in the Florida and it is still actively serving the mass market in the Tampa MSA using its own deployed switches. Indeed, Allegiance's network is robust, and thus it is unlikely that Allegiance will terminate service in Florida. As reported by Business Week:

> [Allegiance] has perhaps the most robust network of any telecom competitor to the Baby Bells. Launched in 1997 by telecom veteran Royce Holland, Allegiance serves 100,000 small and midsize businesses in 36 markets. Whoever picks up its assets acquires infrastructure, employees, and customer relationships that would take years and billions of dollars to establish. Allegiance raised $3 billion to build its network. "For anyone that wants to be a national player, this gives them a natural leg

up," Holland says.

Qwest Opens the War for Allegiance, Business Week Online, December 19, 2003. Qwest's CEO Richard Notebaert certainly does not intend to terminate service in Florida. He has been quoted as saying that the Allegiance deal "will take [Qwest] down a layer or two in the customer base" to serve smaller businesses. *Qwest to Buy Allegiance Telecom*, Chicago Tribune, p. 3, December 19, 2003. Clearly, the value of the Allegiance purchase to Qwest is obtaining access to the existing Allegiance small and medium business customer base. Therefore, even if evidence of the proposed bankruptcy sale of Allegiance's assets were relevant to the triggers – which it is not – there is absolutely no basis for a claim that the Allegiance assets will no longer be used to serve the mass market if the sale is consummated.

Mr. Bryant also argues that Allegiance should not count towards the self provisioning switching trigger because Allegiance only serves mass market business customers. Mr. Bryant's argument on this point is without merit for the reasons discussed above.

- **SBC Telecom**

FCCA witness Gillan claims that SBC Telecom should not be considered to "actively" provide service to mass market customers using its own switches because it is providing service to mass market customers pursuant to a merger agreement. According to Mr. Gillan, SBC Telecom agreed to deploy switches and provide service to mass market customers out-of-franchise in exchange for approval of its merger with Ameritech. However, the FCC's trigger analysis

does not look at *why* a particular carrier is serving mass market customers in the relevant geographic market using its own switching, only *whether* the carrier is doing so.

- **AT&T**

The arguments raised by Mr. Bryant and Mr. Gillan in an effort to exclude AT&T from the self provisioning mass market switching triggers are without merit for the reasons discussed above. The evidence submitted by Verizon confirms, and AT&T does not dispute, that it is serving mass market business customers using its own switch in the Tampa MSA, and elsewhere in Florida. While AT&T did not provide specific line counts by wire center in its responses to Staff's data requests, it did specify that it was providing service to business customers at the DS0 levels in various wire centers within the Tampa MSA, and its data was largely consistent with the evidence submitted in its initial Line Count Study. *See* Proprietary Attachment 1. AT&T's principal argument as to why it should not count towards the switching triggers is that it is "not actively marketing local service" using its own switching. *See* Bryant Rebuttal, Exhibit MTB 9. This argument is without merit. The test is not whether a carrier is "actively *marketing*", but whether it is "actively *providing voice service*" (*TRO* ¶ 499) – a test AT&T meets for the reasons discussed above.

- **ITC^DeltaCom/Business Telecom**

As Mr. Gillan points out in his rebuttal testimony, ITC^DeltaCom has recently purchased the assets of Business Telecom. Verizon's Line Count Study and Business Telecom's own responses to the Staff's data requests show that

Business Telecom is providing service to mass market customers using its own switching. Verizon's Line Count study confirms that ITC^DeltaCom also serves mass market customers using its own switches in Florida. While Mr. Gillan speculates about the future business plan of ITC^DeltaCom, such speculation is irrelevant to the application of the triggers. Indeed, there is no credible evidence that ITC^DeltaCom will cease serving mass market customers with its own switching as it currently does. *See* Proprietary Attachment 1.

- **KMC Telecom**

Verizon's Line Count Study shows that KMC Telecom is providing local exchange services in various wire centers throughout the Tampa MSA. KMC's responses to Staff's switching data requests confirms this fact. *See* Attachment 1. Mr. Gillan (Rebuttal at 31-34) acknowledges that KMC provides DS0 level service to customers, but argues that KMC should not count because it does not "actively market" to mass market customers. This argument is without merit for the reasons addressed above. Indeed, the fact that KMC provisions service to such customers confirms that it is not impaired since it has demonstrated that it can provision such service to mass market customers.

- **MCI/WorldCom**

Verizon's Line Count Study and WorldCom's responses to Staff's switching data requests confirm that it is providing local exchange service to mass market customers in the Tampa MSA. Mr. Bryant asserts that WorldCom is "not using UNE-L" (Bryant Rebuttal, Attachment MTB 9), and seeks to rely on the

rebuttal testimony of MCI Witness Sherry Lichtenberg to support his argument. In supplemental testimony filed on January 22, 2004, Ms. Lichtenberg attempts offer additional arguments to expand on her earlier testimony and bolster MCI's claim that it should not count toward. In doing so, Ms. Lichtenberg acknowledges that MCI does provision some UNE-L lines in Florida, and that while most of those lines serve small, medium, and large-sized business customers. The fact that MCI has provisioned individual DS0 lines to customers using its own switching and ILEC-provided loops and that "MCI uses UNE-L to meet customer specific needs that MCI can only fulfill through its UNE-L product" (Lichtenberg Supplemental at 2-3) demonstrates that it does not face impairment for serving mass market customers using UNE-L. Therefore, there is no basis for excluding WorldCom from the switching self provisioning CLEC count.

- **Xspedius**

Mr. Gillan claims that Xspedius should be excluded from the self provisioning switching count because "Xspedius does not serve the small business and residential market utilizing its switches." (Gillan Rebuttal at 49). Mr. Gillan contends that Xspedius "principal" business is aimed at medium and large business enterprise customers. (Gillan Rebuttal at 50). As discussed above, these facts should not exclude a CLEC from the self provisioning switch counts where, as in this case, the CLEC is presently serving mass market customers (business or residence customers) using its own switch. Verizon's Line Count Study shows that Xspedius is providing such service in various wire centers within the Tampa MSA and has thus demonstrated that it is not impaired in its

ability to provide such service to mass market customers using its own switches.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes.

MR. CHAPKIS: The next Verizon witness is William Taylor. He filed direct and rebuttal only. He did not file surrebuttal. His testimony has exhibits and no errata. We would ask that his testimony be entered into the record as though read, and that his exhibits be entered as Composite Exhibit Number 77.

CHAIRMAN BAEZ: Show the direct and rebuttal testimony of Witness Taylor entered into the record as though read without objection, and show his accompanying exhibits marked as Composite 77.

(Exhibit 77 marked for identification.)

I. INTRODUCTION

A. Background and Qualifications

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

A. My name is William E. Taylor. I am Senior Vice President of National Economic Research Associates, Inc. ("NERA"), head of its telecommunications economics practice, and head of its Cambridge office. My business address is One Main Street, Cambridge, Massachusetts 02142.

Q. Please summarize your qualifications.

A. I have been an economist for over twenty-five years. I received a B.A. degree in economics (Magna Cum Laude) from Harvard College in 1968, a master's degree in statistics from the University of California at Berkeley in 1970, and a Ph.D. in Economics from Berkeley in 1974, specializing in industrial organization and econometrics. I have taught and published research in the areas of microeconomics, theoretical and applied econometrics, and telecommunications policy at academic institutions (including the economics departments of Cornell University, the Catholic University of Louvain in Belgium, and the Massachusetts Institute of Technology) and at research organizations in the telecommunications industry (including Bell Laboratories and Bell Communications Research, Inc.). I have testified on telecommunications economics before numerous state regulatory authorities, the Federal Communications Commission, the Canadian Radio-Television and

Telecommunications Commission, the New Zealand Commerce Commission, federal and state congressional committees and courts. I have testified frequently before this Commission, recently in Docket Nos. 030869-TL, 020507-TP, 020119-TP and 020578-TP regarding rate rebalancing, bundling and promotional offerings.

A copy of my vita listing publications and testimonies is shown as WET-Exhibit 1.

B. Purpose of the Testimony

Q. What is the purpose of your testimony?

A. I have been asked by Verizon Florida ("Verizon") to provide estimates of the likely number of additional hot-cut requests (over current levels) that Verizon will experience if: (a) the Commission finds that CLECs would not be impaired without access to "mass market" unbundled local switching, and (b) as a result, UNE-P is eliminated as an option for competitors providing local exchange service to end-user customers in this State. In other Verizon testimony, these estimates of incremental hot cut volumes are used as the input to a model assessing the "scalability" of the hot cut process.

The estimates are highly conservative in that if they err, they err on the side of overestimating the hot-cut demand that Verizon would face in a post-UNE-P environment. This is true for several reasons that will be discussed in greater detail below, but two reasons in particular should be noted here.

First, for purposes of our analysis, we have assumed that UNE-P will be eliminated throughout the Verizon Florida territory even though under the Triennial Review Order impairment standards, determinations for mass-market local switching will be made on

a "market area" basis. This Commission may ultimately conclude that CLECs would be impaired in some market areas within Verizon Florida's territory but not in others. In such cases, the number of incremental hot cuts would be less than that estimated in this testimony.

Second, some CLECs may, upon the elimination of UNE-P, migrate to non-UNE-L alternatives such as resale or (particularly in the case of cable companies) may choose to provide their own switching and loop facilities. Hot cuts would not be required for migrations from Verizon to any of these alternatives.

C. Summary of Main Conclusions

Q. Please summarize your conclusions.

A. In the current environment, certain changes that customers and carriers make regarding local service provisioning result in hot cut (or reverse hot cut) requests to Verizon. Under the terms of the *Triennial Review Order*, that environment may change. If the Commission determines that CLECs would not be impaired in some markets if Verizon stops offering local switching as a UNE, then two things will happen:

- Some customer or carrier-initiated changes that did not require a hot cut in the past may require a hot cut in the post-UNE-P environment, and
- Some portion of the current embedded base of UNE-P customers may be migrated over time to UNE-L service and that migration will also require additional hot cuts.

For both of these reasons, the volume of hot cut requests to Verizon can be expected to increase in a post-UNE-P world.

Q. Please describe the changes in demand for hot cuts that would be expected in a post-UNE-P world as a result of customer-initiated carrier changes.

A. In the post-UNE-P world, many CLECs may substitute UNE-L for UNE-P arrangements for serving their customers, and subsequent migrations of customers between such UNE-L CLECs (or from Verizon to a UNE-L CLEC) would require hot cuts. However, as noted above, some CLECs may choose to resell Verizon's retail service or use their own loop and switch facilities, and migrations between such CLECs and Verizon's retail service would not require hot cuts. Thus, a "conservative" (in the sense of biased toward overstatement) estimate of the incremental hot cut requests that Verizon will face in a post-UNE-P world is given by a forecast of the flow of requests processed by Verizon for migrations between UNE-P CLECs or migrations from Verizon's retail service to a UNE-P CLEC. Similarly, the flow of winbacks — the migration of customers from CLECs' UNE-P service to Verizon — provides an estimate of the incremental demand for reverse hot cuts.

Q. Why does the approach described above result in a conservative estimate of incremental hot cut (and reverse hot cut) activity resulting from the elimination of UNE-P?

A. Aside from the reasons already discussed, there are several additional reasons why these measures based on current migration activity result in conservative estimates for incremental hot cut and reverse hot cut activity in a post-UNE-P world.

First, increased intermodal competition for traditional wireline telephone service means that an increased number of customers who are dissatisfied with their wireline provider, or who simply prefer the functionalities that alternative technologies might offer, will

migrate to non-wireline substitutes, primarily wireless, cable, and Internet telephony. All else equal, the growth of these substitutes will reduce the proportion of hot cut and reverse hot cut requests associated with a given level of wireline customer churn. In this case many customers might leave Verizon in the future, but fewer of them will migrate to a wireline competitor. Hence, the number of hot cuts associated with those migrations will fall.

Second, the increased offering of bundled communications services by all providers (ILECs, CLECs, wireless and cable) has the effect of reducing customer churn, all else equal. Intuitively, bundling reduces churn because a customer that buys a package of services must then compare competitors' offerings of multiple services before deciding to switch suppliers. In addition, by offering a selection of bundled services, a firm can more closely match the idiosyncratic preferences of individual customers than if it offered all services à la carte at constant prices. All of the major communications suppliers (ILECs, CLECs, wireless and cable companies) are increasingly emphasizing their packaged offerings, often explicitly for the purpose of reducing customer churn. See Exhibit I for examples of bundled offerings.

Industry analysts estimate that the reduction in churn from bundling services is significant. For example, while monthly churn rates for standalone local and long distance service are estimated to be 3.7 and 4.4 percent/month, respectively, when the services are bundled together the rate is 3.1 percent, a reduction of almost a quarter

from the average standalone rate[1]. Higher churn reductions are observed when more services are added to the bundle.

Q. What other factors could contribute to an increase in demand for hot cuts that would be expected in a post-UNE-P world?

A. The second component of the incremental demand for hot cuts would be the transition of the embedded base of CLEC UNE-P subscribers to UNE-L pursuant to the *Triennial Review Order*. We refer to this component of the incremental hot cut demand as "carrier-initiated" service changes, since it would be independent of consumer choice. (The consumer would purchase services from the same carrier as before and would essentially be unaware of the process or the change.) Subject to the requirements of the *Triennial Review Order* (see FCC Rule 319(d)(2)(iv)), it would be the carrier's decision — not the end-user customer's — when and how to migrate their customer onto the CLEC switch.

Q. Will the embedded-base conversion requirement give rise to a continuing increment of the hot cut demand that Verizon would be required to handle?

A. No. The *Triennial Review Order* requires that the conversion be completed within 27 months from a state commission's finding of non-impairment. Thus, the embedded base conversion would increase Verizon's hot cut demand for only a limited period. The long term increase in hot cut demand would be due solely to customer-initiated changes in local service providers, as discussed above.

[1] Jeff Halpern and Gil Luria , "RBOCs: Consumer Bundling Shifts from a Liability to an Asset," Bernstein (continued...)

