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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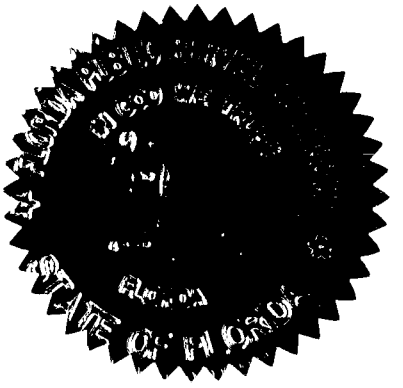

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VOLUME 22

Pages 3098 through 3297

PROCEEDINGS: HEARING

BEFORE: CHAIRMAN BRAULIO L. BAEZ
COMMISSIONER J. TERRY DEASON
COMMISSIONER LILA A. JABER
COMMISSIONER RUDOLPH "RUDY" BRADLEY
COMMISSIONER CHARLES M. DAVIDSON

DATE: Thursday, February 26, 2004

TIME: Commenced at 9:00 a.m.

PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	JANE FAUROT, RPR Chief, Office of Hearing Reporter Services FPSC Division of Commission Clerk and Administrative Services (850) 413-6732
APPEARANCES:	(As heretofore noted.)

I N D E X

WITNESSES

EXHIBITS

NUMBER:		ID.	ADMTD.
112	Nonconfidential exhibits to Witness Bryant's prefiled testimony	3140	
112-B	Confidential exhibits to Witness Bryant's prefiled testimony	3140	

P R O C E E D I N G S

(Transcript follows in sequence from Volume 21.)

CHAIRMAN BAEZ: Next is MCI Witness Bryant.

MS. McNULTY: Good afternoon, Chairman.

CHAIRMAN BAEZ: Hold on, Ms. McNulty. Did I skip any of your witnesses?

MR. HATCH: There was one that has filed surrebuttal only, Richard Walsh.

CHAIRMAN BAEZ: Richard Walsh. Okay. Let's take him up.

MR. HATCH: Also I need to make just a notation for the record. Mr. Walsh is adopting portions of Mr. Van De Water's testimony as it relates to Verizon, and I will go ahead for the record and read those sections that he is adopting. They are laid out in his testimony, but I will go ahead and read those.

For Mr. Van De Water's direct beginning on Page 30 at Line 8 through Page 32 at Line 13. Then for Mr. Van De Water's rebuttal, beginning on Page 4 at Line 3, through Page 5 at Line 11; Page 6, Lines 26 and 27; Page 10, Lines 1 through 7; Page 13, Lines 1 through 5; Page 17, Lines 3 through 14; and beginning on Page 25 at Line 16 through Page 27 at Line 5.

CHAIRMAN BAEZ: Okay. Show the surrebuttal testimony of Richard J. Walsh and those portions of Mr. Van De Water's testimony as previously laid out which Mr. Walsh is adopting

entered into the record as though read.

MR. HATCH: Thank you, Mr. Chairman.

CHAIRMAN BAEZ: And I'm not showing any exhibits.

MR. HATCH: There are no exhibits for Mr. Walsh.

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is Richard J. Walsh and my business address is 3577 Conroy Road, Orlando Florida, 32839.

Q. PLEASE DESCRIBE YOUR CURRENT RESPONSIBILITIES AS WELL AS YOUR EXPERIENCE IN THE TELECOMMUNICATIONS INDUSTRY.

A. I am presently providing consulting services to AT&T as a Technical Analyst. I've been hired by AT&T to provide assistance in understanding the various options available as part of the examination of the hot cut process, and related costs of performing loop migrations on a batch basis.

My experience in the telecommunications industry and more specifically with service provisioning spans the past thirty years, where I have held various non-management and management positions with New England Telephone, NYNEX, and Bellcore. This includes time spent since 1997 as a consultant to major telecommunications firms in the areas of business process engineering, project management, workflow analysis, and non-recurring costs.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to respond to Verizon's claim that CLECs had not specifically addressed the Verizon batch proposal. This testimony:

1) Describes and explains the substantial operational flaws inherent in Verizon's Batch Hot Cut Proposal.

2) Refutes Verizon's claims that the Batch process will satisfy the FCC Triennial Review Order's ("TRO") hot cut operational requirements.

3) Provides the Commission with AT&T's recommended changes to Verizon's "Large Job" or "Project" hot cut process for its use in ordering the implementation of a batch hot cut process for Verizon in Florida.

I am adopting the following portions of Mr. Van De Water's testimony:

- From Mr. Van de Water's direct testimony, beginning on page 30 at line 8 through page 32 at line 13.
- From Mr. Van de Water's rebuttal testimony, 1) beginning on page 4 at line 3 through page 5 at line 11, 2) page 6, lines 26 and 27, 3) page 10, lines 1-7, 4) page 13, lines 1-5, 5) page 17, lines 3-14, and 6) beginning on page 25 at line 16 through page 27 at line 5.

Q. HAVE YOU RELIED ON OTHER TESTIMONY IN ADDRESSING VERIZON'S BATCH CUT PROPOSAL?

A. Yes. Verizon's Florida BHC proposal is very similar to the proposal it filed in New York. This is not surprising. It makes sense for incumbent carriers, as they have in the past, to implement company wide wholesale service, practices, policies and operations support systems. This is not only more efficient for the incumbent, but also for the Competitive Local Exchange Carriers ("CLECs") who can develop their own systems to address only a single set of Verizon requirements and guidelines rather than different systems for each Verizon state.

Q. ARE YOU FAMILIAR WITH THE PREPARATION OF AT&T'S NEW YORK TESTIMONY?

A. Yes. I jointly prepared and sponsored the AT&T Panel initial and reply testimony addressing the hot cut process components and costs, and I am familiar with the findings and conclusions of the other AT&T witnesses.

SECTION I: ANALYSIS OF VERIZON'S PROPOSED BATCH HOT CUT PROCESS

Q. DOES THE BATCH HOT CUT PROCESS PROPOSED BY VERIZON PROVIDE ANY ADVANTAGES OVER VERIZON'S EXISTING OR PROPOSED LARGE JOB PROCESS?

A. No. For any carrier that expects to have reasonable volumes, Verizon's Batch hot cut process provides no advantages over its Large Job ("Project") process. To the contrary, the Batch process presents serious disadvantages not presented by the Project process. AT&T is not willing to use the Batch Hot cut process as proposed. AT&T would prefer to continue using the Basic process where it does not have the requisite volumes and the Project process where it has the requisite volumes. Indeed, from an operational perspective, those are the only options that AT&T realistically can use.

Q. BEFORE DISCUSSING THEM IN DETAIL, PLEASE HIGHLIGHT THE MAJOR PROBLEMS UNIQUE TO THE BATCH HOT CUT PROCESS.

A. The major problems with Verizon's proposed Batch hot cut process are as follows:

- It deprives CLECs of control over our end-user customer's experience in three essential respects:
  - Inability to permit customers to make changes to their account for up to over seven weeks;
  - Inability to control the time of day, and day of week, that customer's service will be interrupted – and put at risk for greater interruption – by a hot cut;
  - Inability to monitor the quality of the cut during the critical period between the cutover of the loop and the activation of the number port at NPAC.
- No operational processes, methods and procedures, or system messages have been defined, documented, tested or operationalized;
- There is no experience of "live production" operations in a real world environment;
- There is no control over, and complete uncertainty with respect to the cost of the "UNE-P like" service arrangement required to use the batch process for new customers;
- There is a total lack of CLEC control over the sequence in which the lines of a multi-line order are cut;
- The lack of pre-wiring and dial-tone checks gives Verizon no "margin of error" if something goes wrong on the day of the cut;
- There is no provision at all for handling IDLC loops within the Batch process.)
- There is no provision for handling CLEC-to-CLEC migrations; and
- Lack of metrics and penalties that would ensure a Verizon commitment to the process it proposes.

Q. YOU STATED THAT THE BATCH PROCESS LIMITS THE ABILITY OF CLECS TO PERMIT CUSTOMERS TO MAKE CHANGES TO THEIR ACCOUNT FOR A PERIOD OF UP TO OVER SEVEN WEEKS. PLEASE EXPLAIN THIS AND WHY IT IS A PROBLEM.

A. I understand that in the Batch process Verizon will place a customer on a "UNE-P like" arrangement for a period of time. As first proposed, that period could be up to seven weeks.[1] During this initial holding period when the customer is on such an arrangement, an order would be pending against the customer's account to move that customer's line to a UNE-L arrangement and, as a result, no service changes would be permitted until the pending order is either cleared or cancelled.

It is AT&T's experience that the initial two to three months after a customer initiates services with a CLEC is the most critical period for the CLEC to establish credibility with its new customer. It is during this period that new customers evaluate their new carrier most carefully. Stated succinctly, first impressions are important. During this period, customers are most likely to leave in response to any problems they experience in their service. It is also common during this period that the customer will seek to alter their service, as it finds new features that it does – or does not – want. Hence, the number of change orders submitted by customers in the first weeks after initiating service is quite high. Verizon proposes to prevent CLECs from processing customer change orders during this period. The holding period before conversion to UNE-L creates a potential problem for every new customer during this critical initial period: new customers will be unable to make changes to their account; they will be unable to add or remove lines, modify features or to do something as simple and common

[1] Verizon Initial Panel Testimony, page 29.

as a PIC change to switch long-distance carriers.[2] They will not understand why they cannot do so, and they will blame their new carrier for failing to fulfill what, for them, seem perfectly reasonable commercial requests. This puts CLECs at a significant competitive disadvantage if they must warn prospective customers that after sign-up they will be unable to make a change to their phone service for a period of up to more than seven weeks. (Indeed, I cannot be confident of the 35 day business maximum that Verizon now states will apply because Verizon has proposed no metrics or penalties for failure to meet its stated maximum.)

Q. WHY CAN'T THE CLEC CANCEL THE PENDING UNE-L "ORDER", MAKE THE CHANGES TO THE CUSTOMERS ACCOUNT, AND THEN SUBMIT A NEW UNE-L "ORDER"?

A. While it may be technically possible to do that, it is not commercially feasible. Verizon's practice is to charge CLECs each time an order is made and then cancelled. Such "make work" activities circle back to the same position also adds internal administrative costs to the CLEC's cost structure. But it is worse than that. Every time a CLEC submits a UNE-L order to Verizon, it sets in motion a series of events in Verizon's OSS that can be difficult to control. For example, a "disconnect" order for the UNE-P arrangement is automatically generated. If the UNE-L order is cancelled in order to make changes to the account, there is the risk that the disconnect order associated with the now cancelled UNE-L order will not be caught and the customer could lose service altogether. While this should not happen if everything is working correctly, it is AT&T's experience – based on

[2] Verizon Panel Testimony, p. 33.

thousands of hot cuts – that everything does not always work correctly. I have observed numerous occasions when disconnect orders are not caught in time and customers lose their service. Given the many more thousands of hot cuts that would be experienced in a world without UNE-P, I are quite sure that the incidence of customer outages will go up, perhaps significantly, if CLECs must cancel UNE-L orders each time one of their customers ask for a change on their account within the initial holding period.

Q. ARE THERE OTHER PROBLEMS ASSOCIATED WITH THIS HOLDING PERIOD?

A. Yes. Verizon has a very aggressive win back program. It is no secret, and Verizon is surely aware, that customers are most likely to find dissatisfaction with their new carrier in the first few months. I am concerned that Verizon will aggressively market to our new customers at a time when our ability to make changes to their account is difficult, expensive, and potentially service disrupting. Verizon could use this holding period in anticompetitive ways.

Q. YOU STATED THAT THE BATCH PROCESS ELIMINATES THE ABILITY OF A CLEC TO CONTROL THE TIME OF DAY, AND DAY OF WEEK, THAT A CUSTOMER'S SERVICE WILL BE INTERRUPTED – AND PUT AT RISK FOR GREATER INTERRUPTION – BY A HOT CUT. PLEASE EXPLAIN.

A. At the time of the hot cut, a customers' service is at its most vulnerable. This is precisely the time that their service is interrupted, and at risk for significant interruption if anything goes wrong. CLECs need to have as much control as possible over both the timing and the duration of the out-of-service condition.

The customer's service is impacted in two different ways as part of a hot cut: (1) loss of dial tone and the concomitant ability to make and receive calls ("complete out-of-service condition"); and (2) loss of the ability to receive calls ("partial out-of-service condition"). In the first case, dial tone is lost because the customer's loop is disconnected from the Verizon switch and some period of time passes before it is reconnected to the CLEC switch. In the second, even when dial tone is reestablished on the customer's line from the CLEC switch, there can be a partial out-of-service condition because calls directed to the customer's number will not be completed until there is a local number portability "activate" order sent by the CLEC to NPAC to direct all calls bound for the ported number to the CLEC switch. In addition, for Verizon's intra-switch calls to be completed, Verizon must have established "ten digit triggers" in its own switch.

Under Verizon's Batch process, CLECs lose all control over the timing and duration of the complete out-of-service condition. With respect to timing, CLECs do not know at what point in the day Verizon will disconnect the loop from its switch and take the customer out of service. Indeed, CLECs will not even be able to control the day of the week on which the cut will occur, a necessary requirement for some customers. In short, CLECs cannot arrange with Verizon for the specific needs of a customer under the Batch hot cut process.

Generally, residential customers prefer the complete out-of-service condition to occur during the day, while businesses prefer evenings. Different businesses, however, have different needs. Businesses, such as pizza shops, for example, prefer early daytime periods for their complete out-of-service condition.

Moreover, different residential customers have different needs as well. For example, people who work out of their homes do not want the cuts to take place during the day. Marketing to and acquiring new customers is an expensive and difficult operation. It requires attention to detail and individual customer needs.

It is not commercially feasible to solicit new customers without the ability to accommodate their needs during the transition. With respect to duration, under Verizon's Batch process, CLECs will have no way to know when the hot cuts will begin and how long its customers are out of service, since Verizon's process does not provide for notice to the CLEC as to when the cut begins and when it ends. AT&T cannot be responsive to its customers' calls asking when the out of service condition will begin if it doesn't know when it will begin. AT&T cannot be responsive to customer calls complaining of out-of-service conditions when it does not know at any point in time what Verizon is doing to its customers' service.