Q. How did you estimate the total number of UNE-P lines that will constitute the "embedded base" that will need to be migrated to UNE-L facilities pursuant to the *Triennial Review Order*?

A. The methodology, described in greater detail below in Section III, provides a conservative measure (in the sense explained above) of the incremental hot cut demand resulting from the embedded base conversion.

This is true because not all carriers will choose to provision all of their former UNE-P customers with UNE-L; some carriers may drop customers, migrate customers to resale, or — as suggested by a recent statement of AT&T[2] — may seek to negotiate a commercial arrangement for the purchase of a UNE-P-like service from Verizon at a market price, if and when Verizon chooses to offer such a service. Each of these alternatives will reduce the potential number of hot cuts below the current and projected future volume of UNE-P lines.

Q. Would the size of the embedded base be materially affected by the fact that CLECs would be permitted to continue ordering UNE-P for as long as five months after a finding of non-impairment by this Commission, pursuant to FCC Rule 319(d)(2)(iv)?

A. No. There is no evidence to suggest that CLEC UNE-P line growth over that period would be materially impacted by this fact. Although the 5-month period could lead

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Research Weekly Notes (August 9, 2002) (hereafter cited as "Halpern & Luria").

[2] *See* "AT&T CEO Urges End of Civil War With Bells" (Reuters September 15, 2003) ("Chief Executive Dave Dorman argued that the four dominant local telephone carriers should stop fighting regulations that require them (continued...)

CLECs to offer discounts or special promotions to induce customers to switch to a UNE-P-based service with the expectation of migrating them to UNE-L as part of the conversion of the embedded base, there is no clear evidence that this two-step migration would be less expensive for the CLEC or less potentially disruptive for the customer. This suggests that CLECs would likely choose to place customers directly on UNE-L facilities once their own local switching arrangements are established. Indeed, the FCC suggested this, albeit in a slightly different context, in the *Triennial Review Order*:

> "Once competitive carriers have incurred the fixed costs associated with deploying their own switching facilities to support one-third of their customers, we find it likely that such carriers will have an incentive to fill the capacity of their switch such that they will not necessarily need the full three years to complete the migration — assuming, of course, that the incumbents can successfully manage the cutover process." (*Triennial Review Order* ¶ 532 n.1630)

Q. How can the monthly hot cut demand due to conversion of the embedded base be determined based on the total size of that embedded base?

A. Under the rules promulgated pursuant to the *Triennial Review Order* (see FCC Rule 319(d)(2)(iv)), CLECs must place orders to migrate 1/3 of the customers in the embedded base from UNE-P by 13 months from the date the Commission finds no impairment, half of the remainder (i.e., a second 1/3 of the customers comprising the embedded base) 20 months from that date, and all of the final remainder (i.e., the last 1/3 of the customers) by 27 months from that date. The scheduling of the conversion is

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(...continued)

to share their networks at government-mandated wholesale prices, and instead should work out commercial contracts to provide access to promote competition.").

to be determined by negotiation between Verizon and the CLEC, and the negotiated conversion plan is to be submitted to the Commission.

There is a great deal of "play in the joints" of this schedule. For example, a schedule could call for the conversion of all customers by the end of month 13 (or earlier) and still be consistent with the FCC's requirements. Moreover, since the 1/3—1/3—1/3 schedule applies to customers, not lines, even a uniform, pro-rata conversion schedule by customers could result in a schedule that is front- or back-loaded by lines.

For purposes of this analysis, we assume a uniform, pro-rata conversion (on an access line basis) of each 1/3 of the embedded customer base within the time made available for that conversion by the FCC's rules. We also conservatively assume that the conversion of the first 1/3 of the base will begin not at the time of the non-impairment finding, but at the time of submission of the negotiated conversion plan to this Commission — i.e., two months from the Commission's non-impairment determination (see FCC Rules 319(d)(2)(iv) & 319(d)(2)(iv)(B)). This means that the period available for the conversion of the first 1/3 will be 11 months instead of 13.

This assumption of a pro rata conversion is based on two considerations. First, CLECs have mixed incentives regarding front-loading or back-loading the conversions. As the FCC observed, the fact that the CLEC has already incurred the fixed cost of purchasing and installing its switch suggests an incentive to fill it to capacity as quickly as possible. On the other hand, the CLEC would benefit from postponing the incurrence of the non-recurring costs of collocation and hot cuts as long as possible. The assumption of uniform conversion is thus a reasonable middle ground. Second, and more important,

the detailed schedule is subject to negotiation and, implicitly, to some form of dispute resolution. This means that the CLECs' desires concerning front-loading or back-loading will not be dispositive, and that appropriate weight will be given to the operational advantages of a pro rata conversion, which would result in reducing Verizon's need to temporarily increase its work force to handle "peak loading."

II. FACTORS AFFECTING HOT CUT DEMAND IN A POST UNE-P REGULATORY ENVIRONMENT

A. Incremental Demand Resulting from Customer-Initiated Changes in Service Providers

Q. How would the volume of hot cuts that Verizon would be required to handle be affected if UNE-P were no longer available to CLECs?

A. Today, when a CLEC orders UNE-P service to migrate a Verizon retail customer to its own retail service, Verizon does not perform a hot cut. Nor is a hot cut required if a customer switches between UNE-P CLECs or from a UNE-P CLEC to Verizon. (A hot cut would be required, however, for a migration between a UNE-P CLEC and a UNE-L CLEC.) Nor is a hot cut required when a customer switches between Verizon and a CLEC providing resold Verizon service or between two CLECs providing resold Verizon service. Similarly, a hot cut is not required when a customer migrates between a resale-based and a UNE-P-based CLEC or when a CLEC changes its wholesale service to UNE-P from resale (or vice-versa). In all of those cases (i.e., all of the cases where a hot cut is not required), Verizon remains the switch provider.

Essentially, a hot cut (or reverse hot cut) needs be performed only if a customer's choice of service provider entails a change in the switch providing dial tone to the retail

customer. (To be precise, a switch change is a necessary but not sufficient condition for requiring a hot cut). A necessary and sufficient condition is that the transaction requires a change in the switch that provides dial tone but no change in the loop. A change in both the loop and switch that serves the customer — such as would be expected for migration to or from a facilities-based or intermodal service provider — requires (from the perspective of frame work and coordination) the same task as a new connection or disconnection — not a hot cut. Coordination is unnecessary because the loop and switch that will serve the customer can be provisioned while the old arrangement is still in place.)

If UNE-P were eliminated, however, CLECs would have to migrate to other forms of provisioning local service to their customers, and to the extent that they migrate to UNE-L (rather than switching to resale or fully-facilities-based provisioning), additional hot cuts would be required that were not required in a UNE-P world. Hot cuts would be required for retail-to-UNE-L migrations and for UNE-L-to-UNE-L migrations, and reverse hot cuts would be required for UNE-L to Verizon-retail migrations, since in each of these cases, the end user would be changing switch providers but not the loop provider (which would remain Verizon).

Q. Please describe the flow of hot cut requests that Verizon receives under the current rules, i.e., where UNE-P is an available competitive provisioning alternative.

A. Currently, the flow of hot cuts is equal to the flow of migrations involving UNE-L CLECs, excluding those winbacks that for operational reasons discussed above may have to be provisioned through disconnect/reconnect activity rather than hot cuts.

Volumes of hot cuts, therefore, depend to a large extent on customer "churn" — the fraction of customer lines that change local service suppliers in a given month. The number of hot cuts is not equal to customer churn, however, for three key reasons:

- Some Verizon retail customers move out of Verizon serving territory, or discontinue service for other reasons (death, non-payment, etc.).
- Some Verizon retail customers switch to providers of wireless service or cable telephony or voice-over-Internet services, or to other facilities-based CLECs.
- Some Verizon retail customers switch to CLEC UNE-P or CLEC resale services.

Each of these three types of migrations is counted as churn from Verizon retail service's perspective, but none of them results in hot cuts.

Currently, the volume of hot cuts is approximately equal to the number of lines migrating from Verizon's retail service to the retail service offered by a CLEC using UNE-L, plus the portion of the lines that Verizon wins back from a CLEC using UNE-L for which a reverse hot cut is required.

Q. Are there any other circumstances in which Verizon performs a hot cut under the current rules?

A. Yes. These relate to migration of customers from one CLEC to another and to changes in the way that a CLEC decides to provide service to its customers. However, in both cases, the volume of hot cut requests generated is likely to be small.

First, when a CLEC customer served by UNE-L migrates to another CLEC using UNE-L, Verizon must rearrange the access line from the collocation space of one CLEC to that of another.

Second, when a CLEC resale customer migrates to a CLEC (different or the same) using UNE-L, Verizon must perform a hot cut because the identity of the switch provider changes from Verizon to the CLEC.

Third, when a customer of a UNE-P CLEC migrates to a UNE-L CLEC (different or the same), Verizon must perform a hot cut.

Table 1 shows all customer migrations that generate hot cuts under the current rules (i.e., where UNE-P is available).

Table 1

Customer Migrations Generating Hot Cuts under Current Rules

FROM\TO	Verizon Retail	CLEC FB	CLEC UNE-L	CLEC UNE-P	CLEC Resale
Verizon Retail			X		
CLEC FB					
CLEC UNE-L	R		X	R	R
CLEC UNE-P			X		
CLEC Resale			X		

Q. Please explain Table 1.

A. The table shows the Verizon work requirements for conversions from the provisioning alternatives shown in the row headings to the provisioning alternatives shown in the column headings. (Thus, the first cell in the row headed "CLEC UNE-L" relates to migrations from UNE-L CLECs (the row) to Verizon retail (the column).) "FB" refers to facilities-based provisioning, which, for purposes of this table, means a CLEC that utilizes its own loop and switch. An "X" indicates an ordinary hot cut and an "R" indicates a reverse hot cut.

The first thing that should be noted is that the table (considered as a matrix) is symmetric about its main diagonal (from upper-left to lower-right), except that the Rs and Xs reverse. Symmetry reflects the fact that some form of hot cut is required whenever the ownership of the switch supplying dial tone to the customer changes. The exchange of Rs and Xs across the main diagonal simply follows the change in switch ownership: changes to a Verizon switch represent reverse hot cuts while changes to a CLEC switch represent ordinary hot cuts.

Second, migrations from (or to) CLEC A's UNE-L service to (or from) CLEC B's UNE-P-based or resale-based service may be generated by a customer's decision to change carriers (so that CLEC B serves the customer and purchases UNE-P or resale) or by CLEC A's decision to change the method by which it serves its customer. In both cases, the hot cut in question is a reverse hot cut, in the sense that a loop that terminates (ultimately) on CLEC A's switch is effectively shifted to terminate on Verizon's switch.

Finally, migrations from CLEC UNE-L to CLEC UNE-L presumably involve a customer's decision to change suppliers. Such a change entails a change in the switch supplying dial tone to the customer and thus requires a hot cut if the same loop is used.

Q. Please describe the factors that will impact the volume of hot cuts that Verizon will likely perform if Verizon is no longer required to provide local switching on an unbundled basis.

A. If switching is eliminated as a UNE, CLECs would no longer be able to provision service using UNE-P, except to the extent that, as mentioned above, Verizon chooses to make a UNE-P-like service available at market-based rates and on a commercial basis.

Some CLECs would then likely provision service to some customers using UNE-L, so that Verizon would need to perform additional hot cuts, over and above the flow of hot cuts performed today under current rules. Table 2 illustrates the demand for hot cuts and reverse hot cuts assuming that all current UNE-P requests are treated instead as UNE-L requests. The organization of this Table and the abbreviations used are the same as for Table 1.

Table 2

Customer Migrations Generating Hot Cuts in the Post-UNE-P Environment

FROM\TO	Verizon Retail	CLEC FB	CLEC UNE-L	CLEC UNE-P	CLEC Resale
Verizon Retail			X	X	
CLEC FB					
CLEC UNE-L	R		X	X	R
CLEC UNE-P	R		X	X	R
CLEC Resale			X	X	

Q. Please explain Table 2.

A. In this table, CLEC UNE-P denotes customers previously served by UNE-P that would be served by UNE-L in the new environment. Hence, the rows (and columns) associated with CLEC UNE-L and CLEC UNE-P are identical. The matrix exhibits the same symmetry as in the previous table for the same reasons.

Q. Based on these matrices, how can we calculate the additional demand for hot cuts that would be brought about by a decision to eliminate UNE-P as a competitive provisioning alternative?

A. The incremental demand for hot cuts would be the difference between the hot cuts performed under current rules (Table 1) and the hot cuts that would be performed if

switching were eliminated (Table 2). Thus, additional hot cut demand could be calculated simply by subtracting each entry in Table 1 from the corresponding entry in Table 2. This is done in Table 3, below.

Table 3

Customer Migrations Generating Incremental Hot Cuts in the Post-UNE-P Environment

FROM\TO	Verizon Retail	CLEC FB	CLEC UNE-L	CLEC UNE-P	CLEC Resale
Verizon Retail				X(1)	
CLEC FB					
CLEC UNE-L				X(2)	
CLEC UNE-P	R(1)		X(2)	X(3)	R(4)
CLEC Resale				X(4)	

Q. Please explain Table 3.

A. This incremental hot cut matrix exhibits the same symmetry as the previous matrices: the difference between two symmetric matrices obviously must also be symmetric. Because the only difference we consider is the availability of UNE-P, the only entries in this matrix are in the UNE-P rows or columns. Thus, other types of frame work (e.g., connects and disconnects) do not appear in Table 3, despite the fact that these types comprise the bulk of current frame work. While disconnects and connects are important, (i) they are not hot cuts and do not require the coordination of a hot cut and (ii) their volume is unchanged by the potential reclassification of UNE-P as UNE-L. They thus do not figure in our analysis of Verizon's incremental work requirements.

Q. What is meant by Categories (1) – (4) in Table 3?

A. These four categories of migrations identify all of the circumstances in which migrations can lead to incremental hot cuts.

Category 1: CLEC UNE-P from/to Verizon Retail: These migrations do not require a hot cut (ordinary or reverse) under the current regime because they involve no change in the ownership of the switch providing dial tone. In the post-UNE-P world, the migration may require a change in switch provider.

Category 2: CLEC UNE-P from/to CLEC UNE-L: Under the current regime, this migration requires either a hot cut or a reverse hot cut. In the current data, there are few transactions in these cells. However, in the future, the migration of the embedded base will obviously generate a large number of transactions in the CLEC UNE-P to CLEC UNE-L cell during the limited transitional period.

Category 3: CLEC UNE-P from/to CLEC UNE-P: Currently, customer migrations between CLECs using UNE-P do not require any form of hot cut. Post-UNE-P, they require a hot cut.

Category 4: CLEC resale from/to CLEC UNE-P: Under the current regime, these migrations do not require any form of hot cut because the Verizon switch is used in both cases. Post-UNE-P, a hot cut or reverse hot cut will be required, since the UNE-L customer will be served from the CLEC switch and the resale customer will be served from Verizon's switch.

Q. Quantitatively, how do the number of transactions in the numbered cells above compare?

A. The bulk of hot cut demand stemming from customer migration should occur in Category (1), for two reasons: the ILECs' market share in Florida — which is currently a majority of the market — implies that a large fraction of migrations should occur to and from the ILECs' retail service.[3] Also, the bulk of CLEC provisioning in Florida uses UNE-P and UNE-L, so that a large fraction of migrations should occur to and from a CLEC UNE-based service.[4]

Thus, the current distribution of local competition arrangements is disproportionately weighted towards Category (1) — migrations between Verizon's retail service and CLEC UNE-P and UNE-L services. If this distribution remains stable over time, we would expect future migrations to mirror the current distribution, and a large fraction of migrations will fall into Category (1).

This effect can be illustrated using publicly available, statewide data (i.e., the FCC data for Florida) to obtain an estimate of the number of incremental hot cuts that a given migration of customers would produce, on average, in Florida. We start with a base case in which the markets are stable and migration is uniform across customers, and we assume that the migrations are randomly distributed, in the sense that they do not depend on the type of service (UNE-L, UNE-P, resale, etc.) provided by their old or new service providers. In this case, if 1,000 Florida customer lines were to change

[3] According to FCC data, as of December 2002 CLECs served approximately 13 percent of end user switched access lines in Florida. See Local Telephone Competition Status as of December 31, 2002, released June 2003, Table 7. These data are for all of Florida, the market share for Verizon Florida may differ from the average state-wide market share in the FCC report.

[4] *Id* at Table 10.

suppliers in a given time period, on average 874 of the migrations would be by ILEC customers and 126 would be by the customers of some CLEC.[5]

Of the 874 lines lost by the incumbent, 496 (0.568 x 874) would migrate to CLEC UNE-L and UNE-P. These 496 migrations would thus fall into Category (1) above. The remaining 378 lines would have no effect on incremental hot cuts because they would migrate to facilities-based CLECs (193 = 0.221 x 874) and resale-based CLECs (185 = 0.212 x 874).

Of the 126 migrations associated with CLEC customers, 126 would migrate to another CLEC or to the ILEC. Of the 126 CLEC migrators, approximately 72 (126 × 0.568) are initially served on UNEs, 28 (126 × 0.221) on a CLEC facilities basis and 27 (126 × 0.212) on resale. Based on current market shares, 87 percent of each of these migrations would go to the ILEC. The remaining 13 percent would be distributed across the three "flavors" of CLEC service (UNE, facilities-based, and resale) in the current statewide proportions of 57, 22 and 21 percent respectively. The resulting classification of migrations is shown in Table 4.

Table 4

Number of Migrations by Type

FROM\TO	Incumbent Retail	CLEC FB	CLEC UNE-P/ UNE-L	CLEC Resale	Total
Incumbent Retail		**192.8**	**496.4**	**185.2**	**874.4**
CLEC FB	**24.2**	**0.8**	**2.0**	**0.7**	**27.7**
CLEC UNE-P/L	**62.4**	**2.0**	**5.1**	**1.9**	**71.3**
CLEC Resale	**23.3**	**0.7**	**1.9**	**0.7**	**26.6**

[5] Using the December, 2002 CLEC statewide share of access lines in Florida according to the most recent FCC (continued...)

Table 4 shows the expected migrations, by cells, stemming from a uniform migration of 1,000 customer lines. Recall that Table 3 identifies the cells in which hot cuts (and reverse hot cuts) qualify as incremental hot cuts and places them in four categories. Adding together the migrations in Table 4 for the cells that comprise Category (1) in Table 3, for example, would give 496.4 + 62.4 = 558.8 migrations that would (ordinarily) produce hot cut requests. Noting that only about half the migrations that correspond to reverse hot cuts actually require hot cuts, we would add 496.4 to half of 62.4 (31.2) to get 527.6 expected incremental hot cuts in Category (1). A similar calculation applies to Category (4). For the combined Categories (2) and (3), we observe in Table 4 only 5.1 migrations, which are the sum of two hot cut categories and two potential reverse hot cut categories. Assuming the flows between UNE-P and UNE-L to be symmetric, the 5.1 migrations would give rise to 5.1 × .75, or 3.8 hot cuts and reverse hot cuts.

Putting these calculations together in Table 5, we observe that in the current market in Florida (and assuming a stable market and uniform customer migration), a customer migration has only about a 53 percent chance of leading to a direct or reverse hot cut. Moreover, only a portion of those migration-related hot cuts would be incremental to current hot cut volumes. This portion can be determined by multiplying the total

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migration-related hot cuts by the percentage of the unbundled loops in Florida that are part of a UNE-P arrangement (i.e., that are not being provided as UNE-L).[6]

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[END VERIZON PROPRIETARY]

Q. How should Table IV-5 be interpreted?

A. Several aspects of Table IV-5 are important. First, only 567.6 of our 1000 migrations fall into categories that correspond to incremental hot cuts. For completeness, note that the remaining migrations consist of 223.2 lines to and from CLEC facilities-based suppliers and 209 lines between incumbent retail and CLEC resale. None of these approximately 432.4 migrations generates hot cuts today or incremental hot cuts in a post-UNE-P environment.

[6] FCC data from the Local Competition Report do not separate UNE-P and UNE-L lines. Thus, we use the actual proportion of UNE-P and UNE-L lines from Verizon Florida data for December 2002.

Second, nearly all hot cuts produced by customer migration are in Category (1). At current levels of CLEC market penetration, migrations between CLECs (Categories (2) – (4)) are quantitatively unimportant. Note however, that our method of measuring incremental hot cut demand — adding the current flow of UNE-P requests to the current flow of winbacks that give rise to reverse hot cuts — includes all four categories.

Q. This base case assumes that market shares remain constant, so that lines migrate to incumbents and CLECs in the same proportion as their current market shares. How would the results in Table 5 change if CLEC market shares increased, so that lines migrate more-than-proportionately to CLEC suppliers?

A. The results are not sensitive to that assumption. If, for example, customers were twice as likely to migrate to a CLEC as indicated by the current CLEC market share, the percentage of migrations resulting in a hot cut would increase from 53.5 to 53.8 percent. At the extremes, if no customers migrated to the incumbent, the hot cut percentage would rise to 55.5 percent. If no customers migrated to CLECs, the hot cut percentage would fall to 53.2 percent.

Q. This base case assumes that customer migration is uniformly distributed among incumbent and CLEC customers. How would the results in Table 5 change if CLEC customers were more inclined to migrate than the incumbent's customers?

A. This assumption is also not critical. If CLEC customers were twice as likely to migrate as incumbent customers, the hot cut percentage would fall from 53.5 to 50.2 percent. If no incumbent customers ever chose to migrate, only 30.6 percent of migrations would

entail a hot cut. At the other extreme, if CLEC customers never migrated, the hot cut percentage would rise to only 56.8 percent.

Q. How would you interpret these results?

A. This exercise answers two questions. First, some CLECs have argued that without UNE-P, the incidence of hot cuts should be similar to the history of inter- and/or intraLATA PIC changes in the toll market. In both cases, the argument goes, a consumer's choice to change suppliers results in a change in the network configuration: for toll, a software change to redirect 1+ calls and for local exchange service; for local, a hot cut to shift the loop from one carrier's switch to another's. The numbers in Table 5 show that this argument is wrong, because when a local exchange customer changes carriers, a hot cut is not necessarily required. In fact, a local exchange customer migration involves a hot cut only about 53 percent of the time.

Second, for forecasting the demand for incremental hot cut requests, these results show that the number of incremental hot cuts in a post-UNE-P environment can be conservatively approximated by the number of UNE-P migrations and winbacks in a steady-state, mature market. The likely incremental hot cut requests from categories (2)-(4) are insignificant. We note, however, that our data for UNE-P migration captures elements of (2) – (4) in the sense that the data include all migrations to UNE-P, i.e., from Verizon and from UNE-L, UNE-P and resale.

Third, the results show that the volume of *incremental* hot cuts associated with 1000 migrations is expected to be quite small **[BEGIN VERIZON PROPRIETARY]**

[END VERIZON PROPRIETARY]. This result is due to the comparatively large proportion of Verizon Florida UNE-L CLEC lines as of September 2003.

Q. You have discussed ways of assessing the incremental hot cut demand that would result from the elimination of UNE-P and its replacement by UNE-L. Would Verizon have to provision this level of demand on the first day of the post-UNE-P environment (i.e., immediately after a Commission determination of non-impairment)?

A. No. A portion of the incremental hot cuts stemming from customer migration will increase over the period during which the embedded base of UNE-P lines is converted to UNE-L. For winback customers (i.e., customers migrating from CLEC to Verizon retail service), a hot cut occurs only when the customer migrates from UNE-L service. As the embedded base is converted from UNE-P to UNE-L, a larger proportion of CLEC-to-Verizon migrations will require a hot cut, and it is only after the embedded base is fully converted that winback migrations will generate the full amount of incremental hot cuts that we have calculated. In addition, even after the embedded base is fully converted, winbacks can be expected to increase if the volume of UNE-L lines continues to increase. In the next section, we calculate the rates at which the embedded base of CLEC UNE-P lines will be converted to UNE-L, and that information, coupled with the growth in the volume of incremental UNE-L lines, will be used to estimate the time path of winback migrations and the associated volume of incremental hot cuts.

Q. For the five months following a non-impairment determination, in which CLECs may continue to purchase UNE-Ps, what would be your estimate of incremental hot cuts stemming from customer migration?

A. Zero. Assuming CLECs continue to purchase UNE-Ps and UNE-Ls at their historical rates, no incremental hot cuts will be required from customer migration (hot cuts will be required from conversion of the embedded base beginning in month3). That is, we assume that during the first five months, CLECs acquiring new customers will continue to purchase UNE-Ps at their historical level, and we do not start the process of substituting UNE-Ls for UNE-Ps for these lines until after the five-month grace period has expired.

B. Conversion of the Embedded Base of UNE-P Customers

Q. You have previously discussed the regulatory requirements and practical considerations that will affect the facilities migrations resulting from the conversion of the embedded base of UNE-P lines. Based on that discussion, what is a reasonable assumption to make regarding the timing of the conversion of the embedded base to alternative service arrangements and, more importantly, to the flow of hot cuts that Verizon will be required to undertake as a result of that conversion?

A. As discussed above, it is reasonable to assume that the conversion of the embedded base will be uniformly distributed within each of the three periods specified in the *Triennial Review Order*. Thus, if we use x to represent the embedded base of customers, then a formula for the number of monthly conversions for the first 11 months following the submission of a conversion plan would be (x/3)/11, or x/33; the formula for the number of monthly conversions for the second (7-month) portion of the conversion period is (x/3)/7, or x/21, and the same x/21 will be converted per month during the last 7-month period.

C. Post-UNE-P Incremental Hot Cuts

Q. Based on these analyses, what would be a conservative estimate of the flow of incremental hot cuts required in a post-UNE-P environment?

A. A conservative estimate of the monthly flow of incremental hot cuts required in a post-UNE-P environment during the conversion period would be (1) a forecast of the flow of UNE-P migrations, (2) winbacks from UNE-P transactions and (3) those required for a uniform conversion of the embedded base within each of the three periods specified by the FCC.[7] As described above, the winback transactions requiring a hot cut would ramp up over the embedded base conversion period, reaching its full level of estimated incremental hot cuts at the end of the period. After the 27-month embedded base conversion period, the third component of incremental hot cut demand would be eliminated. For the reasons discussed below, I believe that the actual volume of hot cuts likely to be performed by Verizon will be much lower than the numbers presented in this testimony.

Q. Please explain why the estimate presented here for incremental hot cuts required in a post-UNE-P environment — UNE-P migrations, winback transactions, and a uniform conversion of the embedded base — is a conservative estimate of future hot cuts in the post-UNE-P environment.

[7] Technically, there is one component of incremental hot cuts excluded from UNE-P migrations and winbacks from UNE-P. A customer migration from UNE-P to resale in the future will require a hot cut, and these transactions are not included in current volumes of UNE-P migrations (which measure migrations to UNE-P from all sources) or winbacks from UNE-P (which measure migrations from UNE-P to Verizon). However, for reasons discussed in Table 4 and 5 above, these migrations are likely to be insignificant.

A. First, the proliferation of bundling as a strategy used by wireline, wireless and cable providers means that churn rates are likely to be lower because consumers are less likely to switch from a bundle of services to another supplier's bundle of services than from a single service to a competitor's single service offering.

Second, the analysis does not take into account the likely proliferation of customer migrations to alternative networks such as wireless, cable, telephony and Internet telephony. Therefore, even if churn were to remain constant during the relevant time period, there would still be a decrease in the demand for hot cuts because proportionately more customers would be migrating to alternative suppliers rather than to suppliers who use UNE-L.

Third, our analysis conservatively assumes all CLECs that were previously using UNE-P will now use UNE-L, even though there are other options available to the CLEC such as facilities provision or resale.

Finally, FCC rules require that impairment determinations for mass market switching be made on a market-area-by-market-area basis. To the extent that Verizon requests or receives relief in less than its entire Florida service area, those methods will underestimate the required volume of incremental hot cuts.