Q. YOU STATED ABOVE THAT UNDER VERIZON'S BATCH PROCESS CLECS HAVE NO ABILITY TO MONITOR THE QUALITY OF THE CUT DURING THE CRITICAL PERIOD BETWEEN THE CUTOVER OF THE LOOP AND THE ACTIVATION OF THE NUMBER PORT AT NPAC. PLEASE EXPLAIN WHAT YOU MEAN.

A. Under Verizon's Batch process, CLECs will lose control over when the ported number gets activated in the NPAC database. In its initial testimony, Verizon states:

> The cutover process will differ in one very significant way from the current Large Job process. As a condition of utilizing the batch process, CLECs would be required to authorize Verizon to submit the final number-port activation order to NPAC in place of the

> CLEC. This will virtually eliminate the need for coordination with the CLEC at the time of the cutover. In order to facilitate this process, the CLEC will be required to include in its DD-minus-3 sign-off a verification that it has created a port order in the NPAC database for Verizon to activate on the due date.[3]

Only after the number port is activated in the NPAC database is the CLEC's new customer able to receive telephone calls. During that interim period, CLECs' customers' can make calls but they will not receive calls, thus resulting in a partial out-of-service condition. Yet, in order to use Verizon's batch process, the CLEC would have to cede all control over when, *i.e.*, how long after the loop itself is cutover, the number port is activated at NPAC. CLECs will be completely at the mercy of their principal competitor to ensure that their customers' service is not compromised. Given that Verizon's incentives are perverse, such an arrangement is completely unacceptable to AT&T.[4]

Q. ARE THERE OTHER SERVICE QUALITY PROBLEMS THAT ARISE FROM CLECS' LOSS OF CONTROL OVER THE NOTIFICATION OF NPAC?

A. Yes. CLECs also will lose the ability to test for connectivity after the line is cut and before the number port is activated at NPAC. If there is no connectivity, this is the point at which a "throwback" may occur. If the process proceeds to number port activation, it becomes extremely difficult to restore service. Once the number port has been activated, the restoration process becomes more complex,

[3] Verizon Initial Panel Testimony, pp. 30-31.

[4] It is not necessary to assume that Verizon will have anticompetitive motives to sabotage the cut deliberately. Verizon simply has no economic incentive to staff, train and manage its operations to ensure that no delays occur at this stage. Any profit maximizing firm will deploy resources where they produce the best return for the firm. Taking resources away from other activities to ensure that there are no delays in providing service to the customers of competitors is not something that Verizon has an incentive to do.

involves more "moving parts" and restoration of service can take days instead of minutes. As a result, the costs to the CLEC, both in internal resources and in damage to its reputation, are significant. The costs to the customer are obvious.

This is not a trivial matter. Despite the testing for dial tone two days prior to the date of the cut, AT&T does experience lack of connectivity immediately following the cut. Under the current process, when Verizon notifies the CLEC that the cut has happened so that the CLEC can activate the number port, it also provides the CLEC with an opportunity to test for connectivity immediately, which in turn provides critical valuable minutes to resolve problems in a prompt and expeditious manner if they are on the CLEC side. In the absence of the CLECs' participation at this stage, more throwbacks will occur and – because they will occur after number port activation – will result in extended and costly service interruptions. This aspect of the Batch process alone is sufficient to make it unacceptable to AT&T.

Indeed, it is hard to understand the benefit of such a proposal given the negatives it creates for CLECs and the fact that it does little to reduce Verizon's burdens. Because, under Verizon's proposal, Verizon will notify NPAC following the cut instead of notifying the CLEC, little is gained. An automated notification system between Verizon and the CLECs should allow the CLEC to retain control over the NPAC notification process without manual intervention on Verizon's part or associated costs.

Q. IN YOUR LIST OF CRITICISMS OF THE VERIZON BATCH PROCESS, YOU EMPHASIZED THE CLEC'S LACK OF CONTROL. PLEASE EXPLAIN WHY THIS IS AN IMPORTANT CONCERN.

A. CLECs are retail service providers. As such, AT&T's relationship to its customers is paramount. It is critical that it be able to control as much as possible of its customers' experience. Any time a third party is involved, AT&T loses that control, and is at risk. When Verizon inserts itself into the relationship with AT&T's customers and their service, AT&T has everything to lose if things do not go right because the customer will blame its new carrier for any failure in the migration process.

Verizon's Batch hot cut process runs counter to this central principle of AT&T's business. AT&T has not asked Verizon to take control over its customers' experience. In proposing this process, Verizon is not offering a better process nor is Verizon offering a process that AT&T would utilize. Moreover, eliminating the ability of CLECs to control the experience of their new customers means that the Verizon's proposed process will not benefit customers.

Q. YOU STATED ABOVE THAT ONE OF YOUR MAIN CONCERNS WITH THE BATCH PROCESS IS THAT NO OPERATIONAL PROCESSES, METHODS AND PROCEDURES, OR SYSTEM MESSAGES HAVE BEEN DEFINED, DOCUMENTED, TESTED OR OPERATIONALIZED. PLEASE EXPLAIN.

A. Any complex process involving the exchange of information and the coordination of tasks between two operating entities requires clearly defined language and agreed upon methods of communication. This means that every step of the process must be agreed on, including when messages are required between the entities, how they will be delivered and the details of the message content.

Verizon's batch cut proposal fails to offer any of the specificity that is required to know whether and how this process will work in the real world. There is not sufficient information to determine what CLECs will need to do and, therefore, what internal costs it will impose on them and what impacts it will have on their administrative structure. A few simple examples will illustrate this problem:

- By what method and manner do CLECs place a batch hot cut order (e.g., what date does the CLEC put on the initial order regarding the timing of the Batch cut and the LNP?);
- How do CLECs find, or "see", in WPTS that a particular order is part of a "Batch" with specific schedule information;
- What is the system message (e.g., how is it delivered and where should CLECs look for it), to notify CLECs that a particular order has been scheduled for cutover on a particular day as part of a Batch;
- How do CLECs respond to the system message notifying them that an order has been scheduled, that is, how do CLECs accept or decline;
- What happens to the order if the CLEC declines and/or elects to change the date of the cutover?

Q. WHAT TYPE OF TESTING DOES AT&T RECOMMEND?

A. As described in the direct testimony Mr. Van De Water, once the Commission approved batch hot cut process is designed it could be subjected to pre-implementation testing. This pre-implementation testing would include third party monitoring of Verizon's migration of significant numbers of its own retail customers from a direct connection of the customer's line to the Verizon switch

over to another Verizon switch connected via collocated transport equipment located in the original central office.

Q. YOU ALSO STATED THAT THERE HAS BEEN NO EXPERIENCE OF "LIVE PRODUCTION" OPERATIONS IN A REAL WORLD ENVIRONMENT. WHAT DID YOU MEAN BY THAT?

A. No process requiring complex interplay between two different entities can be developed in the abstract. Even after the details of the process have been thought through (i.e., defined, documented, tested and trialed in operation), it still must be utilized in a real world environment for some period of time before, it can confidently be relied upon. Certainly, it would be irresponsible to place the fate of hundreds of thousands of customers in the hands of a process that had never been utilized on the scale required in a post UNE-P world, until such a process had been demonstrated to work in that kind of environment.

Q. YOU STATED ABOVE THAT LACK OF CONTROL OVER, AND UNCERTAINTY WITH REGARD TO, THE "UNE-P LIKE" ARRANGEMENT IS A REAL PROBLEM. CAN YOU PLEASE EXPLAIN?

A. Yes. The Batch process can be used for new customers only if a CLEC can acquire the customer before the date of the cutover. This is because the date of the cutover to the CLEC switch is unknown – and in the control of Verizon – at the time the customer initially agrees to become a CLEC customer. Customers will not wait indefinite periods of time for their new service arrangement. Under Verizon's Batch process, CLECs will, therefore, acquire the customer on a UNE-P or "UNE-P like" service arrangement. If this Commission finds that there is no

impairment without Verizon-provided switching in a geographic area, part of the cost of acquiring the customer under the Batch process will be the cost of the "UNE-P like" arrangement. Verizon stated in its initial panel testimony that "subject to subsequent review by the Company" it would charge rates currently applicable to UNE-P.[5]

The problem for CLECs is that they do not know what this potentially important cost of using the Batch process will be in the future. In response to interrogatories in New York, Verizon was unwilling to provide us with a date by which it would "review" and presumably determine a more permanent rate. Moreover, it did not identify any requirements that it believes would limit its discretion in determining this component of the cost of a Batch hot cut.

CLECs are, therefore, left with no certainty regarding the ultimate cost to them of using the batch hot cut process, except the near certainty that at some point in the future ***it will cost more than TELRIC to purchase everything that is required to use the process.***

Q. YOU ALSO STATED ABOVE THAT LACK OF CLEC CONTROL OVER THE SEQUENCE IN WHICH THE LINES OF A MULTI-LINE ORDER ARE CUT IS A PROBLEM. PLEASE EXPLAIN.

A. Business customers with more than one line often have established features that require all lines to be working together. A "hunting" feature is a prime example of such an arrangement. In these cases, a call to any one of a customer's lines will be redirected to a free line if the called line is busy.

[5] Verizon Initial Panel Testimony p. 32.

In certain situations, the hunting feature could be compromised or disabled by a hot cut occurring as part of a Batch process. Some multi-line customers with the hunting feature may have added lines over a long period of time. Lines added recently may connect to the MDF at entirely different places on the frame than lines added earlier on. When implementing a Batch hot cut, Verizon's technicians will likely move down the frame cutting lines over in the order in which they appear on the frame. This could result in some lines of the multi-line customer being cutover well before other lines. The effect would be to disable or compromise the hunting feature during the time that some, but not all, of the lines have been cut.[6] This is another example of problems that can occur when CLECs do not have the ability to control the timing of the cut and when Verizon elects to cut lines according to placement on the frame rather than by customer order.

Q. YOU REFERRED TO THE FACT THAT THERE COULD BE PROBLEMS CAUSED BY VERIZON'S FAILURE TO PRE-WIRE THE MDF AND TO CONDUCT A DIAL TONE CHECK IN A BATCH HOT CUT PROCESS. PLEASE EXPLAIN.

A. Under the Batch process, Verizon will wire on the day of the cut. There is no pre-wiring. I have serious concerns about the consequence to the customers' service of Verizon not doing the pre-wiring work and dial tone check ahead of time. AT&T's concern is that Verizon has left itself no cushion, or margin of error, if problems are encountered at the frame during the day of the hot cut. I am not

[6] Under Verizon's batch process, the duration between the first line cut and the last line cut could be as long as 24 hours since Verizon proposes to do batch hot cuts without an appointed hour within a day. Verizon could, under its proposal, start a cut just after midnight on one shift and finish the batch just before midnight of the next day and still consider (thus report) its performance as "on time" even though this is a day long outage from the customer's perspective.

concerned about the CLECs' ability to deliver dial tone so much as I am concerned about the ability of Verizon to manage for unexpected contingencies that could affect its ability to do the work on the day of the cut, such as weather emergencies, unexpectedly high absenteeism, or an unusually high incidence of problem cuts in a particular central office on a particular day. Moreover, Verizon has provided no evidence that it is capable of managing and minimizing the risks created by the removal of these quality checks.

Q. YOU STATED ABOVE THAT THE FAILURE OF THE BATCH PROCESS TO INCLUDE THE HANDLING OF IDLC LOOPS IS A PROBLEM. PLEASE EXPLAIN.

A. According to the Verizon Force Model filed in this docket, many of its central offices have a high percentage of IDLC. The batch process, by design, excludes all such customers. Moreover, to the extent that CLECs are successful in obtaining market share, the percentage of remaining Verizon customers on IDLC will increase, because Verizon will be constantly moving CLEC customers off of IDLC in order to hot cut them and putting them on analogue copper freed up by moving Verizon's customers onto IDLC. The Batch hot cut process, therefore, by design, will exclude an increasing percentage of the end-users to whom CLECs will be marketing.

This is a problem for our business that the FCC recognized in the TRO. In that decision the FCC stated:

> [W]e require incumbent LECs to provide requesting carriers access to a transmission path over hybrid loops served by Integrated DLC systems. I recognize that in most cases this will be either through a spare copper facility or through the availability of

> Universal DLC systems. Nonetheless even if neither of these options is available, incumbent LECs must present requesting carriers a technically feasible method of unbundled access.[7]

Offering a process for hot cutting volumes of customers in a post UNE-P world that does not even include the ability to hot cut IDLC loops is not a process that provides any method of unbundled access, much less, a "technically feasible method of unbundled access." A solution must be developed that allows the CLEC customer served on an IDLC loop to remain on UNE-P indefinitely or provides additional UDLC or copper loops in order to permit the migration of IDLC loops in a larger group (project or batch), individually in a Basic hot cut process, or in an appropriately defined Batch process.

Q. ON PAGE 27 OF ITS INITIAL PANEL TESTIMONY, VERIZON INDICATES THAT IN A NEW YORK WORKSHOP, CLECS AGREED TO PROCESS CHANGES FOR IDLC LOOPS, INCLUDING THEIR EXCLUSION FROM THE LARGE JOB OR PROECT PROCESS. DID AT&T AGREE?

A. No. As described above, AT&T believes that ILECs must permit the migration of IDLC loops. Further, to address the operational and economic concerns of the individual hot cut process, IDLC must be included in any "batch" process ordered by this Commission.

Q. **YOU ALSO STATED ABOVE THAT THE FAILURE OF THE BATCH PROCESS TO INCLUDE THE HANDLING OF CLEC-TO-CLEC MIGRATIONS IS A PROBLEM. PLEASE EXPLAIN.**

A. There are two problems. First, the FCC's TRO specifically requires that the Batch process address CLEC-to-CLEC migrations.[8] Second, as CLEC market

[7] TRO, at para. 297.

share increases, CLECs will increasingly be marketing to the customers of other CLECs, many of which will, in a post UNE-P environment, be competing using Verizon loops. If Verizon's inherent monopoly advantages are eventually eliminated, then there is no reason to expect that Verizon will enjoy a predominant position in the market. Thus, to the extent that a Batch hot cut process ***could***[9] eliminate Verizon's inherent monopoly advantage so that CLEC market share increases, Verizon's batch process paradoxically becomes unavailable, as the majority of migrations will become CLEC-to-CLEC migrations. The failure to provide an efficient, low cost process for CLEC-to-CLEC migrations is a real concern to AT&T.