Q. Please explain your earlier statement that bundling will lead to reduced churn.

A. Recently, companies have begun aggressively to market bundled packages of telecommunications services, and according to company officials and telecom experts, this packaging strategy has the effect of reducing customer churn. The current data

regarding the incidence of UNE-P migration and winback does not fully take this phenomenon into account.

All else equal, bundled packaging of telecommunications services (or any services for that matter) tends to make consumers less likely to change providers compared to when customers purchase non-bundled services. Transactions costs of switching suppliers are lower with stand-alone service offerings since all that matters is quality and price for a single service. Customers purchasing a bundle of services would need to compare competitors' offering of multiple services before deciding to switch suppliers, and this would make the customer less likely to switch from the bundled service. Bundling can extend the effects of a customer's preference for one service of a particular supplier to other services of that supplier. For example, a customer of AT&T Complete Choice is less likely to switch from AT&T than a Verizon local exchange customer who uses AT&T long distance.

Q. Is there evidence to support the proposition that offering bundled services makes customers less likely to switch providers?

A. Yes, there is evidence in the trade press that one of the reasons why companies are moving to bundled offerings is to reduce customer churn. For example, according to Mark Johnson, director of marketing for Z-Tel Communications, a large CLEC:

> Everyone is trying to offer bundles of services...The more services a customer gets from a particular carrier, the harder it is for that customer to leave.[8]

[8] Michael Braga, "Bundles of problems besets long-distance," *St. Petersburg Times*, July 5, 2000.

According to an article in the New York Times, managers believe that customers who buy packages are more loyal.[9] For example, according to an AT&T spokesperson:

> It's human nature...People have less desire to move away from you if you have all their business.[10]

While estimates of the impact that bundling has and will have on customer churn vary, the general conclusion is that bundling will significantly reduce customer churn. According to AT&T:

> AT&T executives, meanwhile, say 'bundled services are 20 to 30 percent stickier than standalone long distance accounts.' In fact, customers who buy a bundled product are 'two to eight times more likely to buy additional products,' compared to customers who only buy long distance.[11]

AT&T states that in single-family AT&T homes with only video services, churn runs are more than 2% a month but when the home purchases 2 and 3 products the churn rates fall to 1.59% and 1.2%, a drop of 20 and 40 percent, respectively.[12]

Similarly, according to Sprint, its customer churn fell 20 percent for bundled customers and that during the first 60 days of a new account, the churn rate of bundled customers is half that of customers buying just one service.[13]

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[9] Nicholas Thompson, "Phone Companies See Their Future in Flat-Rate Plans of Many Services," *The New York Times*, May 23, 2003.

[10] *Id.*

[11] Gary Kim, "All You Can Eat: Competitive providers are seeing their fill of small business bundles," http://www.fatpipeonline.com/archives/july2003buffet.asp

[12] K.C. Neel, "The Book on Bundling," *CableWorld*, July 15, 2002.

[13] Jessica Hall, "Telecom companies find success in lighter 'bundles'", *Reuters News*, January 12, 2001.

These numbers are fairly consistent with churn forecasts published by Bernstein Research.[14] In a recent report, Bernstein Research published forecasts for 2003 of monthly churn rates for stand-alone local, long distance, mobile, broadband and video and for these services provided as a bundle. The average churn rate for the stand-alone services was approximately 3.0%. However, when these services are purchased as a bundle, Bernstein Research estimates the churn rate to be only 0.4%.

Q. Please explain why the existence of alternatives to the telephony wireline network (such as Internet telephony) would likely impact the demand for hot cuts?

A. The existence and growth of alternatives to the telephony wireline network reduces the demand for hot cuts because for any given number of customers migrating from Verizon, a greater proportion would migrate to suppliers that do not require the use of UNE-L and, therefore, do not require a hot cut. For example, assume that today for every 10 customers that migrate from Verizon, six (60%) go to a CLEC that uses UNE-L and thus require hot cuts, three (30%) go to a facilities-based or resale CLEC and only one (10%) goes to an alternative network. If the proportion of customers migrating from Verizon to an alternative network increases to 30%, then for the same 10 migrations, there would be as many as 2 (20 percent) fewer hot cuts.

The analysis presented above for incremental hot cut demand does not take into account the trend of local exchange customers migrating from wireline suppliers to alternative networks such as wireless, cable telephony, and Internet telephony. This reduces the

[14] See Halpern & Luria, *supra* note 1, at 8.

demand for hot cuts by reducing the proportion of customers that migrate from Verizon to CLECs, so that even if customer churn were to remain constant in the future, there would still be a decrease in the demand for hot cuts because proportionally more customers would be migrating to alternative suppliers rather than to suppliers who use UNE-L.

Q. Is the proportion of customer migrations from Verizon to alternative networks likely to increase in the future?

A. Yes. There is evidence that the pace of migration from traditional wireline telephony networks to alternative networks such as cable telephony, wireless, and Internet telephony will likely accelerate in the future. According to the FCC:

> Verizon, SBC, and BellSouth saw business and consumer access lines fall 3.6, 4.1, and 3.2 percent, respectively, in 2002, for a total decrease of 5.5 million lines, with wireless substitution being a significant factor.[15]

And not all the reductions in access lines were due to reductions in second lines. According to Forbes, in 2001 as many as three million customers decided to forgo a home phone, going wireless instead.[16] According to the FCC, the number of wireless subscribers in Florida increased 16 percent between December 2001 and December 2002 and has more than doubled since December 1999,[17] and, according to the Florida

[15] Federal Communications Commission, "8th Annual CMRS Competition Report" (rel. July 14, 2003) ("CMRS Report").

[16] Scott Woolley, "Bad Connection," *Forbes.com*, August 8, 2002.

[17] CMRS Report, Table 13.

Public Service Commission Staff, has increased by 15.8 percent between 2002 and March 2003.[18]

Cable telephony is proliferating as well. The same Forbes article states that:

> Still worse for the Bells than cord-cutting is losing customers to the cable companies. About 1.7 million Americans now get their phone service over cable lines...In the few markets where cable has been around for over two years, about 20% to 25% of homes tend to sign up, say AT&T.[19]

And a report less than one year later put the number of cable telephony customers at 3 million as of December 2002, almost double the 1.7 million figure in 2001.[20] Given that cable telephony service is generally in its infancy, these figures are likely to increase significantly in the future, thus impacting the proportion of migrations that requires a hot cut.

Q. Why is it conservative to assume that all CLECs currently utilizing UNE-P would switch to UNE-L if Verizon's obligation to provide "mass market" local switching on an unbundled basis were eliminated?

A. The estimate for incremental hot cuts discussed above assumed that all CLECs that were previously using UNE-P will now use UNE-L, even though there are other options available to the CLEC, such as providing its own switches and loops or reselling Verizon's retail services. If CLECs choose to use these other options, there would be no hot cut performed. While it is difficult to forecast exactly how the CLECs will

[18] Florida Public Utilities Commission, "The Status of Telecommunications Competition in Florida," October 31, 2003, at 7.

[19] *Id.*

provision service in the post-UNE-P environment, it is certainly a conservative assumption for purposes of estimating incremental hot cuts to assume that all UNE-Ps will be provisioned through UNE-L in the future.

Q. How do the FCC rules relating to state-commission impairment determinations for mass-market local switching affect the analysis of incremental hot cuts?

A. In the "nine month" proceedings authorized under the Triennial Review Order, non-impairment determinations relating to mass-market local switching are to be made on a market-area-by-market-area basis, with the precise market areas to be determined by the state commission, subject to the constraint that the market area may not be the entire state. Although precise market areas for purposes of the mass-market local switching analysis have not yet been adopted by the Commission, ILECs may pursue local switching relief only in certain geographic subsets of their territory, and, of course, the Commission may ultimately make non-impairment determinations in some market areas but not others. If local switching relief is sought or granted in a portion of the Verizon Florida serving area, my analysis of incremental hot cut activity would be conservative in that my analysis assumes that UNE-P would become unavailable in the entire Verizon footprint.

III. DATA ANALYSIS

Q. What data were used in your forecast of the volume of incremental hot cuts?

(...continued)

[20] Forbes.com, http://www.forbes.com/forbes/2002/0812084_pring.html. CBS MarketWatch.com, "Baby Bell Rivals Win More Local Users," June 12, 2003

A. Verizon FL data on various types of customer migrations were the primary source of data used in the analysis. A description of the input data that was utilized is provided in Exhibit II.

Q. What is the volume of incremental hot cuts that you believe Verizon FL should be prepared to handle on a monthly basis if CLECs are denied access to mass-market unbundled local switching?

A. As discussed previously in the testimony, a conservative estimate of the incremental number of hot cuts and winbacks during the conversion period consists of (i) a forecast of the flow of UNE-P migrations, (ii) an estimate of the winbacks from UNE-P and (iii) the transactions that will result from the conversion of the embedded base. After the conversion period, item (iii) goes away and the incremental hot cuts consist of items (i) and (ii) only. Exhibit III provides a summary of the incremental hot cuts required over the conversion period.

Q. Please describe how you calculated the flow of UNE-P migrations.

A. I began by examining the UNE-P migration data from January 2002 to the present. As shown in Exhibit IV, migrations during 2002 were relatively few and fairly constant. UNE-P migrations seem to pick up after 2002. In December 2002, the Florida Commission ordered reductions in UNE-P prices, and I therefore used December 2002 as the beginning point of active UNE-P competition in the Verizon Florida territories.[21]

[21] Verizon Florida appealed the Commission's decision, which has been stayed pending resolution.

Q. Do you consider the most recent level of UNE-P migration as indicative of what to expect over the next few years?

A. No. I consider the recent levels of UNE-P migration as similar to the levels experienced when a new product enters the marketplace. When products are first introduced, there are relatively few buyers, and time must pass before demand levels reflect those of a mature market in a steady state. In general, the life cycle of products resembles an S-shape logit curve where, initially, demand is low and growing slowly, followed by a period of rapid growth. After this phase, demand levels reach an asymptote, remaining relatively constant for some period of time, followed possibly by a period of negative growth and decay. An examination of the UNE-P migration data leads me to conclude that the Verizon Florida market has not yet reached a steady state. Thus, I would expect increases in the future from the current level of UNE-P migrations.

Q. Can you forecast the steady state rate of UNE-P migration?

A. Yes, it is possible to forecast the steady-state rate of UNE-P migration from experience in other mature markets. One cannot reliably forecast this steady-state rate from current data in Florida because it makes little sense to forecast the upper limit of an S-shaped curve from a few data points at the bottom of the curve. Thus, it is necessary to have some external evidence regarding the likely demand level experienced in a similar but mature market, and we can use UNE-P migration data from other more mature markets to infer the height of the S curve. If we know (i) the current level of UNE-P migrations, (ii) the steady state rate of UNE-P migrations and (iii) the length of time necessary for the market to reach the steady state, we can forecast the intermediate monthly UNE-P

migration values, (i.e., monthly values can be estimated from the most recent period to the date of the mature market after which UNE-P migrations remain roughly constant.)

Q. What is a reasonable estimate of the steady-state rate of UNE-P migration?

A. In a recent proceeding in New York on behalf of Verizon, I determined that in that mature UNE-P market, one could expect monthly UNE-P migrations to average approximately **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** of total retail lines. As the steady state of UNE-P migrations in the Verizon New York territory was reached approximately during the 2002-2003 period, I would estimate that it took about two years after long distance competition was authorized and CLEC entry accelerated for the steady state to be reached in New York.

Of course, applying this assumption to other markets and other geographic areas entails a significant approximation. The serving territories of Verizon New York and Verizon Florida are different in many respects, so that the steady-state rate of UNE-P migration might be very different in the two states. However, I would expect the steady state rate of UNE-P migration to be higher, if anything, in New York than in Florida, so applying this assumption would tend to over–forecast future UNE-P migration and future demand for hot cuts in Florida.

Similarly, the time from the beginning of UNE-based competition to the steady state will differ across states. In New York, it took two years after Section 271 authority was granted (the point at which CLEC entry accelerated) for the steady state to be reached. In Florida, UNE-P migration has accelerated throughout 2003, and I assume conservatively (in the sense that the assumption results in higher forecast migrations

earlier than would otherwise be the case) that the steady state will be reached two years from the start of competition, i.e., December 2004. That is, assuming UNE-P competition began in the Verizon FL territories approximately in December 2002, I would expect migration to reach a steady state at about **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** percent of retail lines in about December 2004. Assuming conservatively that the number of retail lines remains constant during this period, this method estimates a steady state of approximately **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** UNE-P migrations per month by December 2004.

Q. How do you determine the monthly change in UNE-P migration from the most recent period available (September 2003) to December 2004?

A. I calculate the monthly growth rate required to grow the current level of UNE-P migration in September 2003 **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** to the steady state level of approximately **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** in December 2004. This monthly growth rate is **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]**. I then grow the current level of UNE-P migration by **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** on a monthly basis.

Q. Are there any additional reasons why your estimate of UNE-P migration over the next several years is likely to overestimate the actual amounts?

A. Yes. While it is necessary to use information from Verizon NY territories to estimate the steady state in the Verizon FL territories, these two markets are different and it is likely that the steady state in the two markets will differ. The demographic characteristics of New York are likely to attract more competition, on average, than in Verizon's Florida service area, and this effect would reduce the steady-state proportion of retail lines that would migrate to competitors in a given month.

Q. Please explain how you forecasted winbacks.

A. Several steps were required to forecast winbacks. Winbacks that give rise to incremental hot cuts are those winbacks originating from UNE-P lines. Verizon does not collect data in this manner. However, Verizon did provide winback orders (not lines) originating from UNE-Ls: see Exhibit V. For each month, I converted the UNE-L winback orders to lines based on the ratio of UNE-L lines to UNE-L orders (which averaged **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** during the January 2002-September 2003 time frame). For each month, I then determined UNE-L winbacks as a proportion of UNE-L lines in service (which average **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** percent) and multiplied that proportion by the number of UNE-P lines in service to determine winbacks originating from UNE-P. This provided me with a series of winbacks from UNE-P from January 2002 to September 2003.

Next, I examined the average value of winbacks from UNE-P as a proportion of total UNE-P lines in service for different time periods during January 2002 to September 2003 and observed that this average has been decreasing in recent months. Therefore, I

used the average value of winbacks from UNE-P as a proportion of total UNE-P lines in service for the recent twelve-month period **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** to be conservative and used this figure to forecast winbacks.

Specifically, I assume that monthly winbacks during the conversion period and beyond are proportional to the volume of incremental UNE-L lines, i.e., equal to **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** percent of the incremental UNE-L lines added as a result of the elimination of the switching element. Specifically, the number of incremental UNE-Ls consists of (1) the monthly conversion of the embedded base of UNE-P and (2) the net additions to the monthly volume of UNE-Ps.

Q. How did you forecast the embedded base?

A. I began with the most recent number for the embedded base, approximately **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** and grew the embedded base by changes in UNE-P migrations, winbacks and disconnects. Specifically, rather than forecast the embedded base, I calculated the embedded base in a given month t as equal to the embedded base in month t-1, plus UNE-P migrations in month t, minus winbacks from UNE-P in month t, minus disconnects in month t, see

Exhibit VI.[22] As described above, this approach is likely to be an upper bound on the volume of UNE-P embedded base over the forecasted period.

Q. What is the volume of incremental hot cuts that Verizon FL should be prepared to handle as a result of converting the embedded base?

A. I assume that the Commission will render a decision in July 2004 so that the starting point for conversion of the embedded base is July 2004. Based on my methodology for growing the embedded base, I forecast the embedded base to increase from **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** in September 2003 to **[BEGIN VERIZON PROPRIETARY] [END VERIZON PROPRIETARY]** in July 2004. I also assume that the conversion process will not begin until two months after July 2004. An analysis of incremental hot cut volumes resulting from the conversion of the embedded base is presented in Exhibit VII.

Q. How does the fact that CLECs will be able to purchase UNE-Ps for five additional months after July 2004 affect your analysis?

A. The analysis accounts for this fact by allowing the embedded base for the first five months to continue to grow by the same forecasted method mentioned above and in Exhibit VI. At the same time, lines are being converted beginning in month 3; therefore, these converted lines are subtracted from the still growing embedded base. December

[22] For disconnects, I assume that roughly 1-2 percent of lines in service in any given month disconnect due to factors other than migration such as mobility, non-payment of service or death. Long-term demographic statistics for the U.S. show that households move on average every five years, amounting to a 20 percent annual disconnect rate for moves.

2004 is the last month that CLECs will be able to order UNE-Ps assuming that the Commission's decision is effective as of July 2004.

Q. Will the embedded base also decrease due to winbacks?

A. Yes. During the conversion process, we assume that Verizon will continue to win back customers at the historical monthly rate, as described above. Therefore, during the conversion period, the embedded base is being reduced due to the conversion process and due to Verizon winbacks.

Q. Given your forecasts for the incremental hot cuts required if the Commission finds that CLECs are not impaired without access to Verizon FL's local switching unbundled element, is it likely that Verizon FL will be able to hire the additional people required?

A. Yes, current economic conditions suggest that work force expansion would not be difficult. First, a sufficient number of potential employees are clearly available. Because of force reductions in the telecommunications industry over the last several years, there is a large pool of experienced workers available to fill incremental staffing needs. Indeed, because the qualifications for these positions are relatively modest, Verizon would not be limited to hiring experienced telecommunications workers. An analysis of current unemployment statistics for Florida shows evidence that qualified job seekers are available in numbers far exceeding those that would be required by Verizon. Florida State unemployment across all industry segments has risen from about

297,000 in September 2000 to 439,000 in September 2003.[23] Thus, there are 142,000 more people seeking work today in Florida than there were at the end of the telecom boom in 2000.

Second, the well-publicized meltdown in the global telecommunications industry has resulted in massive layoffs and force reductions. Until recently, the *Financial Times* maintained a website tracking announcements of layoffs by major communications employers. According to this compendium, between July 2000 and May 2002, the global telecom sector cut approximately 539,000 jobs.[24] In the U.S., as of May 2002, Qwest, BellSouth and Verizon had announced job cuts of 13,000, 4,200 and 7,500 respectively. In September 2002, SBC announced a reduction of 11,000 jobs, in addition to the 10,000 jobs eliminated in the first three quarters of 2002.[25] AT&T's announced layoffs amounted to 10,000 jobs by May 2002. Earlier this month, Verizon announced a force reduction amounting to over 21,000 employees and about 10 percent of its work force, many of these likely residing in the metropolitan area.

Third, FCC data on U.S. telephone employment also shows a dramatic reduction, continuing into 2003. Based on preliminary data through March 2003, total employment has fallen by about 160,000 jobs from its peak in 2001. See Exhibit VIII.

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[23] My Florida. Local Area Unemployment Statistics (Seasonally Unadjusted). http://www.labormarketinfo.com/laus/laus.htm

[24] *See* http://news.ft.com/ft/gx.cgi/ftc?pagename=View&c=Article&cid=FT3MOCS3OPC, the FT.com Telecoms job cuts watch, last updated May 14, 2002. This figure includes telecom operators, cable operators and network equipment providers, categories that have been particularly hard hit.

[25] "SBC to Cut 11,000 Jobs and Investment Due to Outmoded Regulatory Scheme and Weak Economy," SBC Press Release, September 26, 2002.

In sum, all indications from the labor markets suggest that sufficient workers are available to manage the expected additional work load from incremental hot cuts.

Q. Does this conclude your testimony?

A, Yes.

I. INTRODUCTION

A. Background

Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.

A. My name is William E. Taylor. I am Senior Vice President of National Economic Research Associates, Inc. ("NERA"), head of its telecommunications economics practice, and head of its Cambridge office. My business address is One Main Street, Cambridge, Massachusetts 02142.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

A. Yes, I filed direct testimony regarding hot cut scalability issues on behalf of Verizon Florida Inc. ("Verizon") on December 4, 2003.

B. Purpose & Summary of the Testimony

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been asked by Verizon Florida Inc. ("Verizon") to assess the economic issues raised in the direct testimonies of Mr. Joseph Gillan on behalf of the Florida Competitive Carriers Association and Dr. Mark T. Bryant on behalf of MCI WorldCom Communications, Inc and MCI Metro Access Transmission Services LLC.

Verizon is asking the Commission to relieve it of the requirement to unbundle mass market switching in Density Zones 1 and 2 of the Tampa-St. Petersburg-

Clearwater MSA in accordance with the provisions and criteria in the Federal Triennial Review Order. Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers (CC Docket No. 01-338); Implementation of the Local Competition Provisions of the Telecommunications Act of 1996 (CC Docket No. 96-989); Deployment of Wireline Services Offering Advanced Telecommunications Capability (CC Docket No. 98-147), FCC No. 03-36, (rel. Aug. 21, 2003) (hereinafter, "TRO"). In accordance with sound economic principles, and consistent with prior FCC policy statements, Verizon has correctly chosen the relevant geographic market to be an area larger than an individual wire center, namely the MSA. Intervenor testimonies in this proceeding disagree with that notion and propose that the relevant geographic market be something smaller, such as the individual wire center. In this rebuttal testimony, I present the economic arguments for why the MSA is the appropriate geographic market.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

A. Based on sound economic principles, and consistent with prior FCC policy, the relevant geographic market the Commission should adopt for purposes of this proceeding is the MSA and not the individual wire center as some of the interveners in this proceeding erroneously suggest. As the FCC stated: "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." TRO ¶ 495.

The FCC has recognized the primacy of "actual marketplace evidence" in

determining impairment. *TRO* ¶ 7 at 10. Thus, the most significant factor for determining the relevant geographic market is where CLECs have chosen to enter and compete for mass market customers using their own switches and the areas that they currently serve and could serve using those switches. The FCC places heavy emphasis on actual marketplace evidence throughout the *TRO*.

In Florida, CLECs have deployed a significant number of their own switches in the Tampa-St. Petersburg-Clearwater MSA. Those switches have wide geographic reach (as wide as an entire MSA) and represent a sunk investment. Using that investment, CLECs serve mass market and other customers across the MSA. Given the MSA-wide coverage of major media outlets and the CLECs' strong incentives to use fixed investment to full capacity, this geographic scope of entry is exactly what one would expect, and CLECs can be expected to continue expanding the scope and extent of their facilities-based services throughout the MSA.

In general, we would expect carriers to try to serve at least the MSA because the high degree of social and economic integration present in such areas implies that firms would generally market services throughout this geographic area. While these incentives clearly apply to new entrants, there may be circumstances where a CLEC's existing facilities or customer base may dictate serving, at least initially, a geographic area different from an MSA. Examples might include cable companies that choose to provide telephone service to their video footprint or CLECs that expand across an MSA

boundary into an area contiguous with their existing facilities. However, of all the existing, pre-defined geographic areas, the MSA comes closest to encompassing the area in which local exchange competition takes place.

Mass-market entry is often associated with media advertising aimed at a geographic area at least as large as the MSA; thus, we would expect the carrier to serve the entire MSA because advertising throughout the MSA, but not serving the entire area, raises the carrier's costs and harms its reputation. Service offerings, including offerings of discounted bundled services, are frequently rolled out by individual MSA since that is the geographic area covered by newspapers and local radio, television and cable media. (In fact, in its discussion of the metropolitan area to be used in the Bell Atlantic/NYNEX merger, the FCC observed that television and radio advertising markets generally encompassed the geographic area it had designated. *Bell Atlantic-NYNEX Order* at ¶ 55-56). Thus, all potential customers in the MSA are exposed to the same mass-market advertising messages.

A focus on potential customers is consistent with recent FCC guidance to the states on how to determine the relevant market. Recently in its *Brief for Respondents* before the United States Court of Appeals for the District of Columbia Circuit, the FCC explained the guidance it gave to the states as it pertains to market definition. *See Brief for Respondents*, On Petition for Review of an Order of the Federal Communications Commission, *United States Telecom Ass'n v. FCC*, No. 00-1012 (D.C. Cir.)(filed December 31, 2003) ("*Brief for Respondents*"). On page 40 the FCC stated: "Under this

standard, the self-provisioning trigger would be met, at a minimum, not only at locations in which three competitive providers are *actually serving* mass market customers with non-ILEC switching, but also at locations where three competitive providers are "*holding out*" the availability of such service to mass market customers."

Similarly, in its October 9, 2003 filing in the D.C. Circuit Court opposing the USTA Writ of Mandamus, the FCC explained that

> The corrected paragraph [¶ 499] does *not* require that, for purposes of the switching triggers, self-provisioning competitors must be ready and willing to serve all retail customers in the market. The Commission made similar corrections in the *Order's* discussion of how states should analyze impairment in areas where the triggers are not met...These deletions eliminate any suggestion in the *Order* that a state's finding of no impairment is contingent on a determination that a facilities-based competitor could economically serve all customers in the market.

Opposition of Respondents to Petitions for a Writ of Mandamus, United States Telecom Ass'n v. FCC, No. 00-1012 (D.C. Cir.) (filed October 9, 2003), at 23.

II. GEOGRAPHIC MARKET DEFINITIONS FOR MASS-MARKET LOCAL EXCHANGE SERVICE

A. TRO Triggers

Q. PLEASE EXPLAIN THE CRITERIA THAT VERIZON MUST MEET

IN ORDER TO OBTAIN THE RELIEF THAT IT IS SEEKING.

A. The Federal Communications Commission ("FCC") has set forth the criteria that incumbent local exchange carriers ("ILECs) must meet in order to be relieved of the unbundling obligations in the Telecommunications Act of 1996 ("TA96"). In the *TRO*, the FCC establishes certain "triggers" that state commissions are required to use to determine whether ILECs should be relieved of certain unbundling obligations.

Q. MR. GILLAN (AT 33-49) AND DR. BRYANT (AT 10-14) DISCUSS THEIR VIEWS OF THE TRIGGERS. WHAT ARE TRIGGERS AND WHY DID THE FCC DECIDE TO USE A TRIGGERS APPROACH TO DETERMINE WHETHER ILECS SHOULD BE RELIEVED OF CERTAIN UNBUNDLING OBLIGATIONS?

A. The FCC describes triggers as "a principal mechanism for use by states in evaluating whether requesting carriers are in fact not impaired in a particular market," and has emphasized that they are "keyed to objective criteria" and "provide bright-line rules." *TRO* at ¶ 498. The FCC has also highlighted that the use of objective triggers can expedite proceedings, noting that the triggers allow state commissions to "avoid the delays caused by protracted proceedings and can minimize administrative burden." *TRO* at ¶ 498.

Triggers are objective measures of CLEC competitive activity, which are to be used by state commissions for determining the degree of competition in a particular market and, therefore, whether ILECs should be relieved of certain unbundling obligations. In this proceeding, the trigger that determines

whether Verizon must continue to offer switching for CLECs serving the mass market is whether there are at least three unaffiliated CLECs serving mass market customers in a particular market with the use of their own switches.

Because determining the degree of competitive activity in a particular market can be a complicated undertaking, subject to considerable debate and disagreement among economists and policymakers, the use of objective triggers is a way to minimize such debates, preserve the resources that would otherwise be consumed in such debates, and provide for expedited decision making on the part of state commissions. It is relatively straightforward to determine whether an ILEC has or has not met a particular objective trigger.

Moreover, because there can be several different geographic markets in every ILEC territory—as I discuss below, I believe the relevant geographic market is the MSA—the use of objective triggers substantially reduces the amount of resources and time that state commissions must devote to the issue. Without the use of objective triggers, the state commission would need to conduct more resource intense proceedings that apply to the different geographic markets, thus prolonging the time required to reach a decision. The desire to minimize regulatory debate and provide a straightforward and expedited approach to relieving ILECs of unbundling obligations is the reason for the use of objective triggers even though there is the possibility that economic precision is sacrificed through the use of objective triggers—because, for example, the triggers may be overly conservative and may relieve ILECs of unbundling obligations only after the time when sound economic principles

would call for relief.

Q. IS IT APPROPRIATE TO CONSIDER CRITERIA NOT INCLUDED IN THE TRIGGERS—SUCH AS MARKET SHARE TESTS, PROFITABILITY, ETC.—WHEN EVALUATING VERIZON'S REQUEST?