Q. DOES THE BATCH PROCESS REFLECT ANY OF THE OPERATIONAL ENHANCEMENTS AND INCREASED EFFICIENCIES DESIRED BY CLECS?

A. The CLEC requested process enhancements are conspicuous for their absence in this proposal. While Verizon's testimony indicates a couple of minor modifications to its Basic and Project processes that it claims were made at the request of CLECs at the technical workshops, it does not even make such a claim with respect to the Batch process. Nor is Verizon able to explain any real benefit for the CLECs beyond the claim that it permits CLECs that cannot use the Project process to participate. [10] The process appears to have been developed by Verizon

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[8] TRO, at para. 478.

[9] As I have testified above, I do not believe that the process proposed by Verizon can do so at all.

[10] *See*, Verizon Initial Panel Testimony, p. 33, where Verizon makes the conclusory, unsupported claim that "[t]he batch process would greatly reduce the need for CLEC personnel to become involved in the hot cut process, thus reducing the 'internal' CLEC costs associated with hot cuts." If Verizon were truly interested in reducing the need for CLEC personnel time, it would implement the automation enhancements that the CLECs have requested.

for its own purposes, without significant, and perhaps without any, input from CLECs.

Q. WHY DO YOU SAY THAT IT DOES NOT REFLECT INPUT FROM CLECS?

A. CLECS have been describing their needs for months in the technical workshops in New York. While not the only item sought, one of the most important is the ***reduction of manual work*** and ***increased automation*** relating to the many management, administrative and communication activities that take place both between CLECs and Verizon and between or among the various Verizon workgroups as part of a coordinated hot cut. CLECs want the manual work activity reduced or eliminated. For example, CLECs have said that they want Verizon's Service Order Processor to process their LSRs automatically and respond to CLECs through a dedicated interface with information in an electronic format that can flow directly into CLEC systems. This will eliminate the need for CLECs to dedicate personnel to access Verizon's WPTS system, refresh the screen continuously for updates, and manually update its internal systems. CLECs have asked Verizon to eliminate unnecessary designed fall-out, which requires Verizon to devote manual effort to create internal service orders. A constant theme of CLEC requests has been the request to "push-out" information electronically to CLECs at each stage of the process so that CLECs can assume the responsibility (and manual effort, if necessary, instead of Verizon) for ensuring that the orders in Verizon's systems are correctly populated and flowing through to completion as contemplated. CLECs have noted the costs and potential

for delays or errors associated with Verizon's use of manual processes in the RCCC for assigning work and have proposed the implementation of automated systems to perform those tasks. CLECs have noted the importance of all workgroups at both Verizon and the CLECs to know when order statuses change and the resulting need of a WPTS type system to allow both Verizon workgroups and CLECs the ability to enter status changes and receive status change notifications automatically. Currently, CLECs are unable to enter status change notifications into the system nor do they receive status change notifications from Verizon automatically. CLECs have asked for the coordination of due date activities to be handled electronically using WPTS, not for their elimination, as proposed by Verizon in the Batch process.

I mention only some of our recommendations here to illustrate the conspicuous absence of a response to CLEC needs in Verizon's proposed Batch process. In fact, AT&T does not want Verizon's Batch process. AT&T prefers the Project Process (and the Basic Process where appropriate) with the automation described above and in the Section II of my testimony.

Q. VERIZON CLAIMS THAT ITS PROPOSED PROCESSES SATISFY THE TRO REQUIREMENTS. DO YOU BELIEVE THAT VERIZON'S PROCESSES CAN SATISFY THE TRO REQUIREMENTS WITHOUT IMPLEMENTING THE ENHANCEMENTS THAT YOU RECOMMEND?

A. No. The TRO directs state commissions "within nine months of the effective date of this Order, to approve and implement a batch cut migration process — a seamless, low-cost process for transferring large volumes of mass market

customers."[11] While it is doubtful that in the real world any process that depends upon manual re-wiring of every line for every change of carrier can be either low cost or seamless, without the process enhancements that I recommend to automate as much of the process as possible, it is certain that neither the goal of "seamless" nor the goal of "low cost" can be realized. I emphasize that the only way that a process that is inherently manual at the MDF can even begin to approach "seamless" (and I doubt that the CO wiring requirements will ever permit the process to be seamless in the way competitive markets require, such as the long distance market) is to ***automate every aspect of the process that can be automated.*** AT&T's proposal attempts to do that. The omission of virtually every automation enhancement that CLECs have recommended from Verizon's proposed hot cut processes makes them hopelessly susceptible at virtually every stage to human error, confusion and delay. Verizon has not proposed a hot cut process that is seamless. Finally, so that there is no misunderstanding, I reiterate that, while implementation of the automation and all other recommendations that I proposed is a necessary condition for achieving a seamless and low-cost process, it is not a sufficient condition. Real world implementation and testing (using Verizon's customers as subjects) are essential and, if – as I believe will be the case – real experience demonstrates that our recommended process is not seamless or low cost at high volumes due to the inherent limitations of the manual central office wiring work, then no hot cut process can be found to satisfy the

[11] TRO, ¶ 423.

TRO requirements, and other options must be pursued. As the FCC stated in the TRO,

> [W]e decline to require ELP [Electronic Loop Provisioning] at this time, although we may reexamine AT&T's proposal if hot cut processes are not, in fact, sufficient to handle necessary volumes.[12]

SECTION II. AT&T'S RECOMMENDATIONS FOR IMPROVING THE "LARGE JOB" OR "PROJECT" HOT CUT PROCESS

Q. PLEASE DESCRIBE YOUR RECOMMENDATIONS FOR IMPROVING VERIZON'S CURRENT "LARGE JOB" HOT CUT ("PROJECT") PROCESS.

A. AT&T recommends specific improvements that will make the existing, intensely manual Verizon "large job" hot cut process substantially more efficient in an environment where UNE-P remains available. Adopting these recommendations will lower all parties' costs, reduce delays and errors in processing "large job" hot cuts, and minimize service disruptions to customers.

Q. PLEASE SUMMARIZE THE MAIN IMPROVEMENTS THAT AT&T RECOMMENDS.

A. The main improvements that fall into four categories.

- First, I recommend modifying and in some cases eliminating the capacity constraints that Verizon imposes on the process. If applicable in Florida, these constraints include the one-cage-per-CLEC-per-central office constraint, which I shall abbreviate as the "one cage" constraint, as well as the manager area and geographic area limits imposed by Verizon.

[12] TRO, at para. 491.

- Second, the "large job" hot cut process should involve fewer manual — and often unnecessary — steps and should instead incorporate greater automation of order entry, order processing, and communication of information concerning the order status for "large job" and individual hot cuts. This can be achieved through improved usage of WPTS from the beginning to the end of the "large job" hot cut process. This improved usage should include enhancing WPTS so that it electronically "pushes out" information to CLECs (i.e., automatically sends out updates from WPTS) without any manual action being performed to electronically flow through and automatically update CLEC systems as soon as new information appears in WPTS.
- Third, Verizon should notify CLECs regarding completion of individual loop migrations within a "large job." This notification should occur with all reasonable speed and in a manner that facilitates quick CLEC post-cutover activity completion, such as activation of line number portability ("LNP") to ensure that CLEC customers can begin receiving incoming calls as soon as possible. Therefore, based on our recommendations, Verizon should provide notification through the enhanced WPTS after each batch of 20 loops is migrated and the notification should flow through to CLEC systems and trigger appropriate CLEC actions. This recommendation assumes that there is no degradation in the intervals between the actual cutover time and the notification by WPTS that a cutover has been completed.

- Fourth, Verizon should modify the procedures used to migrate from one CLEC to another CLEC via UNE-L in a manner that is at parity with the process for migrating a CLEC UNE-L customer back to Verizon.

Q. PLEASE DESCRIBE YOUR RECOMMENDATIONS TO ELIMINATE VERIZON'S CAPACITY CONSTRAINTS ON BULK HOT CUTS.

A. Following are Verizon's constraints in New York. To the extent they exist in Florida, they should be eliminated by this Commission. First, Verizon's one-cage constraint should be eliminated because it unreasonably delays the execution of "large job" hot cuts. The constraint bars a CLEC, or groups of CLECs, with multiple collocation cages in a central office from aggregating lines across cages in a "large job" hot cut project. This has the potential to delay the period of time required for a CLEC to reach the minimum number of lines necessary for Verizon to perform a "large job" hot cut and can also cause Verizon to take multiple nights to execute projects when one night might well suffice.

The one-cage constraint can also delay when *other* CLECs may have their "large job" hot cuts executed. These Verizon-imposed delays on "large job" hot cuts are in no way justified by any efficiency gains. As I noted earlier, while the one-cage constraint may make the pre-wiring phase of the process *a bit* easier, this is of minimal importance in light of the fact that all the cutovers occur on the same frame or set of frames in a given central office. The minimal efficiency gain in the pre-wiring phase simply does not warrant the delays caused by the one-cage constraint.

Q. ARE THERE ANY OTHER VERIZON-IMPOSED CONSTRAINTS ON "LARGE JOB" HOT CUTS THAT SHOULD BE CORRECTED?

A. If the Commission were to restrict the availability of UNE-P in reliance on the ability of CLECs to serve the mass market in any parts of the Verizon territory, it may well become necessary to increase Verizon's 150-line per day maximum on the number of lines that can be hot cut that AT&T in practice experienced with Verizon. Insofar as migrations from UNE-P to UNE-L service become more common, the demand for "large job" hot cuts will increase exponentially and it will prove impossible for Verizon to satisfy that demand unless the maximum is raised.

Similarly, it will become necessary to alter Verizon's geographic and management area constraints on "large job" hot cuts, by raising the number of central offices per manager's area and per Verizon-defined geographic area within which projects may be executed on a given night.

Q. YOUR SECOND RECOMMENDATION CONCERNS IMPROVING THE "LARGE JOB" HOT CUT PROCESS, PARTICULARLY BY INCORPORATING GREATER AUTOMATION. HOW IS YOUR TESTIMONY ORGANIZED TO ADDRESS THIS RECOMMENDATION?

A. I will follow the "large job" hot cut process in chronological order, from CLEC Order Placement to Due Date Cutover Activities. As I proceed, I will focus on how specific phases of the process can and should incorporate greater automation.

Q. BEFORE PROVIDING DETAILS, CAN YOU SUMMARIZE THE GREATER AUTOMATION THAT YOU RECOMMEND?

A. Yes. AT&T recommends enhanced usage of WPTS. WPTS can serve both as an interface for communications between Verizon and CLECs and as a mechanism for relaying orders and information from one Verizon work center to another.

Q. HOW SHOULD A CLEC INITIATE A "LARGE JOB" HOT CUT REQUEST TO VERIZON?

A. The order entry process should incorporate WPTS. Instead of the current practice of placing a phone call to Verizon's National Marketing Center (NMC), a CLEC should input directly into WPTS the scope of the project it wants Verizon to perform. This includes identifying the central office in which the project is to take place, the number of lines that are to be cut over, and the date when the CLEC would like the cutovers to take place. All of this information should be submitted to Verizon via WPTS. WPTS should then automatically notify Verizon downstream provisioning work centers and systems regarding the project and its scope.

Q. HOW SHOULD THIS REQUEST BE INITIALLY PROCESSED?

A. The initial processing should also involve communication through WPTS. The NMC will assign a project identification code (ID) to the request. The NMC should then determine the availability of Verizon resources to execute the project. Rather than having to call various Verizon departments to determine resource availability, the NMC should be able to consult Verizon's Work Force Administration ("WFA") OSS for this information. That is, Verizon's downstream OSSs should contain up-to-date information as to the status of other

work activities and Verizon resources so that the NMC can determine resource availability with minimal effort.

Resources permitting, the NMC can schedule and confirm with the CLEC via WPTS the "large job" hot cut project date requested by the CLEC. If resources constraints do not permit the CLEC requested date, the next closest date should be made available. The NMC should input this due date, along with the project identification into WPTS, which will communicate the project information to the CLEC via an "electronic push."

Q. WHAT DO YOU MEAN BY "ELECTRONIC PUSH" OF THE PROJECT INFORMATION?

A. An "electronic push" of information is a system enhancement that will provide the CLEC with real-time electronic updates in a user friendly format of the status for all project items, without requiring dedicated CLEC personnel to continuously re-access the Verizon's WPTS system, refresh the screen continuously for updates, and manually update its internal systems. Instead, Verizon's WPTS should "push" changes of information electronically to the CLEC, whose systems will receive the new information and forward it to relevant CLEC personnel.

Q. AFTER THE DUE DATE HAS BEEN ESTABLISHED, HOW SHOULD SERVICE ORDERS BE GENERATED?

A. To a large extent, service orders should be generated as they are now. The first step will remain CLEC issuance of EDI LSRs that reference the due date and the "large job" hot cut project identification. Once these are sent over to Verizon,

Verizon's Service Order Processor ("SOP") should process them automatically, without requiring dedicated CLEC personnel to access Verizon's WPTS system, refresh the screen continuously for updates, and manually update its internal systems. The LSRs will fall into two categories.

The vast majority of the LSRs should be unproblematic and simply flow through Verizon's systems and generate internal service orders.

However, some LSRs will not flow through due to circumstances beyond the CLEC's control. LSRs will fall out due to Verizon-imposed constraints on automated processing. For example, Verizon's OSS in New York is not designed to handle LSRs involving more than twenty lines. Therefore, LSRs involving more than twenty lines fall out for manual processing and validation. This will not be a sustainable limitation in any case where the scale of UNE-L orders significantly increases. Verizon should be required to improve the flow through rate by making system enhancements to make orders eligible for flow through and by insuring that its downstream systems are available for the processing of these orders.

Q. WHAT SYSTEM MODIFICATIONS DO YOU RECOMMEND TO IMPROVE THE METHOD FOR ASSIGNING WORK DURING EXECUTION OF THE "LARGE JOB" HOT CUT?

A. The work assignment phase of the "large job" hot cut process consists of giving various workgroups — including CLEC workgroups, which have a role to play in the "large job" hot cut process — task instructions and the detailed information they need to complete their tasks. As noted previously, at present the RCCC

plays a large role here. The RCCC is responsible for manual creation of work assignments and project administration. This includes the RCCC's role in manually entering project information into WPTS and manually distributing spreadsheets containing project details to workgroups. The RCCC's role can and should be greatly diminished, since these work assignment functions lend themselves to much greater automation. Automation can be applied both in initial work assignments and in work assignment modifications that arise in response to information communicated through enhanced usage of WPTS.