A. No. The value of the triggers is their simplicity and objective nature. That value is lost if the triggers become a complex, far-ranging – and lengthy – inquiry into the economics of the local exchange market. Similarly, the value of the trigger process is undermined if the determination of the proper geographic market is allowed to depend upon such an inquiry. Under the self-provisioning trigger, a state "must find 'no impairment' when three or more unaffiliated competing carriers are serving mass market customers in a particular market with the use of their own switches." *TRO* at ¶ 501. The self-provisioning trigger is an objective test that simply requires the counting of unaffiliated competing carriers in a particular geographic market providing service to mass market customers. Once the market has been defined—and I discuss below that the geographic market is the MSA—other criteria, such as market share tests, profitability analyses, etc., are not to be taken into account. It is only if a state commission determines that an ILEC has not met the self-provisioning triggers that the commission can conduct an analysis of the potential for CLECs to deploy their own switches to serve mass market customers in the relevant geographic market, given economic and operational conditions in that market. *TRO* at ¶ 506. But that is not the case in this instance because Verizon has provided evidence that it has met the self-provisioning triggers in certain geographic regions in its Florida territory.

Once a geographic market is defined, determining whether an ILEC has met the trigger in that market is straightforward. In the remainder of my testimony I present the economic arguments that lead me to conclude that the relevant geographic market is an area that is larger than an individual wire center, namely the MSA.

B. The Concept of a Geographic Market

Q. DR. BRYANT (37-51) ARGUES THAT THE RELEVANT GEOGRAPHIC MARKET IS, AT A MAXIMUM, THE WIRE CENTER. MR. GILLAN (27-29), WHILE NOT PROVIDING A RECOMMENDATION IN HIS DIRECT TESTIMONY, STATES THAT IT IS IMPORTANT THAT THE COMMISSION DEFINE A GEOGRAPHIC MARKET "IN A MANNER THAT PERMITS IT TO RECOGNIZE THE UNIQUE COMPETITIVE SIGNATURE OF UNE-P..." DO YOU AGREE WITH THESE POSITIONS?

A. No. Based on sound economic principles and a number of FCC policy statements I conclude—contrary to the position of interveners—that the relevant geographic market is the MSA, not the individual wire center nor the undefined geographic area implied by Mr. Gillan's incorrect and novel notion. In this section I provide the basis for my conclusion.

Q. HOW DO ECONOMISTS DEFINE A GEOGRAPHIC MARKET?

A. A geographic market area is one in which sellers provide products or services that customers treat as substitutes for one another and thus which compete

against one another. As a leading text describes the concept:

> The geographic limit of a market is determined by answering the question of whether an increase in price in one location substantially affects the price in another. If so, then both locations are in the same market.

D.W. Carlton and J.M. Perloff, *Modern Industrial Organization*, Second edition, (1994), New York: Harper Collins, at 807. (Similarly, the *Horizontal Merger Guidelines* (Section 1.2.1) consider firms at different locations to be in the same market when a potential price increase by one firm (assuming other firms maintain their current prices) would be unprofitable, because customers would shift to the products of firms at other locations in the same geographic market.)

For mass-market local telephone service, carriers offering mass-market local telephone service in the core of an urban area would compete in the same geographic market as carriers offering local service in a close suburb because reductions in local exchange prices in the suburb would lead to lower prices in the core area. This would happen because carriers advertise and promote mass-market services on a metropolitan-wide basis, and customers in the core area would consequently expect to pay the same prices advertised for services in the suburb. Conversely, if a firm attempted to raise rates in the suburb, a competitor in the core area would quickly expand its business in the suburb using the same switch and the same mass-marketing tools, placing downward pressure on the prices in the suburb.

Q. DOES THE ANALYSIS OF THE GEOGRAPHIC SCOPE OF THE RELEVANT MARKET IN THE CASE OF TELECOMMUNICATIONS DIFFER IN DETAIL FROM THE TYPICAL DELINEATION OF THE GEOGRAPHIC DIMENSIONS OF A PRODUCT?

A. To some extent. The typical case, (e.g., a merger analysis), starts with the products of the firm(s) in question and then poses the question of whether customers would shift to the products of firms *at other locations* in the event of a price increase by the reference firm(s). That is, firms are viewed as having precise locations; consequently, considerations such as transportation costs come into play when determining whether customers would shift their purchases to the competing firms. In contrast, telecommunications carriers have switches that can reach major portions of the geographic market area and market their services throughout the geographic market. Indeed, CLECs frequently offer service (using resale or UNE-P) in geographic areas where they have no facilities, so the notion of identifying a firm with a location at which it provides service makes less sense for telecommunications carriers than (for example) cement manufacturers.

Q. IN ASSESSING WHETHER THE ABSENCE OF THE UNBUNDLED LOCAL SWITCHING WOULD IMPAIR ENTRY INTO MASS-MARKET LOCAL EXCHANGE SERVICES, HOW WOULD AN ECONOMIST DETERMINE THE GEOGRAPHIC SCOPE OF THE MARKET?

A. The obvious touchstone is the FCC's market-definition rule, which specifies

that:

> A state commission shall define the markets in which it will evaluate impairment by determining the relevant geographic area to include in each market. In defining markets, a state commission shall take into consideration the locations of mass market 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 profitably and efficiently using currently available technologies. A state commission shall not define the relevant geographic area as the entire state.
>
> 47 CFR § 51.319(d)(2)(i).

In addition to the specific requirements of the rule, paragraphs 495-496 of the *TRO* refer to other factors that a state commission may consider in defining the geographic market. For example, in paragraph 495, the FCC stated: "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."

All in all, however, the most significant factor is where CLECs have chosen to enter and compete for mass market customers through their own switches and the areas that they do serve and could serve using those switches. The FCC places heavy emphasis on actual marketplace evidence throughout the *TRO*. At paragraph 93, for example, the FCC states, "As we anticipated in the

Triennial Review NPRM, we agree with commentators that argue that actual marketplace evidence is the most persuasive and useful kind of evidence submitted. In particular, we are most interested in granular evidence that new entrants are providing retail services in the relevant market using non-incumbent LEC facilities..." The market-entry evidence presented by Mr. Fulp in his direct testimony on behalf of Verizon shows where CLECs are providing mass market switching services and implicitly reflects the CLECs' own economic and business evaluation of all the other potentially relevant factors listed in paragraphs 495-96. Direct Testimony of Orville D. Fulp, on behalf of Verizon Florida Inc., December 4, 2003, Docket No. 030851-TP ("*Fulp Testimony*").

Q. IS THE ANALYSIS UNDER THE FCC'S RULE IN REASONABLY CLOSE ALIGNMENT WITH THE TRADITIONAL ECONOMIC APPROACH TO GEOGRAPHIC MARKET DETERMINATION?

A. Yes. The competing firm can be thought to be located at the location of its switch and to offer the local exchange service product at that location. In order to reach customers throughout the market, the firm incurs "transportation costs" in the form of outlays for unbundled loops, transport of traffic between its switch and ILEC end-offices, certain non-recurring charges, and the like.

Specifically, from the perspective of the CLEC, two related considerations come into play, which together determine the geographic area in which the CLEC chooses to compete for mass-market services. First, the CLEC incurs

fixed costs (costs insensitive to the number of customers) when it chooses to locate its switch and market its services following the contours of the media markets. That is, when a CLEC enters using mass-market advertising, it has implicitly chosen to reach all potential customers in the geographic area served by the media. Thus, to serve mass-market customers, CLECs implicitly offer service to a geographic area consisting of the intersection of the areas (i) served by a switch and (ii) corresponding to media market geographic reach. Second, the CLEC must decide how to serve customers in particular ILEC wire centers to which it has already offered service: whether to incur fixed costs of collocation or to serve the customers through EELs or resold ILEC services. Putting these two types of costs together, the CLEC entrant determines that it is likely to be profitable to serve this area—*i.e.,* the intersection of the reach of a switch and the reach of mass media—given the most efficient way to connect customers in different ILEC wire centers to its switch.

Economic analysis, of course, also takes into account actual market activity to date, because that indicates how competitors themselves have balanced the various considerations that go into entering a market. In Florida, CLECs have deployed a significant number of their own switches in the Tampa-St. Petersburg-Clearwater MSA. These switches have wide geographic reach (as wide as an entire MSA) and represent a sunk investment. In using that investment, CLECs have served mass market and other customers across much of the MSA. Given the MSA-wide coverage of major media outlets and the CLECs' incentives to use fixed investment to full capacity, this geographic

scope of entry is exactly what one would expect, and CLECs can be expected to continue expanding the scope and extent of their facilities-based services throughout the MSA.

Q. WHAT GEOGRAPHIC AREA WILL THIS ANALYSIS PRODUCE AS A MARKET DEFINITION?

A. This analysis of how CLECs enter local exchange markets, together with the economic definition of a relevant geographic market discussed above, shows that the MSA is the best readily-available geographic area that corresponds to the concept of the geographic market. In individual circumstances, media geographic contours may not align perfectly with MSA boundaries, and switches can certainly serve larger areas than individual MSAs. Circumstances of individual CLECs may favor entry into different geographic areas: *e.g.*, cable companies may initially serve telephone customers in their cable footprint, or some CLECs may offer service in contiguous areas in a neighboring MSA. Nonetheless, because the MSA approximates how mass-market services are sold (through mass-market advertising) and how services are provided (with a switch that serves a large geographic area), the MSA is the best available answer to the question: In what geographic areas are CLEC and ILEC services likely to compete?

Q. WHAT ARE METROPOLITAN STATISTICAL AREAS?

A. In concept, a MSA is a county or group of counties having a large clustered population, including adjacent areas having a high degree of community of interest with the core population center. Specifically, the Office of

Management and Budget (OMB) defines MSAs as a county or group of counties with (1) a city of population 50,000 or more or (2) an urbanized area (as defined by the Census Bureau) of population of at least 50,000 consisting of one or more counties. According to the OMB:

> The general concept of a Metropolitan Statistical Area or a Micropolitan Statistical Area is that of an area containing a recognized population nucleus and adjacent communities that have a high degree of integration with that nucleus. Metropolitan Statistical Area.—A Core Based Statistical Area associated with at least one urbanized area that has a population of at least 50,000.
>
> The Metropolitan Statistical Area comprises the central county or counties containing the core, plus adjacent outlying counties having a high degree of social and economic integration with the central county as measured through commuting.

(Currently defined metropolitan and micropolitan statistical areas are based on application of the 2000 standards (which appeared in the Federal Register on December 27, 2000) to Census 2000 data and were announced by OMB effective June 6, 2003.)

Specifically, MSAs are carefully developed to reflect demographic and commercial reality based on the application of OMB standards to census data (including commuting patterns). MSAs have a "high degree of integration" with a recognized population nucleus and recognize "economic linkages between urban cores and outlying, integrated areas." 65 Fed. Reg. 82228

(2000).

Q. WHY DO THESE AREAS DETERMINE REASONABLE BOUNDARIES FOR THE GEOGRAPHIC SCOPE OF LOCAL EXCHANGE MARKETS?

A. In general, we would expect carriers to try to serve at least the MSA because the high degree of social and economic integration present in such areas implies that firms would generally market services throughout this geographic area. While these incentives clearly apply to new entrants, there may be circumstances where a CLEC's existing facilities or customer base may dictate serving, at least initially, a geographic area different from an MSA. (Examples might include cable companies that choose to provide telephone service to their video footprint or CLECs that expand across an MSA boundary into an area contiguous with their existing facilities.) However, of all the existing, pre-defined geographic areas, the MSA comes closest to encompassing the area in which local exchange competition takes place.) Mass-market entry is associated with media advertising aimed at a geographic area at least as large as the MSA; thus, we would expect the carrier to serve the entire MSA because, if a carrier advertised throughout the MSA, but did not serve the entire area, that would raise its costs and potentially harm its reputation. Service offerings, including offerings of discounted bundled services, are frequently rolled out by individual MSA since that is the geographic area covered by newspapers and local radio, television and cable media. (In fact, in its discussion of the metropolitan area to be used in the Bell Atlantic/NYNEX merger, the FCC observed that television and radio

advertising markets generally encompassed the geographic area it had designated. *Bell Atlantic-NYNEX Order* at ¶ 55-56.) Thus, all potential customers in the MSA are exposed to the same mass-market advertising messages.

By the same token, entry into local exchange markets from outside the MSA (*e.g.*, in response to a price increase) may be more difficult because potential new entrants have no existing customer base and little brand awareness, except that engendered by the provision of other related services (e.g., AT&T or MCI's long distance services) or by national marketing plans (e.g., MCI's The Neighborhood). Furthermore, potential customers served by ILEC central offices too small or too sparsely populated to justify the CLEC's cost of collocation or backhaul transport to the switch are still exposed to the same marketing messages and can be served through resale of the ILEC's retail local exchange service.

In this sense, mass-market consumers in any two central offices in the same MSA generally face similar competitive conditions and have access to similar competitive alternatives. In addition, as the FCC observed in its *Pricing Flexibility Order,* at ¶ 72, the MSA reflects the primary geographic scope of competitive entry from the CLEC's perspective, because the entry decision is generally undertaken first at the level of the MSA. *In the Matter of Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Interexchange Carrier Purchases of Switched Access Services Offered by Competitive Local Exchange Carriers, Petition of U S West Communications,*

Inc. for Forbearance from Regulation as a dominant Carrier in the Phoenix, Arizona MSA, CC Docket Nos. 96-262, 94-1, CCB/CPD File No. 98-63 and CC Docket No. 98-157. Fifth Report and Order and Further Notice of Proposed Rulemaking, Released August 27, 1999 ("*Pricing Flexibility Order*"). Consistent with the geographic market definitions favored by recent FCC decisions (discussed below) and the geographic market analysis generally used in the antitrust and economic context, such customers are thus part of the same geographic market.

C. Previous FCC Determinations of Geographic Markets

Q. HAS THE FCC RECENTLY PROVIDED GUIDANCE ON HOW TO DEFINE THE RELEVANT GEOGRAPHIC MARKET IN ACCORDANCE WITH THE *TRO*?

A. Yes. Recently in its *Brief for Respondents* before the United States Court of Appeals for the District of Columbia Circuit, the FCC explained the guidance it gave to the states as it pertains to market definition. *See Brief for Respondents*, On Petition for Review of an Order of the Federal Communications Commission, *United States Telecom Ass'n v. FCC*, No. 00-1012 (D.C. Cir.)(filed December 31, 2003) ("*Brief for Respondents*"). On page 40 the FCC stated:

> Under this standard, the self-provisioning trigger would be met, at a minimum, not only at locations in which three competitive providers are *actually serving* mass market customers with non-ILEC switching, but also at locations where three competitive providers are "*holding out*" the availability of such service to

mass market customers.

Footnote: "This focus on the locations in which customers face similar competitive choices is consistent with Commission precedent analyzing geographic markets in the merger context. *See e.g., Application of NYNEX Corp. and Bell Atlantic Corp. for Consent to Transfer of NYNEX Corp. and Its Subsidiaries*, 12 FCC Rcd 19985 (¶54) (1997); *Application of EchoStar Communications Corp.* 17 FCC Rcd 20559 (¶¶119-120)(2002).

As I described above, mass-market entry is often associated with media advertising aimed at a geographic area at least as large as the MSA. That is, CLEC advertising is conducted at least at the MSA level, which means that CLECs are "holding" themselves out to offer service at the MSA.

Q. HAS THE FCC PREVIOUSLY DETERMINED THAT MSAS ARE THE CORRECT GEOGRAPHIC SCOPE OF LOCAL EXCHANGE MARKETS?

A. Yes, in at least three contexts. In its just-released order that allows customers to port their wireline telephone numbers to wireless carriers, the FCC implemented this requirement on a MSA basis. *In the Matter of Telephone Number Portability and CTIA Petitions for Declaratory Ruling on Wireline-Wireless Porting Issues* (CC Docket No. 95-116) Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, FCC 03-284 (released November 10, 2003) at ¶ 29-30. This order is especially germane to this proceeding, because, as four of the five FCC Commissioners explicitly

observed in their separate statements, one of the major implications of the order is to substantially increase the intermodal competition between wireline services (including ILEC offerings) and wireless services.

Second, in its assessment of how the merger of formerly independent incumbent local exchange carriers would affect local exchange competition in the merged territories, the FCC identified specific metropolitan areas as the markets subject to a competitive assessment. See, *e.g., Bell Atlantic-NYNEX Order* at ¶ 43. The FCC identified the metropolitan scope of advertising markets as a relevant factor in defining the market. *Ibid.* at ¶ 55.

Third, in its order granting ILECs price flexibility for certain interstate services, the FCC concluded:

> We will grant pricing flexibility relief for both Phase I and Phase II on an MSA basis. We agree with those commenters that maintain that MSAs best reflect the scope of competitive entry, and therefore are a logical basis for measuring the extent of competition.

Pricing Flexibility Order at ¶ 72.

When properly interpreted, the FCC's market definition rule in the *TRO* is entirely consistent with its prior emphasis on the "scope of competitive entry" used to define geographic markets in its price flexibility order.

In addition to defining geographic markets for local competition, the FCC has

used MSAs in numerous other proceedings, such as in its Biennial Review of spectrum aggregation limits for wireless carriers (*In re 1998 Biennial Regulatory Review Spectrum Aggregation Limits for Wireless Telecommunications Carriers*, 15 FCC Rcd. 22072 at ¶16 (October 17, 2000)), in defining the geographic markets for programming distributors (*In re Implementation of Section 304 of the Telecommunications Act of 1996*, 13 FCC Rcd. 14775 at ¶ 108 (June 11, 1998)) and in conducting lotteries and granting the right to acquire cellular telephone licenses. (The Federal Trade Commission has also noted that MSAs can serve as "close proxies" for detailed geographic analysis and has frequently used MSAs to define geographic markets in the number of cases involving retail sales to consumers. *See In the Matter of CVS Corporation*, File No. 971-0060, Analysis to Proposed Consent Order to Aid Public Comment (June 1997)). It also used the MSA as the geographic basis for its switching exemption in the *UNE Remand Order* for CLECs serving enterprise (4-plus line) customers. *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, *("UNE Remand Order")*, ¶¶ 276-298. Specifically, ILECs are exempted from having to provide unbundled switching to CLECs serving customers with four or more lines in density zone one of the top 50 MSAs.

D. Verizon's geographic market definition is correct

Q. HOW DOES VERIZON DEFINE THE RELEVANT GEOGRAPHIC MARKET?

A. Verizon appropriately recognizes that the MSAs are the relevant geographic market. *Fulp Testimony* at 8. Verizon's support for using the MSA as the relevant geographic market is based upon some of the arguments I mentioned above, such as the fact that mass market media advertising is usually conducted on an MSA basis.

Nevertheless, the evidence presented by Verizon to obtain relief consistent with the "self-provisioning trigger" is also based on a narrower geographic market, namely the UNE pricing Density Zones within MSAs. Specifically, based on the evidence of CLECs using their own switches to serve customers in the Tampa-St. Petersburg-Clearwater MSA, Verizon is asking for relief in Density Zones 1 and 2.

While Verizon's position is that the MSA is the correct geographic market, it presented evidence on a Density Zone basis so as to provide the Commission with an alternative to MSA if the Commission were not inclined to accept the entire MSA as the relevant geographic market. It follows that if Verizon passes the self-provisioning trigger test based on a Density Zone definition of the geographic market—as it does as described in Mr. Fulp's direct testimony—then it must also pass the trigger test based on an MSA definition of the geographic market. Therefore, even though Verizon submitted evidence on a Density Zone basis, the Commission can and should still decide that the entire Tampa-St. Petersburg-Clearwater MSA should be entitled to relief.

Q. WHAT EVIDENCE DID VERIZON PRESENT TO SUPPORT ITS CLAIM THAT IT HAS MET THE SELF-PROVISIONING TRIGGERS IN DENSITY ZONES 1 AND 2 OF THE TAMPA-ST. PETERSBURG-CLEARWATER MSA?

A. Verizon examined data at the wire center level to determine the number of CLECs that lease stand-alone UNE loops in the Tampa-St. Petersburg-Clearwater MSA. Verizon correctly believes that CLECs providing POTS service that lease stand-alone UNE loops from Verizon, without also leasing switching, are necessarily using their own switches to provide service to the customers connected to those loops. According to Verizon's data analysis, in Density Zones 1 and 2 of the Tampa-St. Petersburg-Clearwater MSA there were 8 and 4, respectively, unaffiliated CLECs serving mass market customers with their own switches. This is more than sufficient to satisfy the self-provisioning trigger in these markets.

III. INTERVENOR'S TESTIMONIES DEFINE THE GEOGRAPHIC MARKET TOO NARROWLY

A. Mr. Gillan's theory (at 31) of "similar competitive profile" is inconsistent with sound economic principles and is contrary to FCC policy

Q. PLEASE DESCRIBE MR. GILLAN'S POSITION AS IT PERTAINS TO WHAT THE RELEVANT GEOGRAPHIC MARKET SHOULD BE IN THIS PROCEEDING?

A. Mr. Gillan (at 23) states that he does not provide a recommendation at this time regarding what is the relevant geographic market that the Commission

should use in this proceeding. Rather he provides "guidance" to the Commission pending his review of the ILECs' initial testimony. Nevertheless, Mr. Gillan (at 27) asserts that the *TRO* "lays out a relatively simple (yet reasonably useful) approach—look at the areas being served by a particular network element and determine whether an alternative could reasonably produce the same result."

He continues (28-29) by stating, "My review of what information is currently available, however, demonstrates that UNE-P exhibits a very distinct competitive profile—that is, UNE-P (and only UNE-P) brings competitive choice throughout the serving territory of the ILEC. As the Commission approaches its impairment analysis, it is important that it define 'geographic areas' in a manner that permits it to recognize the unique competitive signature of UNE-P, so that it may test other entry strategies to see whether they could produce the same level of competitive choice." He continues (at 31) "...[the Commission] should not restrict the availability of unbundled local switching and UNE-P unless it can conclude that an alternative will produce a similar competitive profile."

Q. IS THERE ANY MERIT TO MR. GILLAN'S POSITION AND DOES IT PROVIDE "GUIDANCE" TO THE COMMISSION AS TO HOW TO DEFINE A GEOGRAPHIC MARKET?

A. No. Rather than using sound economic principles to define the relevant geographic market, Mr. Gillan's suggestion to the Commission is tautological. That is, he defines a geographic market based upon whether that definition

would lead to policies that result in the *same* level of competition that is currently being provided through the use of UNE-P. Not only is this contrary to a fair reading of the *TRO* and to sound economic principles, it is almost impossible to achieve. The removal of switching as an unbundled network element for the mass market—and by implication the removal of UNE-P—would result, by definition, in a different competitive landscape than before the removal. But that does not mean it would result in any less competition.

Q. PLEASE EXPLAIN.

A. Verizon is asking for relief only in those geographic areas where it believes it has met the self-provisioning triggers. In the other geographic areas of Verizon's territory, UNE-P will remain and CLECs would be permitted to continue to offer their customers service through UNE-P, if they so choose. In the geographic area where Verizon is relieved of the obligation to provide switching, passing the trigger means that the economic conditions are such that CLECs can successfully compete against the ILECs without the right to purchase unbundled local switching. While the means by which CLECs provide their services may change, the outcome is the same—consumers will have similar competitive alternatives to what they had before UNE switching was eliminated in certain areas. And no where in the state is there less competition because of the elimination of switching in any particular geographic market.

Q. BUT DOESN'T MR. GILLAN (AT 27) HAVE A POINT WHEN HE STATES THAT THE OBLIGATION FOR UNBUNDLING SHOULD

BE REMOVED ONLY IF AN "ALTERNATIVE COULD REASONABLY PRODUCE THE SAME RESULT."

A. No. He misapplies this basic premise by implying that only when a competitive alternative would be able to produce the same result *on a statewide basis* should switching be removed in any geographic area. That is, he seems to be saying that until CLECs have the incentive to economically deploy switching in *every* part of the state, the Commission should not remove the switching obligation in *any* part of the state.

Q. SHOULD THE COMMISSION ADOPT SUCH A POSITION?

A. Absolutely not. Such an approach is devoid of economic support and does not serve as a sound basis for defining the relevant geographic market. In my discussion above on geographic markets, I discussed the different factors that determine the relevant geographic market, factors such as the advertising reach of CLECs and where CLECs have chosen to enter and compete for mass market customers using their own switches and the areas that they do serve and could serve with those switches. Mr. Gillan's recommendation is devoid of such analysis and seems to be intended to expand the scope of the *TRO* by adding additional policy variables that are not to be found in the *TRO*. For example, in discussing the potential relevant geographic market, while the FCC does not tell the states what the proper geographic market is, it does limit acceptable market size: "...state commission shall not define the relevant geographic area as the entire state," (47CFR § 51.319(d)(2)(i)) and, "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." *TRO* ¶ 495. There is no support for Mr. Gillan's notion of the relevant geographic market in the *TRO* or in sound economics.

B. Dr. Bryant's claim that the relevant geographic market is, at a maximum, the wire center is unsupportable.

Q. WOULD YOU PLEASE SUMMARIZE DR. BRYANT'S POSITION ON WHAT THE COMMISSION SHOULD CONSIDER AS THE RELEVANT GEOGRAPHIC MARKET?

A. Dr. Bryant begins (at 40) with the observation that, "the 'most accurate' level of granularity must address switching capability for particular customer premises." He then goes on to state, "[f]ortunately, certain aggregations of consumers can be accomplished to achieve 'administrative practicability,'" Based on a discussion of "administrative practicability" Dr. Bryant concludes (at 43), "...it is reasonable to aggregate customers and consider impairment issues at the wire center level."

Q. SHOULD THE COMMISSION ADOPT THE INDIVIDUAL WIRE CENTER AS THE RELEVANT GEOGRAPHIC MARKET FOR PURPOSES OF IMPAIRMENT ANALYSES?

A. No, the Commission should adopt the MSA, and not the individual wire center as the relevant geographic market for purposes of impairment analyses. As I described above, such an approach is consistent with prior FCC policy on this issue. Moreover, from an economic perspective, the wire center cannot be a properly-defined geographic market in Verizon's serving territory in Florida. No CLEC holds itself out as providing service in individual ILEC wire

centers; indeed, from the end user's perspective, ILEC wire centers are features of the ILEC's legacy network that have no relevance for the CLEC's marketing of its services. Rather, for mass-market services, the geographic areas to which CLECs market using television, radio and newspapers comprise areas much larger than a wire center that can be roughly equated with the community-of-interest characteristics defining an MSA. While the geographic contours of local mass-media advertising in which CLECs offer service may not coincide perfectly with those of an MSA, they certainly exceed those of an individual wire center. On the network side, individual wire centers are typically too small to exhaust the capacity of an efficient CLEC's switch—particularly for CLECs that expect to start business with a small share of the markets in which they offer service—and we see that CLECs' switches in the Tampa-St. Petersburg-Clearwater MSA actually do serve multiple wire centers. Thus, CLECs would generally not purchase a switch to enter a single wire center because such a business plan would not take advantage of the economies of scale—sharing the fixed costs of switching and marketing—available from serving a wider geographic market.

Q. WHAT ARE THE REASONS THAT DR. BRYANT PROVIDES TO SUPPORT HIS POSITION THAT THE WIRE CENTER IS THE MOST APPROPRIATE GEOGRAPHIC AREA?

A. There are several reasons. First, Dr. Bryant (at 45) states, "CLEC self-provisioning of local switching will require collocation at each wire center the CLEC intends to serve." He continues (at 45) that "because a portion of the costs of establishing service in a previously unserved wire center will be sunk

costs, CLEC entry decisions will have to be justified at the wire center level." He further states (at 46) by stating, "Further, various costs and revenues vary, sometimes dramatically, between wire centers." Finally, he concludes (at 46) that "it is most practical to conduct impairment analyses at the wire-center level."