Q. PLEASE DESCRIBE AUTOMATION IN THE GENERATION OF WORK ASSIGNMENTS UNDER YOUR PROPOSED PROCESS.

A. Based upon the information included in the CLEC's LSR and Verizon's internal service orders, Verizon's OSS should automatically populate into WPTS the information for each line cut in a project after service orders have been created. Verizon's current OSS has the intelligence to determine what work needs to be assigned and to whom. The OSS will then automatically assign system resources to the project, and notify the RCCC of any trouble in making such assignments. Here, the RCCC Technician must assist the OSS by manually resolving such troubles, but the automation involved where there are no troubles constitutes a big efficiency gain over the present reliance on the RCCC.

Q. WHY IS IT CRITICAL TO HAVE ACCESS TO PROJECT AND ITEM STATUS CHANGES DURING THE "LARGE JOB" HOT CUT PROCESS?

A. Each labor group that is part of the "large job" hot cut process (including the CLEC) needs to know when order statuses change, because this information is

central to managing the "large job" hot cut process. Today, Verizon's OSS allow only its labor groups this visibility. Status changes should be entered into WPTS so that they may be automatically communicated both to Verizon and to CLECs workgroups. This means that CLECs as well as Verizon should be able to input updated information into WPTS. These automated updates are quick and reliable and lead to quick and reliable responses. Armed with up-to-date information, the Verizon and CLEC workgroups can respond quickly and appropriately to changes in status.

Q. MUST WPTS BE IMPROVED TO PERFORM THIS COMMUNICATIONS FUNCTION?

A. Yes. SOP and WPTS should communicate with each other. Data from SOP concerning project item information should be automatically imported into WPTS so that interested parties, including the CLEC, can stay on top of project details and respond appropriately to developing problems.

As I have already indicated, moreover, WPTS should further be improved so that updated information is electronically pushed out toward CLECs. That is, Verizon should modify WPTS so that Verizon can communicate with CLECs system-to-system.

WPTS should electronically send out updated information to CLECs as soon as the information is received, and it should send out this information in such a fashion as to trigger automatic responses by CLECs. For instance, when Verizon performs dial-tone checks and finds there is "no dial-tone" from the CLEC side, the CLEC has 24 hours to resolve a WPTS "no dial-tone" notification from the

Verizon. If WPTS is able to push information to the CLEC system, the CLEC can immediately respond, rather than relying on dedicated personnel monitoring and searching for changes in WPTS to "catch" this notification.

WPTS should also have indicators for jeopardies and/or incomplete order status so that such information gets automatically communicated to CLECs as it is received. Upon receipt of automated notifications through WPTS, a CLEC can take suitable action to complete its internal work on the project hot cut or initiate action by the correct Verizon department(s), as required.

Q. PLEASE SUMMARIZE THE BENEFITS THAT WILL RESULT FROM THE IMPROVEMENTS TO THE "LARGE JOB" HOT CUT PROCESS THAT YOU HAVE JUST RECOMMENDED.

A. Greater automation in updating CLECs and Verizon workgroups as to project and item status will eliminate unnecessary procedures and costs, reduce the errors that attend manual processes, and increase the efficiency of the "large job" hot cut process. As a result, Verizon will be able to perform not only more efficiently, but Verizon should also be able to manage larger and more frequent "large job" hot cuts.

Q. ARE THERE ANY CURRENT STEPS IN THE PRE-WIRING PHASE THAT YOU RECOMMEND ELIMINATING?

A. Yes. At present, in New York Verizon performs Mechanized Loop Testing ("MLT") to check for line problems before lines are pre-wired for cutover. This check is redundant. First, if any line problems affect a customer's service, the customer will alert the CLEC provider of local service. So, the CLEC will

already know if a problem exists. Second, Verizon should be aware of any other problems, since it performance MLTs as part of its routine preventative maintenance programs. If, however, Verizon insists on performing one, no charge for this should be passed on to CLECs.

Q. WHAT CHANGES TO DUE DATE CUTOVER ACTIVITIES DO YOU RECOMMEND?

A. If WPTS communications is properly designed and operated, it is unnecessary for Verizon to contact the CLEC for final authorization prior to commencing the actual migration. Rather, the CLEC should communicate its readiness for actual migration by inputting this information into WPTS, which will push this information out to Verizon. After making the necessary final checks, such as ensuring that all lines in the project are fully provisioned and ready for cutover, the CLEC can update WPTS directly, indicating to Verizon that it should commence cutover activities pursuant to the lines associated with the "large job" hot cut. Final authorization communication can thus occur electronically, without RCCC involvement.

Similarly, Verizon's frame technicians should be given access to WPTS so that they can update the system with project completions on a real time basis, thereby eliminating redundant calls to the RCCC for WPTS updates. Clearly, it is not efficient or necessary to relay information from one work group to another via telephone, when the technician who performs the task has the ability to electronically update the system that will notify the relevant Verizon and CLEC workgroups simultaneously. Again, quality measures and controls should be in

place to ensure that there are no unnecessary delays between the actual cutover activity and the WPTS update to the CLEC.

Q. DO YOU RECOMMEND ANY OTHER CHANGES IN DUE DATE CUTOVER ACTIVITIES?

A. I recommend, in the next sub-section, that CLECs receive faster and more efficient notification of completed cutovers.

Q. WHAT SYSTEM MODIFICATIONS DO YOU RECOMMEND FOR THE DUE DATE CUTOVER ACTIVITIES THAT OCCUR AT THE END OF THE "LARGE JOB" HOT CUT PROCESS?

A. A line that has been migrated from UNE-P to UNE-L service does not become fully operational until the CLEC has activated local number portability on that line. Therefore, in order to minimize service disruptions to customers, a CLEC should receive real time notification of completed cutovers. A CLEC should not have to wait for the frame technician to complete a set of 20 cutovers and then place a phone call to the RCCC, who in turn must contact the CLEC as is currently the case. In lieu of this inefficient process, frame technicians should be given access to WPTS either through hand-held devices or through WPTS terminals placed in strategic locations in the frame area. In this way, the frame technicians can update the system in real time as they perform their cutover work. Once notified, WPTS should automatically push this data to the CLECs and other downstream internal systems. This would allow the CLEC systems to automatically activate the local number portability transaction, ensuring the CLEC customer service disruptions are held to a minimum time interval.

Q. WHAT ARE THE BENEFITS OF THE MORE EFFICIENT NOTIFICATION PROCEDURE JUST DESCRIBED?

A. The more efficient notification procedure I recommend minimizes the time when customers cannot receive calls. The procedure also speeds up a CLEC's service verification process. A CLEC receiving more efficient notification will be able to ascertain problems arising from cutovers more quickly, and therefore be able to act more quickly to resolve them.

Q. PLEASE PROVIDE A DESCRIPTION OF THE SPECIFIC BENEFITS TO CLECS OF THE PROPOSED SYSTEM AND PROCESS IMPROVEMENTS TO THE "LARGE JOB" HOT CUT PROCESS.

A. Every CLEC must be able to represent itself to customers as a credible telecommunications carrier that can deliver quality services at affordable (and cost effective) prices. As such, in a wholesale environment where part of the network upon which CLECs must rely is owned, operated and maintained by another entity, it is extremely important to manage interactions by implementing efficient and automated workflows. Procedures that minimize manual processing and interaction between and among the telecommunications industry and that maximizes automated system-to-system communications, reduces service disruptions that occur in today's highly manual hot cut process. The "large job" hot cut process recommendations discussed above, represent an environment in which CLECs will benefit greatly by knowing the exact progress of individual project items as well as by being automatically alerted through electronic, user-

friendly system interfaces to conditions that impact the customer as well as the provider of local service.

Q. WOULD IMPLEMENTATION OF YOUR RECOMMENDATIONS BENEFIT VERIZON?

A. Yes. Verizon would experience significantly reduced labor expenses and error rates associated with the "large job" hot cut process.

Q. ARE THERE ANY OTHER POINTS THAT YOU WOULD LIKE TO MAKE REGARDING THE PROPOSED "LARGE JOB" HOT CUT PROCESS AND ITS IMPROVEMENTS OVER THE CURRENT PROCESS?

A. Yes, one final comment. The changes I have proposed can materially improve the existing hot cut process and reduce its costs. But its value is limited to scale of current operations. To the degree that even the enhanced version of the current process, described here, involves manual steps, it delays the completion of "large job" hot cuts and increases the possibility of error. Such a process will never be readily capable of handling the vastly increased volume of hot cuts that would become necessary if CLECs were required and commercially capable of competing with Verizon in the mass market, offering UNE-L service. A hot cut process that utilizes an electronic means of migrating loops between and among carriers is the only solution for this future environment.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

CHAIRMAN BAEZ: Okay. I'm sorry, Ms. McNulty, go ahead.

MS. McNULTY: That's okay. Dr. Bryant filed direct, rebuttal, and surrebuttal testimony in this docket. With that testimony there are public and confidential exhibits. The public exhibits are Exhibits MTB-1, 3 through 5, 10 through 14. And the confidential exhibits are MTB-2, 6 through 9.

CHAIRMAN BAEZ: 6 through -- I'm sorry?

MS. McNULTY: 6 through 9.

CHAIRMAN BAEZ: 6 through 9. Okay. Show the public Exhibits 1, 3 through 5, 7, and what else did you say?

MS. McNULTY: 1, 3 through 5, 10 through 14.

CHAIRMAN BAEZ: 10 through 14, I'm sorry.

MS. McNULTY: That's okay. Those are the public.

CHAIRMAN BAEZ: Those are marked as Composite 112. And Bryant Exhibits 2 and 6 through 9, and what else am I missing?

MS. McNULTY: That's it for the confidential.

CHAIRMAN BAEZ: That's it? Okay. As Confidential Exhibit 112-B.

(Composite Exhibit 112 and 112-B marked for identification.)

I. IDENTIFICATION OF THE WITNESS AND SUMMARY OF CONCLUSIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Mark T. Bryant, and my business address is 4209 Park Hollow Court, Austin, Texas.

Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE AS THEY PERTAIN TO THIS PROCEEDING.

A. I am self-employed as an economist providing consulting services in telecommunications regulatory and policy matters. I hold the Ph.D. degree from the University of Texas at Austin, and have over twenty years of experience in the telecommunications industry. Exhibit MTB-1 is a detailed description of my educational and professional qualifications.

Q. ON WHO BEHALF WAS THIS TESTIMONY PREPARED?

A. This testimony was prepared on behalf of MCImetro Access Transmission Services LLC, and MCI WorldCom Communications, Inc. (hereafter "MCI").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide an economic analysis of the impairment issue with respect to mass market switching in the state of Florida. I will discuss the economic framework and tools that should be applied to the analyses of triggers and the potential deployment of switch-based local exchange service by competitive local exchange carriers ("CLECs"). I will also present estimates of the potential revenues and costs for a hypothetical switch-based CLEC considering entering local markets in Florida. These estimates, which are based on various modeling techniques, attempt to capture how a CLEC would

make a decision whether to enter particular markets in Florida, if the unbundled network element platform ("UNE-P") were no longer available. UNE-P, or unbundled network element platform, is a combination of all unbundled network elements required, in conjunction with other functions supplied by the CLEC, to offer a complete local exchange service. At issue in this proceeding is whether unbundled switching will continue to be available for use by CLECs in individual markets. Without access to unbundled switching, the CLEC would no longer have access to UNE-P, and would be required to self-supply the local switching function in order to offer a complete local exchange service.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A. I recommend that the Commission adopt the incumbent local exchange carrier ("ILEC") wire center as the relevant market for analysis both of existing competitive switching supply (the "triggers" analysis) and of the potential for deployment of CLEC switching in Florida. Economic theory and practice, as well as the FCC's guidance in its *Triennial Review Order*, all suggest that the wire center is the most appropriate starting point for an analysis of whether CLECs are impaired without access to unbundled switching for mass-market customers. Use of the wire center as the basic building block for analysis accomplishes the FCC's goals of a granular analysis that maximizes accuracy of results, subject to the constraints of practicality. *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, "*Triennial Review Order*"), ¶ 130.

I also present the results of an analysis of the economic factors that affect the potential deployment of switching capability by CLECs in the absence of the availability of UNE-P. This analysis illustrates that the profitability of CLECs offering local exchange services in the absence of unbundled switching is highly uncertain. A wide range of outcomes is possible, depending on the assumed value of a number of critical inputs to the analysis, including the market share achieved by the CLEC, the average expected time that a customer will remain a customer of the CLEC, the cost to the CLEC of handling "hot cut" migrations from the ILEC to the CLEC, and the average revenue per customer achieved by the CLEC, among others. Under the most optimistic assumptions, the analysis can illustrate that a CLEC may achieve profitability in some, but by no means all, wire centers in Florida. Under less optimistic assumptions, the analysis can illustrate that no wire center in Florida would be profitable for CLEC entry in the absence of UNE-P.

Because of this uncertainty, I urge the Commission to proceed cautiously both in the analysis of the actual deployment "triggers" and in the analysis of potential deployment of CLEC switching capacity. As I discuss in more detail in the body of this testimony, an erroneous finding of no impairment with regard to

access to unbundled switching in the mass market could have dire and irreversible consequences for Florida consumers, while an erroneous finding of impairment would entail far less serious consequences, and would likely be a self-correcting error.

II. INTRODUCTION

A. Impairment Must Be Decided Within The Specific Context Of The Industry And The Established Goals Of The Telecommunications Act Of 1996

Q. WHAT IS YOUR UNDERSTANDING OF THE FOCUS OF THIS PROCEEDING?

A. This Commission must determine whether unbundled switching and, therefore, the so-called "UNE Platform" or "UNE-P" should continue to be available as a vehicle for competitors to offer local telephone service to residential and very small business customers ("mass-market customers") in Florida. The Telecommunications Act of 1996 ("Act") provides certain guidelines for that determination, but it is up to this Commission to interpret those guidelines and determine whether the continued availability of unbundled switching in Florida is consistent with the established goals of the Act and the specific context of the telecommunications industry in this state.