Q. HOW DO YOU RESPOND TO DR. BRYANT'S ARGUMENTS?

A. While it is true that CLECs collocate at the ILEC wire center level—and these costs may be sunk—and that costs and revenues may vary by wire center, none of these factors lead to the conclusion that the wire center is a geographic market. For example, while it is certainly conceivable that costs could differ within different parts of the overall market, the fact that the variation in some cases may coincide with wire center areas has no particular significance. Indeed, costs often vary with more traditional geographic markets (e.g., because of differences in the costs of transporting goods). For example, in illustrating their geographic market definition presented earlier in this testimony, Carlton and Perloff use the example of oranges shipped to an urban area. Clearly, the prices would reflect the costs of shipping the product. What matters for the economic definition of a geographic market is whether prices and services in one area are constrained by prices and services in another.

Of even greater significance is the fact that using ILEC wire centers as geographic "markets" is entirely inconsistent with the geographic areas in which competitors enter and compete for customers, and this fact is reflected in the *TRO*'s directives for determining the geographic scope of markets.

(The reasons why it would be incorrect to consider discrete parts of the proper geographic market (i.e., the MSA) as markets in their own right apply not only to wire centers, but also to any subdivision of an MSA, e.g., counties and/or individual cities.) In particular, the *TRO*'s primary considerations of "the locations of customers actually being served by competitors" and "not defin[ing] the market so narrowly that a competitor serving that market alone would not be able to take advantage of available scale and scope economies" (*TRO* at ¶ 495) renders wire center "markets" much too narrow and consequently unreasonable.

The evidence presented by Verizon demonstrates that competitors' switches serve mass-market customers in multiple wire centers, because to do so allows them to take advantage of the scale and scope economies available from deploying switches. In the *Fulp Testimony*, Verizon presented evidence that there are 8 and 4 CLECs, respectively, providing service in Density Zones 1 and 2 of the Tampa-St. Petersburg-Clearwater MSA and these density zones have many individual wire centers. In response to AT&T's Second Request for Production of Documents, No. 32, Verizon provided the detailed backup information that identifies on a wire center basis where CLECs are serving customers using their own switches. Verizon's evidence that these carriers are each serving multiple wire centers—as many as 29 for a single carrier—confirms that CLECs do not see the market as individual wire centers. In its own study of local exchange competition in Florida, the Florida Public Service Commission found that 21 CLEC switches were located in the Tampa area on June 30, 2003, providing service to 36 wire centers. *See* Florida

Public Service Commission, *Annual Report on Competition: Telecommunications Markets in Florida as of June 30, 2003.*

In its *Brief For Respondents,* (cited above) the FCC stated "...the self-provisioning trigger would be met, at a minimum, not only at locations in which three competitive providers are *actually serving* mass market customers with non-ILEC switching, but also at locations where three competitive providers are '*holding out*' the availability of such services to mass market customers." [footnote omitted]. CLECs certainly "hold themselves out" to provide service to areas larger than individual wire centers when they file press releases regarding service and when they advertise in media such as radio, television and newspapers that have a large reach, usually at least as large as the MSA. (Footnote 1537 suggests that states could define the market for analyzing local switch impairment as being the geography over which competitors are actually serving customers. The fact that a CLEC chooses to serve some customers with resale or UNE-P and others with its own switch should not be used to incorrectly exclude some customers from the relevant geographic market.)

From an implementation viewpoint, in its Pricing Flexibility Order, the FCC rejected the use of wire center areas for the geographic scope of a market, partly on the grounds of administrative cost (¶ 74).

Conversely, the FCC's suggestion that the existence of possibly "uneconomical" pockets in a larger area (e.g., a LATA) may call for smaller geographic markets would be meaningless if markets were already defined at the extreme level of granularity that a wire center represents. *See, e.g. TRO* at

¶ 495.

Q. DO CLECS CONSISTENTLY ADVOCATE THE USE OF INDIVIDUAL WIRE CENTERS AS THE RELEVANT GEOGRAPHIC MARKET FOR APPLYING THE FCC'S TRIGGER ANALYSIS?

A. No. In California, AT&T's economic expert, Dr. Economides, recognized that the application of the FCC's rule would likely produce geographic areas wider than single wire centers:

> In a full-scale "potential deployment" analysis, the contours of which must be considered as part of defining the geographic market, state commissions are asked to conduct "a business case analysis for an efficient entrant." [ftnt] In that context, the boundaries of the impairment study area may then reasonably correspond to the assumed entry area of the hypothetical, efficient CLEC that will serve mass market customers using its own switch. This approach is consistent with FCC guidance that the geographic area should be sized to allow the CLEC "to take advantage of available scale and scope economies from serving a wider market." [ftnt]
>
> Under that view, it is unlikely that the "efficient CLEC" would enter a state intending to serve only a single wire center. Rather, the model CLEC would likely map out a footprint that is large enough to permit it to realize necessary economies of scale and to market to a broad range of potential customers. <u>In most cases, this will approximate an MSA, LATA, or similarly broad area,</u>

while in some very dense areas it may be only a portion of such an area, depending on the local demographics.

Opening Testimony of Professor Nicholas S. Economides on Behalf of AT&T Communications of California, Inc. (U 5002 C), Nine Month Phase, (Rulemaking 95-04-043, Investigation 95-04-044), filed December 12, 2003, at.40 (emphasis added).

Q. DR. BRYANT STATES THAT WHERE THE CLEC IS UNABLE TO OFFER THE SAME PACKAGE OF SERVICES AS THE ILEC, NOT ALL CUSTOMERS IN THE WIRE CENTER NECESSARILY FALL INTO THE SAME MARKET. HE USES THE EXAMPLE OF ILECS' ALLEGED REFUSAL TO PROVIDE DSL SERVICE AS A REASON WHY CLECS WOULD NOT BE ABLE TO OFFER THE SAME PACKAGE OF SERVICE. HOW DO YOU RESPOND?

A. There is no merit to this argument. Competition, in economics, does not require that firms provide the same packages of goods and services; rather, firms compete by tailoring their offerings to the particular quantities and combinations of products their customers most want to purchase. Moreover, high-speed Internet services and local telecommunications services are separate products. High-speed Internet services are unregulated competitive products and have no bearing on the geographic market definition for mass market switching. Finally, ILECs have no special advantage over other providers of high-speed Internet access, and, in fact, trail cable broadband operators in the high-speed Internet market. According to the most recent FCC data, broadband high-speed access lines in Florida in June 2003 were

comprised of slightly less than 39 percent DSL, compared with 52 percent for cable and 9 percent for other wireline, optical fiber, satellite, and fixed wireless systems. FCC, *High-Speed Services for Internet Access: Status as of June 30, 2003*, released December 2003, Table 7.

Q. HOW DOES DR. BRYANT DEAL WITH THE *TRO* ADMONITION THAT GEOGRAPHIC MARKETS NOT BE DEFINED SO NARROWLY AS TO PRECLUDE THE REALIZATION OF ECONOMIES OF SCALE AND SCOPE?

A. He states (40-41) that "the Commission can respond to the FCC's concern that markets not be defined so narrowly as to preclude the realization of economies of scale and scope by requiring that each aggregation of customer locations must be economically and operationally 'includable' in a serving area large enough to afford economies necessary to compete." However, Dr. Bryant nowhere defines what exactly he means by the term "includable" and it is certainly not an economic term that is generally used. Dr. Bryant does not address the FCC's guidance on this point, even though he advocates a geographic definition – the wire center – that is almost certainly too small to take advantage of the scale economies available in a CLEC switch.

IV. DR. BRYANT'S PRODUCT MARKET DEFINITIONS ARE INCORRECT

Q. HOW DOES DR. BRYANT DEFINE THE PRODUCT MARKET FOR THE PURPOSE OF APPLYING THE FCC'S TRIGGER ANALYSIS?

A. Dr. Bryant states [at 38] that the Commission should base its product market

definition on the *TRO*'s list of qualifying services, which he describes as "those services that have been traditionally the exclusive or primary domain of the incumbent LECs," citing ¶ 135 of the *TRO*. To this definition, he makes two substantive changes. First, he claims it is necessary to place residential and business services in separate markets because they are charged different prices [at 38]. Second, he states that the Commission should include "any alternative to the ILEC's local switching UNE that affords access to the incumbent's loops to provide local voice service, including vertical features an access services." [at 38]. On this latter basis, he appears to exclude CMRS, fixed wireless and cable telephony substitutes for ILEC local exchange service.

Q. SHOULD RESIDENTIAL AND BUSINESS SERVICES MASS-MARKET SERVICES BE TREATED AS IF THEY WERE IN SEPARATE PRODUCT MARKETS FOR THE PURPOSE OF APPLYING THE FCC'S TRIGGER ANALYSIS?

A. No. In the first place, the *TRO* makes it clear that the product market the FCC considers relevant for applying its triggers is mass-market local exchange service, irrespective of whether the customers are business or residential:

> The record demonstrates that customers for mass market services are different from customers in the enterprise market. [ftnt: Mass market customers are residential and very small business customers — customers that do not, unlike larger businesses, require high-bandwidth connectivity at DS1 capacity and above....Mass market customers' accounts tend to be

> smaller, lower revenue accounts and are often serviced on a month-to-month basis and not pursuant to annual contracts. The record shows that consumers of DS1 capacity and above telecommunications are more willing to sign annual or term commitments....] The mass market for local services consists primarily of consumers of analog "plain old telephone service" or "POTS" that purchase only a limited number of POTS lines and can only economically be served via analog DS0 loops...[*TRO* ¶ 459, emphasis added]
>
> ...
>
> We determine that — subject only to the limited exception set forth below — a state must find "no impairment" when three or more unaffiliated competing carriers each is serving mass market customers in a particular market with the use of their own switches. [*TRO* ¶ 504]

Thus, the FCC's trigger test explicitly applies to suppliers of local telephone services to all mass-market customers, residential and business alike.

Second, from an economic perspective, the fact that residential and business customers pay different prices for basic service does not imply that those customers purchase services in different markets. The *Horizontal Merger Guidelines* observe that when price discrimination between two sets of customers would be profitable for a hypothetical monopolist, the Agency will consider whether those customers fall into different product markets.

Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, April 1992, at § 1.12 "Product Market Definition in the Presence of Price Discrimination." However, the fact that from time immemorial, regulated residential basic service prices have been held below the prices of comparable business services for public policy reasons in no way implies that a profit-maximizing firm would find it profitable or feasible to impose such price differences. In fact, the treatment of regulated prices on the industry was cited by the D.C. Circuit Court of Appeals as a deficiency of the previous FCC unbundling requirements:

> One reason for such market-specific variations in competitive impairment is the cross-subsidization often ordered by state regulatory commissions, typically in the name of universal service. This usually brings about undercharges for some subscribers (usually rural and/or residential) and overcharges for the others (usually urban and/or business)...Competitors will presumably not be drawn to markets where customers are already charged below cost, unless either (1) the availability of UNEs priced well below the ILECs' historic cost makes such a strategy promising, or (2) provision of service may, by virtue of economies of scale and scope, enable a CLEC to sell complementary services (such as long distance or enhanced services) at prices high enough to cover incomplete recovery of costs in basic service. The Commission never explicitly addresses by what criteria want of unbundling can be said to impair competition in such markets, where, given the ILECs'

regulatory hobbling, any competition will be wholly artificial.

United States Telecom Ass'n. v. FCC, 290 F.3d 415, 422 (D.C. Cir. 2002), *cert. denied,* 123 S.Ct. 1571 (2003).

In other words, Dr. Bryant overlooks the fact that the price differences between residential and business services are the result of public policy and not private profit-maximization, and thus those price differences, by themselves, do not imply that residential and business customers occupy different product markets under the *Merger Guidelines'* standard.

Third, the *TRO*, itself, outlines some of the economic reasons why all mass-market customers, business and residence alike, belong in the same product market for the purpose of its trigger analysis. In ¶ 459, the FCC spells out the characteristics of these customers that place them in a distinct product market: they are served by DS0 technology, they have small accounts, and they purchase service month-to-month rather than using a term discount. In addition, such customers are served through customer service centers rather than individual customer representatives, their services are marketed using mass-market media rather than individual, customer-specific marketing, and they buy simple tariffed services rather than packages of network services solicited by formal Requests for Proposals. Residential and business mass-market customers are served using the same technologies (circuit switches and DS0 loops), and thus any supplier of mass-market business services offers and can supply mass-market residential services if a profitable opportunity arises.

Q. SHOULD THE PRODUCT MARKET BE LIMITED TO THOSE

SERVICES THAT CAN BE USED TO ACCESS THE ILEC'S UNBUNDLED LOOPS?

A. No. While the *TRO* acknowledges that full facilities-based CLECs, such as cable telephony providers, do not provide access to the ILEC's loops (¶¶ 439-440, as cited by Dr. Bryant at 39), the *TRO* explicitly authorizes state commissions to "consider some of this competitive development...in determining whether the triggers discussed below have been satisfied in specific markets." [*TRO* ¶400, footnote 1352.] From an economic perspective, if mass-market local exchange markets became effectively competitive due to facilities-based entry of new competitors, the goals of the Telecommunications Act of 1996 would be achieved. Certainly, neither the Act nor economics gives preference to unbundled elements as a mechanism for entry, and if sufficient entry can be achieved without incurring the efficiency costs of requiring ILECs to unbundle their networks, customers will be the beneficiaries.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

(Transcript follows in sequence with Volume 8.)

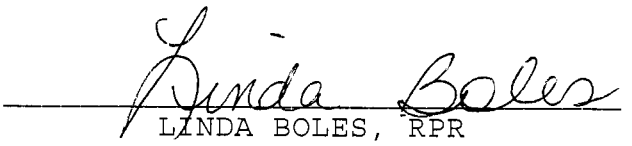
STATE OF FLORIDA)
: CERTIFICATE OF REPORTER
COUNTY OF LEON)

I, LINDA BOLES, RPR, Official Commission Reporter, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorneys or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 27TH DAY OF FEBRUARY, 2004.



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