Q. PLEASE BRIEFLY DESCRIBE THE RELEVANT INDUSTRY CONTEXT.

A. This Commission must consider how best to achieve the Act's pro-competitive goals in the context of today's telecommunications industry. More and more,

competing telecommunications providers are offering consumers *bundles* that combine local, long distance, and Internet services, rather than marketing these services individually. In Florida, for example, MCI offers "The Neighborhood," a bundle of local and long distance calling, with optional calling features and Internet access, BellSouth offers "BellSouth Answers," a bundle of local and long distance calling, with optional calling features, Internet access, and wireless service, and Z-Tel offers "Z-Line Home," a bundle of local and long distance calling with advanced calling features. And more and more, consumers are opting for "one-stop shopping," buying bundled services from a single provider. This is especially true in states where the ILEC is now able to offer interLATA long-distance services along with the local and intraLATA services for which it was previously the monopoly supplier. The increasing popularity of bundling—and the ILEC's ability to provide a complete bundle of services—makes viable local competition an essential precondition for preserving competition in the long distance and Internet services markets.

The strong consumer demand for bundled products puts a monopoly provider of local service in a good position to leverage its monopoly into other services. ILECs such as BellSouth and Verizon stand poised to re-monopolize the competitive long-distance markets made possible by the divestiture of the former Bell System and to extend the former Bell monopoly into newly emerging, and initially competitive, Internet services markets as well.

Supply-related considerations also encourage the creation of service bundles and provide the ILECs with potential monopoly power. For example,

ILECs are adding broadband capability to the steadily increasing percentage of lines served via fiber feeder and Digital Loop Carrier ("DLC"). *****BEGIN PROPRIETARY ***** [redacted] *****END PROPRIETARY***** of all loops in Florida currently are served via fiber feeder and DLC. At the ILECs' urging, the FCC in its *Triennial Review Order* eliminated any requirement under Section 251 of the Act for incumbents to provide competitors with unbundled access to the newly added capabilities of their fiber-fed loops. *Triennial Review Order* ¶213. This strategic management of technology allows ILECs to bundle narrowband and broadband services for the millions of customers served over fiber-fed loops in a manner that competitors cannot readily replicate.

This is no accident. ILECs are well aware that customers who obtain their broadband Internet access and their local service from a single provider are more "sticky"—*i.e.*, they are less likely to switch carriers. For example, SBC announced recently that:

- "Adding long distance to an access line reduces the company's churn rate by 9 percent.
- "Churn drops by 61 percent when a DSL line is added to an SBC bundle.
- "Together, long distance and DSL reduce churn by 73 percent."

SBC press release, "SBC Communications Provides Progress Report On Major Growth Strategies, Outlines Broad Service and Cost Initiatives," November 13, 2003. Thus, the inability to match an ILEC's bundle of broadband and narrowband services puts CLECs at a severe disadvantage not only as potential

providers of broadband service, but also as competitors for basic voice-grade local service.

Moreover, the ILEC strategy targets less densely populated suburban and rural areas in which it is particularly difficult for CLECs to find or build alternatives to the ILEC network. SBC touted Project Pronto as extending its broadband services to customers beyond the reach of traditional DSL-over-copper solutions, typically, customers located more than 18,000 feet from the central office. (SBC Investor Briefing No. 211, October 18, 1999). There is no simple, inexpensive alternative for competitors to deliver high-quality, ubiquitous broadband service to such customers without using the ILECs' fiber-fed loops. Hence, the ILECs' broadband-over-fiber strategy jeopardizes rural customers' right to a meaningful choice of service providers.

B. State Impairment Decisions Must Also Be Meaningful within the Context of the Triennial Review Order*'s National Findings concerning Mass-Market Switching*

Q. WHAT NATIONAL FINDING OR FINDINGS DID THE FCC MAKE WITH RESPECT TO UNBUNDLED SWITCHING IN ITS *TRIENNIAL REVIEW ORDER*?

A. The FCC found on a national level that requesting carriers are impaired without access to unbundled local switching when serving mass market customers (*Triennial Review Order* ¶419).

Q. WHICH END-USER CUSTOMERS DID THE FCC INCLUDE UNDER THE HEADING OF MASS-MARKET CUSTOMERS?

A. The FCC has defined mass-market customers to include all residential customers as well as very small business customers. *Triennial Review Order*, ¶ 127. The FCC did not identify a specific cutoff for the size of businesses considered to be part of the mass market; however, it did provide some guidance on this point. I will discuss this matter further below, in the section of my testimony that addresses market definition issues

Q. WHAT WAS THE BASIS FOR THE FCC'S NATIONAL FINDING OF IMPAIRMENT FOR MASS-MARKET SWITCHING?

A. The FCC identified a number of factors that contribute to CLEC impairment without access to unbundled local switching. These factors include the difficulty faced by CLECs in transitioning customers from UNE-P based service to UNE-L based service:

> Inherent difficulties arise from the incumbent LEC hot cut process for transferring DS0 loops, typically used to serve mass market customers, to competing carriers' switches. These hurdles include increased costs due to non-recurring charges and high customer churn rates, service disruptions, and incumbent LECs' inability to handle a sufficient volume of hot cuts. Accordingly, based on those barriers, we make a national finding that competitive carriers providing service to mass market customers are impaired without unbundled access to local circuit switching. (Triennial Review Order, ¶422.

The FCC also noted that other operational issues, such as delays in ILEC provisioning of loops and collocation facilities or difficulties in obtaining cross-connect, as well as economic issues such as the relationship between revenues and the cost of obtaining unbundled network elements and the cost of overcoming operational difficulties, may affect the potential deployment of CLEC switches to

serve mass market customers. (Triennial Review Order, ¶¶ 456-458.

C. The Commission's Tasks

Q. WHAT DECISIONS MUST THE COMMISSION MAKE IN THIS PROCEEDING?

A. The Commission must conduct a market-by-market investigation into whether barriers to entry "are likely to make entry into a market uneconomic." *Triennial Review Order*, ¶ 84. As I noted above, the FCC made a national finding that CLECs are impaired without unbundled access to ILEC local switching to serve mass-market customers. The Commission must consider detailed evidence at a more granular level to determine if this finding is overcome in some markets in Florida.

Q. PLEASE DESCRIBE THE PROCESS THE COMMISSION SHOULD FOLLOW IN REACHING THESE DECISIONS.

A. The first step in the analytical process, logically (although it need not be procedurally), is to define the markets in which the Commission will consider evidence of impairment on a "granular basis to each identifiable market." *Id.* ¶ 495.

I recommend that the Commission adopt a market definition that permits the most unambiguous and accurate answer to the question of whether CLECs are impaired without access to unbundled switching in a given market. Implicitly, therefore, the market definition and every step of the subsequent analysis should allow this Commission to assess whether there is evidence that clearly

demonstrates that the basis for the national finding of impairment does not apply in a specific defined market.

Once the Commission has defined the relevant markets, it must then "identify where competing carriers are not impaired without unbundled switching, pursuant to the triggers and analysis of competitors' potential to deploy." *Triennial Review Order* ¶ 473. Both the "trigger" analysis and the analysis of potential deployment apply on a market-by-market basis, and the FCC has specified that states must use the same market definition in conducting both analyses. *Id.* ¶ 495. Hence, the task before the Commission in this phase is to determine what market definition is most appropriate, given that the same definition will be used to conduct both "trigger" and potential deployment analyses.

1. Analysis of Triggers

Q. PLEASE DESCRIBE THE FCC'S REQUIREMENT FOR ANALYSIS OF "TRIGGERS."

A. The FCC found actual marketplace entry to be the most compelling evidence of the lack of impairment. *Triennial Review Order,* ¶ 498. This was so for two reasons: (1) where significant competition already existed in a particular market, customers already have a real choice among competitors, and (2) the existence of multiple competitors actually providing service in a market demonstrates that other competitors also are likely able to enter the market. Therefore, the FCC established two actual marketplace entry "triggers" that could constitute evidence of lack of impairment in a particular market: one relating to the number of carriers

that self-deploy switches to serve the mass market, and the other relating to the number of carriers that provide wholesale switching to other carriers for use to serve the mass market. The trigger is reached in a particular market if there are at least three carriers self-deploying switching or two carriers providing wholesale switching. *Id.*, ¶¶ 501, 504. In each case, a carrier only counts toward the trigger in a particular market if that carrier is unaffiliated with the incumbent; carriers affiliated with one another, but not the incumbent, only count as a single carrier toward satisfying the pertinent trigger. *Id.*, ¶ 499. CMRS (wireless) carriers do not count toward either trigger. *Id.*, n. 1549.

Q. WHAT IS THE PURPOSE OF THE TRIGGER ANALYSIS?

A. The FCC prescribed an analysis of triggers to provide "bright-line rules" that "can avoid the delays caused by protracted proceedings and can minimize administrative burdens." *Triennial Review Order*, ¶ 498. The most reasonable interpretation of this objective is that triggers are intended to deal with the "no brainer" cases in which it is virtually certain that the national finding of impairment does not apply to a particular local market because the customers in the market already have significant alternatives and other competitors can readily enter.

But, the trigger analysis only makes sense in a rationally defined market. If a market is defined too large, the Commission will find no impairment even where many customers have no current choice of alternative providers and where it is not certain new competitors can enter. If, for example, a market is defined to include both Jacksonville and Lake City, the presence of CLEC collocations in

Jacksonville could lead to a finding of non-impairment in Lake City even though customers in Lake City currently have no choice among different providers. The ILECs may say that customers in Lake City will in the future have a choice of different providers. But that is a question of potential deployment that cannot be answered by a bright line inquiry based on the triggers. As will be discussed further below, it certainly is not clear that in the future customers in Lake City will have a choice just because customers in Jacksonville have such a choice. In general, these sorts of questions are the subject matter of the economics of market definition, and the FCC delegated the task of market definition for the state of Florida to this Commission. *Id.*, ¶ 495.

Q. HOW DOES YOUR TESTIMONY ADDRESS THE PROPER MARKET DEFINITION FOR A TRIGGER ANALYSIS?

A. Because the FCC requires that the same delineation of the state into markets must be used for both the trigger analysis and the analysis of potential deployment (*Triennial Review Order*, ¶ 495), I have considered both purposes in the market definition section below. Market definition is crucial to the outcome of the Commission's trigger analysis; if the market is not defined correctly, the trigger analysis is likely to produce an incorrect result.

For instance, if the FCC had determined that each state constitutes an appropriate market, it is likely that many states would have three retail CLECs using their own switches somewhere in the state, and the retail trigger would arguably be satisfied throughout the state even though this would say nothing about whether most customers had alternatives or were likely to do so. For the

reasons discussed at some length in my Market Definition section, defining the entire state as a market is an approach that clearly would not make sense, and the FCC correctly required that state commissions conduct a market-by-market analysis at a more granular level. *Id.*

Q. WHAT ARE THE CONSEQUENCES OF THE TWO POSSIBLE OUTCOMES OF THE COMMISSION'S DECISION REGARDING SATISFACTION OF THE TRIGGERS IN A GIVEN MARKET?

A. When considering evidence as to whether the triggers are satisfied in a particular market, the Commission should bear in mind the consequences of the two alternative outcomes. If the Commission finds three qualifying self-provisioning CLECs in a market, suitably defined, and finds that the CLECs serve a sufficient number of customers in the market, a finding of no impairment is required, and UNE-P competition is terminated. In areas within the market in which self-provisioning CLECs are competing, existing UNE-P customers will then have the choice of migrating to one of these CLECs (or another CLEC that enters) or migrating back to the ILEC.

Customers in other areas within the market may end up with no alternative. If existing self-provisioning CLECs do not already serve the entire market, as defined, they may be unable, for whatever reason, to expand, and other CLECs may not share the Commission's conclusion that they can self-provision facilities to compete with the ILEC without access to the ILEC's local switching UNE. In this case, UNE-P competition will have made a false start, and customers will have to return to the ILEC.

In contrast, if the Commission's trigger investigation fails to reach a finding of no impairment, the consequence is simply that the investigation must proceed to the more detailed analysis of potential deployment, as called for in the *Triennial Review Order*. This more detailed analysis affords the Commission a better chance of being certain that a finding of no impairment will truly be in the interest of Florida consumers, while at the same time providing ample opportunity to find no impairment if none truly exists. Hence, there is little downside—and a substantial upside—to a decision that the triggers do not justify a finding of no impairment.

For all of these reasons, I urge the Commission to conduct any trigger analyses in a manner that errs on the side of caution in protecting the interests of Florida consumers. Any decision to overturn the national finding of impairment for mass market switching based on triggers should rest on incontrovertible evidence that competitive carriers are today able to offer Florida's residential and small business customers competitive choices, even without access to UNE switching.

2. Analysis of Potential Deployment

Q. PLEASE DESCRIBE THE ANALYSIS REQUIRED TO EVALUATE THE PROSPECT OF POTENTIAL DEPLOYMENT.

A. In the absence of clear evidence of no impairment in the form of actual self-provisioning by CLECs that satisfies the "bright-line rule" of the FCC's prescribed trigger analysis, the Commission must proceed to the question of the market's "suitability for multiple, competitive supply." *Triennial Review Order*,

¶ 506. This analysis is addressed to the definition of impairment in ¶ 84: "We find a requesting carrier to be impaired when lack of access to an incumbent LEC network element poses a barrier or barriers to entry, including operational and economic barriers, that are likely to make entry into a market uneconomic." This is essentially a test based on the Commission's prediction about a CLEC's investment decisions. Namely, will a CLEC decide to deploy facilities to substitute for UNE switching, after evaluation the potential for profit and the need to overcome the barriers to entry? Of course, these barriers are not just economic barriers. Operational barriers pose a threshold test of whether UNE-L competition is feasible, and that test is addressed in the accompanying testimony of James Webber. These operational barriers also affect the economic analysis. Even if a CLEC determines that operational barriers are not insurmountable in and of themselves, the CLEC must take account of the expected cost and extra risk associated with overcoming these barriers in making a decision of whether to enter. The economic analysis below very conservatively assumes no risk and cost in overcoming these barriers.

Q. PLEASE DESCRIBE THE CONSEQUENCE OF THE TWO POSSIBLE OUTCOMES OF THE ANALYSIS OF POTENTIAL DEPLOYMENT.

A. In any given market, the Commission could make a finding of no impairment, or could find that the evidence presented is insufficient to overcome the FCC's national finding of impairment. In the event of a finding of no impairment, UNE-P competition will be terminated, and all consumers currently served by UNE-P CLECs will be forced to make a change in their telephone service: either

switching back to the ILEC, switching to a UNE-L CLEC, or switching to their existing CLEC's new UNE-L facilities. If the Commission's finding of no impairment is incorrect, the customer's only option will be to switch back to the ILEC. On the other hand, if the FCC's national finding of impairment is not overcome by the evidence of potential deployment in a particular market, the ILECs will still have additional opportunities to demonstrate no impairment. They can show the Commission that the existing impairment could be overcome by some form of "rolling access" to unbundled local switching for a limited period. And if new evidence shows either potential or actual deployment, they can come back to the Commission and make their case again. Ultimately, a finding of continued impairment maintains the status quo until new, more compelling evidence is presented.

I expect that with the passage of time, existing barriers to entry will diminish in importance to the point that the evidence will confirm either that the triggers have been met or that potential deployment is likely. Nonetheless, there may be some markets for which unbundled switching will be essential to competitive entry for many years to come.

D. Decision Criteria

Q. WHAT CRITERIA SHOULD THE COMMISSION APPLY WHEN REACHING DECISIONS IN THIS PROCEEDING?

A. Although the decisions the Commission must reach in this proceeding are clear – whether CLECs impaired without access to unbundled switching to serve mass-market customers – the Commission must exercise its judgment as to the weight

given to conflicting evidence and analytical methods. As I will show in my analysis below, the evidence on which the Commission must ultimately rely will demonstrate that there is significant uncertainty as whether the CLECs will be able to survive in most markets as switched-based providers of service in the mass market.

In this circumstance, the Commission should consider the consequences of alternatives when assigning weight to the evidence supporting the alternative decisions. As discussed above, the consequences of a finding of no impairment are very different from the consequences of the alternative, both at the stage of trigger analysis and in the analysis of potential deployment. A finding of no impairment, at whatever stage of the analysis, is essentially irreversible and initiates a process of wrenching change in the local exchange market. A decision that the available evidence does not overcome the national finding of continued impairment is a provisional finding at whatever stage of analysis it is made.

Q. IN WHAT SENSE IS A FINDING OF CONTINUED IMPAIRMENT "PROVISIONAL?"

A. Whenever the Commission determines that the available evidence does not overcome the national finding of continued impairment, that determination is always subject to reconsideration. If the Commission finds that the triggers are not satisfied in a particular market, the Commission must reconsider the implied *provisional* finding of continued impairment when it examines evidence of potential deployment in that market. *Triennial Review Order*, ¶ 506. If the Commission determines that evidence regarding potential deployment does not

overcome the national finding of continued impairment, that *provisional* decision will be reconsidered in the context of any proposals to overcome existing impairment by rolling access to unbundled local switching for a limited time period. *Id.*, ¶ 521. If the Commission determines that no proposal for limited "rolling access" suffices to overcome existing impairment in a particular market, that *provisional* decision is always subject to reconsideration on the basis of new evidence. *Id.*, ¶ 526.

Indeed, insofar as existing barriers to entry diminish in importance, I expect that the increasing provision of service via UNE-L will naturally create a body of evidence supporting a finding of no impairment in a growing number of markets. A determination that the evidence for a particular market does not yet overcome the national finding of continued impairment is always provisional in the sense that the Commission can always revisit the state of evidence in that market and make a finding of no impairment as soon the level of actual or potential facilities-based competition in that market justifies such a finding.

Q. IN WHAT SENSE IS A FINDING OF NO IMPAIRMENT IRREVERSIBLE?

A. A finding of no impairment will initiate a period of substantial changes in the market, both for consumers and for providers. CLECs that cannot justify using their own scarce capital resources or cannot secure outside capital sources to invest in self-provisioned switching will have to go out of business, or change their business plans and focus on other parts of the markets, *e.g.*, serving enterprise customers. Consumers will be left with few or no alternatives to the

ILECs, until and unless CLECs invest in switching. Although it is conceivable that the CLECs could reenter the market if technology changes to improve the prospect of earning profits, this may not happen for some time. Furthermore, once a CLEC exits the market, it will face a significant new barrier to entry – the cost of establishing a brand name and acquainting a new generation of customers with a competitive local telecommunications market.

Q. IS IT APPROPRIATE FOR THE COMMISSION TO CONSIDER THE IRREVERSIBLE CHARACTER OF A FINDING OF NO IMPAIRMENT AND THE PROVISIONAL CHARACTER OF A FINDING THAT THE EVIDENCE DOES NOT YET OVERCOME THE NATIONAL FINDING OF CONTINUED IMPAIRMENT?

A. Yes, I believe it would be a grave error for the Commission not to consider these implications of its decisions. In particular, the Commission should recognize, and attempt to minimize, the consequences of the two kinds of decision-making errors that are possible in this proceeding.

First, the Commission could determine that CLECs are not impaired without access to unbundled switching when, in fact, they are impaired. (This would constitute what statisticians call a "Type I" error.) As I noted above, such a decision would do irreversible harm to the prospects for local exchange competition in Florida and would therefore deprive mass-market consumers in Florida of the benefits of such competition. Moreover, with the increasing prevalence of bundling, any decision that impedes local exchange competition will have spillover effects in the long-distance market. Long distance carriers

that are unable to offer a bundled local/long-distance product will find it difficult to survive in the marketplace. This could lead to an outcome where there are few or no alternative to the ILEC for long distance and local service. Florida consumers would lose the benefits of the long-distance competition that they have enjoyed for many years.

Second, the Commission could judge that CLECs are impaired when, in fact, they are not. (This would constitute what statisticians call a "Type II" error.) As I explained above, there is a good chance that such an error would be self-correcting. If CLECs are not impaired without access to UNE switching, I would expect more CLECs to self-provision switching in the relatively near future. Thus, for any particular market definition, the number of self-provisioning carriers will increase until the three-carrier trigger is met. The incumbent would certainly bring this fact to the Commission's attention at the first available opportunity in one of the follow-on trigger reviews.

Decision theorists use a "loss function" to capture the perceived cost of each type of error. The loss function quantifies the cost, in terms of lost societal (both consumer and producer) welfare, incurred for a given regulatory action and a given set of facts about CLECs' true ability to enter without access to unbundled switching. Because a false finding of no impairment would cause irrevocable harm, whereas a false finding of impairment has only temporary consequences, the cost to society of the former (Type I) error is far greater than the cost of the latter error.

There are some cases where the modeling proves unambiguously that self-provisioning of switching by the CLECs is unprofitable and will remain so for the foreseeable future. In this case, there is no need to introduce a complicated decision rule; the CLECs are certainly impaired. Where the ability of CLECs to serve mass market consumers without access to unbundled switching is ambiguous, however, the Commission should makes its decision in a way that minimizes the expected consequences to Florida consumers and the Florida economy by erring on the side of caution, and applying the strictest possible standard before making a finding of no impairment in any Florida market.

Q. YOU STATED ABOVE THAT GROWTH IN UNE-L BASED SERVICE WOULD NATURALLY PROVIDE GROWING EVIDENCE OF NO IMPAIRMENT AS EXISTING BARRIERS DIMINISH IN IMPORTANCE. IS IT POSSIBLE THAT UNDERPRICED ACCESS TO UNE-P LEAVES NO INCENTIVE FOR CLECS TO PROVIDE SERVICE VIA UNE-L?

A. No, there are several reasons to believe this is not the case. The CLECs are new entrants into a market that has been monopolized for a century or more. They have much to gain by limiting their dependence upon the incumbent. Eliminating dependence on ILEC facilities will allow the CLECs to better differentiate their services and improve their appeal to customers, without having to cut prices to the bone. Moreover, if the systems are in place to handle hot cuts and other interfaces between the CLEC and ILEC, the CLECs will have more control over the quality of service that they can offer their customers, and be able to offer redundancy to the ILECs' facilities. This factor has been a major factor in

stimulating demand for the CLECs' transport services, and led to significant investment in facilities, even though leasing was still available as an option.

Q. HOW IS YOUR ANALYSIS OF THE TYPES OF POTENTIAL ERRORS IN FINDING NO IMPAIRMENT WITH REGARD TO MASS-MARKET SWITCHING AFFECTED BY THE DESIRABILITY OF FACILITIES-BASED COMPETITION?

A. The ILECs' response to these, and other concerns, will no doubt be a repeat of the mantra of encouraging "real" (*i.e.*, facilities-based) competition. As an economist, I recognize the benefits of facilities-based competition, but question the merits of any attempt to force a "one-size-fits-all" approach to competition.

The Act sets a framework for local competition and provides for three entry vehicles: (1) total service resale priced at the incumbent's retail prices less an avoided cost discount; (2) unbundled network elements (including UNE-P) priced at cost, which the FCC has defined as forward-looking economic cost; and (3) facilities-based entry. 47 U.S.C. § 251(c). The Act does not give preference to any of these forms of entry, and neither should the Commission.

Certainly, there is no economic basis for such a preference. In non-regulated competitive markets, there are many different viable firm structures, ranging from firms that specialize in retailing (pure resellers) to firms that own and control every step of the process from the extraction of raw materials to the sale of finished goods and services. There is no single optimal level of what economists call vertical integration.

The ILECs themselves have changed their levels of vertical integration over time. For example, pre-divestiture, the Bell System was a vertically integrated amalgam of a research and development arm (Bell Labs), an equipment manufacturer (Western Electric), facilities-based local service providers (the various local operating companies, which were spun off as the Regional Bell Operating Companies, or RBOCs) and a facilities-based long distance provider (AT&T Long Lines). Post-divestiture, the RBOCs have become resellers of other manufacturers' equipment, have spun off their own jointly owned and operated research and development arm (the former BellCore, now Telcordia) and have chosen to re-enter the long-distance business by leasing facilities from other carriers.

The last example is particularly instructive. The RBOCs are *not* building their own nationwide long distance networks; instead, they are relying on renting others' networks out of region on competitive terms. Yet, in complete contrast to their advocacy concerning local entry via UNE-P, the RBOCs have vigorously argued before state and federal regulators that their entry into the long-distance business will deliver significant consumer benefits, even though they rely extensively on others' facilities.

The RBOCs are able to compete fully in the long-distance retail market without building their own nationwide networks because, prior to their entry, the long-distance *wholesale* market was already well-established. The Operations Support Systems ("OSS") were already designed to accommodate multiple

carriers using the same networks, and price competition had driven wholesale prices well below historic/embedded costs.

CLECs should have the same opportunity to procure network inputs at competitive prices, as well. But, in stark contrast to the long-distance wholesale market, where there are multiple carriers from which the RBOCs can obtain capacity, CLECs generally have no choice but to lease facilities from the former local monopolist in each area. The ILECs have little incentive to offer potential competitors favorable wholesale prices. As I demonstrate further in the following sections, absent a continued requirement to make UNE-P available at prices based on forward-looking economic cost, the ILECs can and undoubtedly will exploit their monopoly leverage over local networks to forestall competitive entry.

E. Steps in Analysis and Organization of Testimony

Q. PLEASE DESCRIBE THE STEPS FOLLOWED IN YOUR ANALYSIS.

A. My analysis follows four steps. First, I define markets on the basis of principles that apply to both trigger analysis and the analysis of potential deployment. This market definition provides the necessary foundation for the Commission's review of evidence purporting to show that triggers are met in certain markets.

The remaining three steps of my analysis relate to the potential deployment question that the Commission must address for markets in which triggers are not met. In the second step, I quantify the various costs that a CLEC would consider in evaluating the feasibility of deploying facilities to provide UNE-L based services. Then, I quantify revenues that a CLEC could expect to

receive after deploying facilities to provide UNE-L based service. Finally, I consider the results of my calculations in a way that recognizes the uncertainty associated with many of the inputs necessary for the calculations.

Each of these steps is discussed below, and an electronic copy of the analysis tool on which I rely is provided as Exhibit MTB-2. In the final section, I describe the conclusions I draw from the reported results.

III. MARKET DEFINITION (ORDER NO. PSC-03-1265-PCO-TP, ISSUES 1 AND 2)

Q. YOU INDICATED ABOVE THAT THE MARKET DEFINITION SHOULD PERMIT THE MOST UNAMBIGUOUS AND ACCURATE ANSWER TO THE QUESTION "ARE CLECS IMPAIRED WITHOUT ACCESS TO UNBUNDLED SWITCHING IN THIS MARKET?" PLEASE EXPLAIN IN MORE DETAIL WHAT YOU MEANT BY THAT STATEMENT.

A. The FCC has observed that "[i]t is fundamental to our general impairment analysis to consider whether alternative facilities deployment shows a lack of impairment in serving a particular market." *Triennial Review Order*, n. 1536. This means that the markets as defined should be sufficiently uniform that evidence of (actual or potential) facilities-based competition in any part of a given market implies the ability to provide service to all (or nearly all) customers in that market without access to unbundled switching.

Q. HOW DOES THE FCC REQUIRE MARKETS TO BE DEFINED FOR THE PURPOSE OF DETERMINING IMPAIRMENT?

A. At the outset, it is essential to recognize that, "because we measure alternative 'switching' in a given market, not switches located in that market, the physical location of the switch is not necessarily relevant to defining the geographic market. For example, a switch located in Rhode Island could satisfy the switching trigger in Massachusetts if it is serving customers in the relevant market in Massachusetts." *Triennial Review Order*, n. 1536.

The FCC clearly intends for state commissions to conduct a more granular impairment analysis than was possible at the national level, and market definition is crucial to that analysis. *Triennial Review Order*, ¶ 495.

Specifically, the *Order* calls for this Commission to conduct its investigation "on the most accurate level possible, while still preserving administrative practicality." *Id.*, ¶ 130. Accuracy is essential to carrying out the pro-competitive purposes of the Telecommunications Act of 1996 ("Act"). If markets are not defined correctly, the Commission could mistakenly find no impairment where, in fact, customers are left without competitive alternatives; or, a faulty market definition could lead the Commission to find impairment where none exists.

Q. HAS THE FCC ESTABLISHED ANY GUIDELINES OR PARAMETERS FOR CHOOSING AN ACCURATE AND ADMINISTRABLE MARKET DEFINITION TO BE USED IN TRIGGER AND POTENTIAL DEPLOYMENT ANALYSES?

A. Yes. The rules that the FCC adopted in its *Triennial Review Order* specify 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 C.F.R. § 51.319(d)(2)(i).

The *Order* also presents examples of the factors that may vary geographically, such as "how the cost of serving customers varies according to the size of the wire center and the location of the wire center, and the variations in the capabilities of wire centers to provide adequate collocation space and handle large number of hot cuts." *Triennial Review Order* ¶ 496. Significantly, these criteria for market definition are not limited to variations in potential profitability that might be captured, at least in part, by grouping together wire centers that fall into the same UNE and/or retail rate bands. Instead, consistent with the operational basis for the FCC's national finding of impairment for mass-market switching, the FCC points to many factors that vary among wire centers: (1) locations of customers actually being served; (2) variations in cost between wire centers; (3) variations in capability to provide collocation space; and (4) variations in the ability of wire centers to handle large numbers of hot cuts. Because each of these factors varies

among wire centers, a market definition bigger than the wire center will be inaccurate. The ongoing ability of the ILECs to perform hot cuts as mass-market customers change carriers (only one or a handful of lines per location, but potentially and collectively hundreds of lines each day in a given wire center), for example, is critical to the success of switch-based competition and must be considered at all phases of the impairment analysis, beginning with market definition. Moreover, the FCC sates that, "where switch providers . . .are identified as currently serving, or capable of serving, only part of the market, the state commission may choose to consider defining that portion of the market as a separate market for purposes of its analysis," *TRO* ¶ 499 n. 1552, again emphasizing the importance the FCC placed on granularity.

Q. DOES ECONOMIC THEORY PROVIDE ANY GUIDANCE WITH RESPECT TO MARKET DEFINITION?

A. Yes. There is a body of economic analysis that applies to the question of defining markets. Much of the economic literature on market definition has focused on facilitating the assessment of market power in merger and antitrust proceedings. The FCC noted in its *Triennial Review Order* that the market power question is somewhat different from the impairment question before the Commission in this proceeding. *Id.* ¶¶ 74 and 109. Nonetheless, the FCC also acknowledged that the market definition literature developed in the context of merger and antitrust analyses provides helpful guidance for market definition in the impairment context. *Id.* n. 439. Hence, as I describe in more detail in a following section, I

have taken this economic literature into account in developing my recommended market definition.

The essential economic criterion for whether a product belongs in a relevant market is whether the product can serve as an alternative to consumers in that market. Thus, for example, an apartment in Miami is not in the same geographic market as an apartment in Orlando, because the Miami apartment does not serve as a meaningful alternative for Orlando consumers.

Q. HOW HAVE YOU APPLIED THE GUIDANCE IN THE *TRIENNIAL REVIEW ORDER* AND ECONOMIC THEORY CONCERNING MARKET DEFINITION?

A. This section sets out in more detail the economic principles that should be followed in defining markets for the purposes of the impairment analysis, which are consistent with those prescribed by the *Order*, and concludes that criteria of "accuracy" as well as "practicality" argue for the Commission to begin its analysis with the presumption that wire centers establish the appropriate level of granularity. ILEC wire center boundaries are the most natural geographic boundaries for purposes of defining markets for several reasons. First, the costs of providing service vary widely from one wire center to another and it is not possible draw conclusions about one wire center from an analysis of another wire center. Second, once a CLEC is serving some customers in a wire center, it will face relatively lower cost of serving other customers in the same wire center, compared to the cost of entering a new wire center market. Third, it is administratively feasible to administer the requirements of the *Order* on a wire

center basis, because data on CLEC activity, including collocation, and other cost information is available on this basis. I have demonstrated this point with the impairment analysis tool included in Exhibit MTB-2.

A. Market Definition Must Be Applied in Two Different Contexts

Q. FOR WHAT PURPOSES MUST THIS COMMISSION DEFINE SPECIFIC MARKETS?

A. For the local switching UNE, the FCC asks this Commission "to assess impairment in the mass market on a market-by-market basis." *Triennial Review Order*, ¶ 493. Thus, this Commission's market definition task is to divide the mass market customers of the state into separate "markets."

This set of "markets" that the Commission will define provides the starting point for two types of investigation: (1) the identification of qualifying market participants for the wholesale and self-provisioning "triggers" and (2) the analysis of "potential deployment." As I mentioned above, the Commission must use the same set of "markets" for both of these investigations (*id.*, ¶ 495), so the markets being defined must be appropriate for the purely structural trigger analysis as well as for the analysis of entry decisions and business plans required to reach conclusions on potential deployment.

Q. PLEASE ELABORATE ON THE FIRST USE OF THE MARKET DEFINITION IN THIS PROCEEDING.

A. The separate markets defined by the Commission will first be used to identify market participants that may count toward satisfaction of self-provisioning and wholesale triggers. The *Order*'s trigger analysis is intended to provide "bright-

line rules" that "can avoid the delays caused by protracted proceedings and can minimize administrative burdens." *Triennial Review* Order, ¶ 498. The correct functioning of these "bright-line rules" depends crucially on the markets the Commission defines for use in "market-by-market" analysis.

In particular, for the trigger analysis to correctly serve its function, markets must be defined so that "[i]f the triggers are satisfied, the states need not undertake any further inquiry, because no impairment should exist in that market." *Id.*, ¶ 494. That is, markets must be defined so that if the triggers are satisfied and the Commission reaches a finding of no impairment for a market, customers in the market have real choice, and competitive carriers are not impaired in their ability to reach the customers in the defined market. Otherwise, as explained above, the triggers could be satisfied when customers have no alternative choice of providers and indeed where competitors are impaired. The FCC made clear the importance of firms serving as actual alternatives when it explained that existing firms can only be counted toward satisfaction of a trigger if they are "currently offering and able to provide service, and likely to continue to do so." *Id.*, ¶ 500.

The triggers merely identify whether CLECs in a market are clearly not impaired without access to the local switching UNE. Failure to meet the triggers results in further analysis of potential deployment.

As a result, the role of market definition in the trigger analysis should be to identify the scope of telecommunications services and locations for which a market participant's switching capacity clearly shows the absence of impairment

because customers already have real alternatives. Market definition should ensure that a qualifying market participant provides an acceptable alternative to qualifying service provided at a geographic location that actually serves the customers in the market. The new entrant's service must be an acceptable substitute, and the location at which service is offered must encompass the areas in which the customers require service. Successful entry into a different market, where the entrant's offering is not a close substitute for service provided with the incumbent's local switching or where the entrant is unable to provide service to the customers, offers no such evidence of non-impairment. Only if the qualifying participant has succeeded in overcoming operational and economic barriers to entry into a properly defined market, which recognizes buyers' product and location substitution possibilities, can the Commission be confident that the new entrant offers evidence of no impairment in provision of the specified service at the specified location.

Q. PLEASE ELABORATE ON THE SECOND USE OF THE MARKET DEFINITIONS.

A. If the triggers are not satisfied in a market, analysis proceeds to the possibility of potential deployment to test whether barriers to entry without unbundled access to a network element are "likely to make entry into a market uneconomic, " or whether the market in question is "suitable for 'multiple, competitive supply.'" *Triennial Review Order*, ¶¶ 84, 506. This analysis, which is the central topic of my testimony, must also be conducted on a "market-by-market" basis, analyzing the same markets that are used in the trigger analysis. At this stage of the

analysis, the Commission must consider any local switching capacity of market participants identified in the trigger analysis in concert with analysis of operational and economic barriers to entry. As with the triggers, it is critical that markets not be defined too broadly or the Commission will end up finding non-impairment in many areas in which competitors are in fact impaired, leaving customers with no choice among providers.

Q. IS YOUR RECOMMENDED APPROACH TO MARKET DEFINITION EQUALLY APPLICABLE TO BOTH THE WHOLESALE AND SELF-PROVISIONING TRIGGERS?

A. Yes. The same approach to market definition applies to evidence of no impairment presented with respect to wholesale and self-provided switching.

B. Market Definition Analysis Starts with a Specific Service or Product Offering in a Narrow Geographic Market and then Expands the Relevant Market to Incorporate Substitutes

Q. HOW DO ECONOMISTS TYPICALLY DEVELOP MARKET DEFINITIONS?

A. The process of defining a market invariably requires answering questions as to whether a particular product or location belongs in the market, or falls outside its boundaries. These questions are properly answered by considering the extent to which customers regard the various products and locations as substitutes or alternatives.

The normal way to begin the analysis is with a single firm's product, offered at a specified location and then to expand beyond this point to see if products from the expanded product set or geographic area serve as alternatives. Normally, the initial market definition of a specific location and product will turn out to be too small because buyers have acceptable alternatives, or substitutes, outside of the product and location. If buyers regard another firm's product, possibly offered at a different location, as an acceptable substitute, then the market definition should be expanded to include the other firm's product and the other location.

Q. IS THIS APPROACH TO MARKET DEFINITION APPLICABLE IN THE CONTEXT OF THE TRIGGER ANALYSIS REQUIRED BY THE FCC?

A. Absolutely. Although most economic analyses have developed market definitions in the context of calculating market shares or other measures of market concentration, the conventional approach is also correct for the identification of competitive facilities qualifying for the trigger analysis prescribed in the *Order*. Market definition is a preliminary step in *any* structural analysis of markets, and the same analysis is implied for the identification of market participants to calculate indicia of concentration in a market, or to "count heads" for a trigger analysis.

Moreover, this approach is consistent with the specific criteria the FCC provides for defining markets. The *Order* specifically requires state commissions "to define each geographic market on a granular level and direct[s] them to take into consideration the locations of customers actually being served by

competitors, the variation in factors affecting competitors' ability to serve each group of customers and competitors' ability to target and serve specific markets economically and efficiently using currently available technologies." *Triennial Review Order,* n. 1536

Q. IS THE APPROACH YOU PROPOSE USED IN ANY OTHER REGULATORY CONTEXT?

Yes, the market definition approach I have presented is the same as the one used in the Horizontal Merger Guidelines ("HMG") of the U.S. Department of Justice and the Federal Trade Commission. The HMG states that "a market is defined as a product or group of products and a geographic area in which it is produced or sold such that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future producer or seller of those products in that area likely would impose at least a 'small but significant and no transitory' increase in price, assuming the terms of sale of all other products are held constant."

Although the FCC rejected certain applications of the HMG for purposes of an impairment analysis, the *Triennial Review Order* explicitly endorses the relevance of the HMG to the market definition that must underlie any impairment analysis: "We take this lesson of geographic granularity from the HMG without adopting the HMG wholesale." *Triennial Review Order*, n. 439. This makes sense because the HMG have authoritative status in industrial organization economics.

Q. HOW DO THE MERGER GUIDELINES APPROACH THE PRACTICAL ASPECTS OF DEFINING A MARKET?

A. The HMG describe an approach similar to the one I just described where they "begin with each product (narrowly defined) produced or sold by each merging firm" for the product dimension and "the location of each merging firm (or each plant of a multiplant firm)" for the geographic dimension. HMG 1.11 Product Market Definition General Standards and 1.21 Geographic Market Definition General Standards.

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

In short, the analysis of market definition under the HMG is essentially the same as the one that I have proposed. A CLEC serving a group of customers in a specific geographic area would not be counted as a participant in another geographic market if it was not now offering service in that market and it would not extend service to that market in response to a "small but significant nontransitory" price increase.

1. Product Markets and Geographic Markets for Local Telecommunications Services

Q. HOW DOES THE ECONOMISTS' VIEW OF MARKET DEFINITION APPLY TO LOCAL TELECOMMUNICATIONS SERVICES?

A. Applying the conventional market definition procedure described above to local telecommunications services begins with identifying the product and geographic starting point for a tentative market definition. In the present case, the starting point is the product and customer location that a requesting CLEC now serves with unbundled access to the incumbent's local switching network element, and for which we will seek evidence of no impairment in the form of actual or potential deployment of competitive switching capacity in the same market. "In the same market" means that consumers must find the identified competitive offering to be an acceptable substitute for the offering possible with access to the local switching UNE.

The analysis then proceeds to expand these tentative product and geographic markets to include other products or locations that consumers will regard as "close enough" substitutes. The *Triennial Review Order* contains specific discussions of many possible substitutes and provides guidance for the

Commission about the appropriateness of including each of these substitutes within the market definition.

Q. HOW SHOULD THE COMMISSION IDENTIFY THE PRODUCT OR PRODUCTS INCLUDED IN THE RELEVANT MARKET?

A. The Commission should identify the product or products included in the initial tentative market based on the *Order*'s discussion of qualifying services: in short, "those services that have been traditionally the exclusive or primary domain of the incumbent LECs." *Triennial Review Order*, ¶ 135. As I will discuss below, it is necessary to subdivide the ILECs' customers into two different markets, residential and business, even though most of the same products are sold to these two classes of customers. The reason is that price discrimination is enforced between the two market segments.

Q. BASED ON THE ABOVE DISCUSSION, WHAT PRODUCT MARKET DEFINITION DO YOU RECOMMEND FOR COMMISSION ADOPTION?

A. In the product market dimension, 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 and access service. This product definition excludes CMRS, fixed wireless and cable telephony, but includes packet switched local service when it meets the requirements of the Triennial Review Order's impairment analysis.

Q. DOES THE TRIENNIAL REVIEW ORDER DISCUSS WHETHER INTERMODAL PROVIDERS ARE IN THE SAME PRODUCT MARKET?

A. Yes, the *Order* states:

> As in the impairment triggers for high-capacity loops and dedicated transport, states also shall consider carriers that provide intermodal voice service using their own switch facilities (including packet and soft switches) that meet the requirements of these triggers and Part V above. ... In deciding whether to include intermodal alternatives for the purposes of these triggers, states should consider to what extent the services provided over these intermodal alternatives are comparable in cost, quality, and maturity to incumbent LEC services. *Triennial Review Order*, n. 1549.

The *Order* further suggests that CMRS is not a close enough substitute to be included in the market, but packet switches providing voice services should be included, if they "meet the requirements" of the triggers and the *Order*'s Part V, Principles of Unbundling. *Id.* Fixed wireless has "not proven to be viable or deployable on a mass market scale," suggesting that it may not be a "close enough" substitute to require expansion of the tentative market definition. *Id.*, ¶ 310.

Cable telephony fails to serve the "crucial function" of affording access to the incumbent's loops (*id.*, ¶ 439), and therefore "provides no evidence that competitors have successfully self-deployed switches as a means to access the incumbents' local loops, and have overcome the difficulties inherent in the hot cut process." *Id.*, ¶ 440. Further, cable telephony's strategy is to "bypass the incumbent LECs' networks entirely." *Id.*, ¶ 439. This strategy is only available to a single firm in any market because cable TV companies, due to "unique economic circumstances of first-mover advantages and scope economies, have access to customers that other competitive carriers lack." *Id.*, ¶ 310. As a result, neither cable telephony nor CMRS "can be used as a means of accessing the

incumbents' wireline voice-grade local loops. .... Accordingly, neither technology provides probative evidence of an entrant's ability to access the incumbent LEC's wireline voice-grade local loop and thereby self-deploy local circuit switches." *Triennial Review Order*, ¶ 446. Any competitive facilities that allow access to some local loops but not others clearly cannot be regarded as probative evidence of no impairment concerning those loops that cannot be reached by the competitive facilities.

Q. HOW DO YOU RECOMMEND THE COMMISSION DETERMINE THE RELEVANT GEOGRAPHIC MARKETS?

A. In the geographic dimension, it takes only a moment's reflection to recognize that consumers of qualifying telecommunications services will not accept any substitutes that do not deliver service to the customer's premises. Because qualifying services provided to a location other than to a customer's own premises will not generally be a satisfactory substitute, expansion of the tentative market definition to include other locations is not appropriate; the "most accurate" level of granularity must address switching capability for particular customer premises. The relevant points at which qualifying services are provided, analogous to the HMG's "location of each plant" (HMG 1.21), are the Network Interface Devices ("NIDs") that comprise the physical point of interconnection between the incumbent and a customer. Thus, each NID or customer premises is a "location," or "plant," for purposes of defining initial tentative markets.

Fortunately, certain aggregations of consumers can be accomplished to achieve "administrative practicability," as I discuss below. Further, 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 (*Triennial Review Order*, ¶ 495) 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.

Q. WHAT IS THE SIGNIFICANCE OF THE LOCATION-SPECIFICITY OF THE DELIVERY OF TELECOMMUNICATIONS SERVICES?

A. This location-specificity of the delivery of services is one of the unique characteristics of markets for telecommunications services, and it is crucial to the task of defining markets in which the prescribed trigger analysis reflects evidence of actual economic entry into relevant markets without access to the incumbent's local switching UNE.

The *Triennial Review Order* recognizes this location-specificity in several ways. For example, in defining the geographic markets for application of trigger analysis to enterprise loops, the *Order* requires a "customer-by-customer location basis." [*Id.* N. 1536] Although mass market customers are tied to their locations just as tightly as enterprise customers, the FCC observes that considerations of practicality will not permit a customer-by-customer analysis, for at least some mass market investigations. *Id.*, ¶ 309.

I demonstrate below that it is possible to aggregate mass market customer locations in such a way (by wire center) as to preserve much of the accuracy of customer-by-customer analysis, while achieving a high degree of practicality. Identifying large groups of customers that are capable of being served using

uniform technologies and techniques, but recognizing that those techniques must be applied to deliver service at the customer location, results in market definitions that remain "accurate" but achieve "administrative practicality."

Q. ARE THERE ANY SPECIFIC CONCLUSIONS THAT FOLLOW FROM THE RECOGNITION OF LOCATION-SPECIFICITY?

A. Yes. Recognizing that each customer comprises a unique geographic market would lead to a "market-by-market" analysis that recognizes that "an important function of the local circuit switch is as a means of accessing the local loop." *Triennial Review Order*, ¶ 429. Or, "a crucial function of the incumbent's local circuit switch is to provide a means of accessing the local loop." *Id.*, ¶ 439. The crucial characteristic of loops is that they terminate in the customer's premises, which is the geographic location at which qualifying services are provided and the only geographic point at which customers will accept delivery of services.

A market definition that ignored location specificity would fly in the face of the entire foundation of antitrust and regulatory economics. It is nonsensical to ignore the costs and entry barriers faced by CLEC wishing to expand service to unique locations and define away these important cost differences by simply declaring a large group of customers to be in the same geographic market. The location is the market, and multiple locations cannot be aggregated without an analysis of the specific facts that govern supply conditions in the market.

2. Accuracy and Practicality

Q. FROM THIS "MOST ACCURATE" LEVEL OF GRANULARITY, WHAT IS REQUIRED TO ACHIEVE "ADMINISTRATIVE PRACTICALITY" (*TRIENNIAL REVIEW ORDER*, ¶ 130)?

A. Market definition at the most accurate level of granularity, whether for application of the prescribed triggers or for analysis of potential deployment, would be conducted on a customer-by-customer basis, recognizing that customers will not generally accept a substitute for the incumbent's wireline service if that service is not delivered to the customer's premises. That is, the relevant geographic market for local telecommunications services is customer location specific. Nevertheless, subject to certain important limitations discussed below, it is possible to analyze customer-specific locations in large numbers, achieving practicality with little or no loss of accuracy.

Q. WHAT AGGREGATIONS OF CUSTOMER LOCATIONS MAKE SENSE FOR AN IMPAIRMENT ANALYSIS?

A. Impairment analysis for mass market switching must identify substitutes to the incumbent's local circuit switch "as a means of accessing the local loop." *Triennial Review Order*, ¶ 429. Wire centers are the centers of outward-radiating ILEC loop facilities, and determine the point at which access to the incumbent's loops must occur. Because impairment regarding the local switching UNE is so closely related to access to the incumbent's loops, the wire center provides a natural unit of analysis. Insofar as an entrant in a particular wire center is not impaired in its ability to expand service to all customers served by loops in that

wire center, it is reasonable to aggregate customers and consider impairment issues at the wire center level.

Q. WHAT LIMITATIONS MUST BE IMPOSED ON THE AGGREGATION OF CUSTOMER LOCATIONS TO THE WIRE CENTER LEVEL?

A. The crucial limitation is that a UNE-L CLEC's entry at a wire center must afford that CLEC the opportunity to expand to serve any customer in that wire center. The failure of this condition implies that aggregation of customers to the wire center level will introduce misleading evidence and lead the Commission to mistaken conclusions about impairment. The nature of this requirement is explained in the following quotation from a popular antitrust law text:

"Competitors, supply substitution, and entry. (a) Expansion by immediate competitors.] The demand for Alpha Company's product is obviously affected by the ability of its direct competitors to deliver the same product. But if the others are to limit Alpha's actions, they must be able to expand their production when Alpha increases its prices because consumers cannot turn to other suppliers if those suppliers are unable to expand their output." Antitrust Analysis: Problems, Text, and Cases, Fifth Edition, Phillip Areeda and Louis Kaplow, Copyright 1997 by the President and Fellows of Harvard College, page 570, ¶342

I will discuss below several specific conditions that can limit the ability of a CLEC in a particular wire center to serve certain customers in that wire center, but aggregating customers to the level of the wire center presumes the absence of one overarching limitation on the CLEC's ability to expand. That overarching limitation is the possibility that there are operational barriers to the CLEC's

expansion. If a CLEC that has entered a particular wire center cannot adequately expand its operations in that wire center, due to the presence of operational barriers, then it is not reasonable to aggregate customers and consider the question of impairment at the wire center level.

Q. ARE THERE OTHER FACTORS THAT SUPPORT A MARKET DEFINITION AT THE WIRE-CENTER LEVEL?

A. Yes. In most cases, CLEC self-provisioning of local switching will require collocation at each wire center the CLEC intends to serve. In those cases in which all competitive facilities deployed are available to serve any loop in the wire centers in which they offer service, trigger analysis can proceed with the wire center as the geographic market definition, observing the distinction between business and residential customers that is necessary because of the prevalence of price discrimination, as well as other differences, between the two groups. In such cases, analysis of the prescribed triggers can proceed at the wire-center level with little or no loss of accuracy. The use of competitive switching facilities to serve any business customer or any residential customer in a wire center can be regarded as evidence that operational and economic barriers to providing service to all business customers, or residential customers respectively, can be overcome.

For several reasons, the wire center also provides a natural unit of analysis for the investigation of potential deployment. First, 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. This justification will require the CLEC to compare the stream of net operating income

projected for a wire center to the sunk cost that must be incurred to establish the collocation or other arrangements needed to offer service in the wire center. Further, various costs and revenues that must be considered in analysis of potential net operating revenue vary, sometimes dramatically, between wire centers. To mention only two: 1) potential revenue from serving a wire center will vary with the number of lines in the wire center and the profile of the typical customer at the wire center, and, 2) the cost of backhauling traffic from the wire center will vary with the wire center's proximity to other elements of the CLEC's network.

Q. IS IT MOST PRACTICAL TO CONDUCT IMPAIRMENT ANALYSIS AT THE WIRE-CENTER LEVEL?

A. Yes. For the analysis of triggers, the logical data to rely on initially – facilities in place in the incumbent's wire centers, capabilities of competitors' facilities, capacity available for expansion – are data that are available and most accurately interpreted at the wire center level. ILEC tariff data needed for the impairment analysis – UNE loop zones and retail rates - is also readily available on a wire center basis. Also, information on customer demographics can be obtained on a wire center basis, either from the data collected for universal service models or from other public sources.

Q. IS IT IMPORTANT TO CONDUCT AN IMPAIRMENT ANALYSIS AT A LEVEL AS GRANULAR AS THE WIRE CENTER?

A. Yes. Because the CLEC's entry decision will be made at the wire-center level, examination of pertinent data at a higher level of aggregation will be less helpful at best, and very possibly misleading.

For example, it would be an error to conclude that entry is feasible in two wire centers because the present value of potential revenues net of operating costs in the two wire centers exceeds the sunk costs of entering the two wire centers. The two wire centers may be like a bucket of ice water and a bucket of boiling water, which, on average, are a comfortable temperature. The fact that entry is feasible in one wire center but not the other will not be revealed from examination of average or total costs for the two wire centers. If the Commission finds no impairment in both wire centers, the result will be that end users in one of the wire centers will lose the competitive alternatives that would be available to them if CLECs were to retain unbundled access to the incumbent's local circuit switch.

If the Commission conducted its trigger analyses under a market definition that lumps together more than one wire center, it would need criteria to determine whether competitive facilities satisfy the requirement of the trigger or not. The analysis would nevertheless be likely to result in error. The trigger analysis treats each qualifying competitive carrier as evidence that barriers to entry have been overcome and no impairment exists. In fact, in a collection of two wire centers, a competitive switching provider that is offering service to customers in one wire center does not show absence of impairment in the other wire center. As

suggested above, analysis of potential deployment in the wire center, which has not experienced actual deployment, may show that competitive entry without access to the local switching UNE is extremely unlikely because of the cost and revenue characteristics of the wire center. A finding of no impairment in such a wire center, based on actual deployment in another wire center, would result in customers in that wire center losing competitive alternatives based on availability of the local switching UNE, with no prospect of switch-based competitors actually overcoming operational and economic barriers to entry. I will show later in this testimony that two wire centers located in the same exchange area may have dramatically different results in terms of the potential for profitable CLEC entry.

Q. SOME WOULD ARGUE THAT MANY OF THE CLEC'S COSTS, SUCH AS OPERATIONS SUPPORT SYSTEMS, SWITCHES, AND SOME MARKETING COSTS, ARE INCURRED AND ARE USEFUL OVER RELATIVELY LARGE MARKET AREAS. DOES THE EXISTENCE OF THESE COSTS COMPEL A MORE EXPANSIVE MARKET DEFINITION THAN THE INDIVIDUAL WIRE CENTER?

A. No. While there is no question that it is in the interest of the CLEC to spread the cost of large fixed investments over as broad a customer base as possible, the decision to deploy facilities to provide connectivity to the CLEC's network still is conducted on a very granular basis. As the manager of a CLEC, I may want to add as many customers as possible to lower the cost of my fixed investments, but I gain nothing, and lose much, if the customers in a particular wire center produce

negative net revenue. In deciding whether to obtain or construct collocation facilities in an individual wire center, the CLEC manager must consider the number of customers that reasonably can be expected to subscribe to the CLEC's services, the amount of revenue that will be produced by those customer, and must compare the anticipated revenue to the investments and operating expenses associated with adding those collocation facilities to the CLEC's network. If the wire center cannot contribute to the bottom line, it simply will not make sense for the CLEC to offer services to customers in the wire center.

Q. HAVE ANY REGULATORY BODIES RECOGNIZED THAT THE WIRE CENTER IS AN APPROPRIATE BASIS FOR CONDUCTING IMPAIRMENT ANALYSES?

A. Yes. The Connecticut Department of Public Utility Control has already determined that the wire center is the appropriate unit of analysis. Specifically, the Department noted:

> It is the opinion of the Department that the FCC intended to perform the granularity analysis at the lowest reasonable level possible. The Department believes that since data is collected and compiled at the wire center level as well as the fact that the wire center level is the principal point of interconnection with competitive providers, it represents a consistent point of analysis and comparison for this exercise. After considering the questions raised by the parties at the Technical Meeting, the Department finds no compelling reason for further discussion on this matter from any party or to delay the definition to a later date. By adopting a definition that directly corresponds to the principal building block of the ILEC's network the Department is confident that it will have sufficient empirical evidence upon which it can form its judgment regarding the state of competitive presence in Connecticut.

Procedural Order in Connecticut Department of Public Utility Control Docket No. 03-09-01, Ph. 01, October 8, 2003, at 5. For the reasons that I outlined

above, and the additional practical reasons identified by the Connecticut Department of Public Utility Control, I recommend that this Commission adopt the wire center as its principal unit of analysis for determining whether competitors are impaired without access to unbundled switching.

Q. DO ALL CUSTOMERS IN A WIRE CENTER NECESSARILY FALL INTO THE SAME MARKET?

A. Not necessarily. There are two circumstances when a finer level of disaggregation may be necessary. The first is where the CLEC is unable to offer the same package of services as the ILEC. The second is where there is a longstanding practice of price discrimination between two groups of customers.

Q. PLEASE EXPLAIN THE CIRCUMSTANCES UNDER WHICH THE CLEC WILL BE UNABLE TO OFFER THE SAME PACKAGE OF SERVICES AS THE ILEC.

A. The *Triennial Review Order* determined that the ILEC does not need to unbundle its network to enable a competitive carrier to offer Digital Subscriber Line ("DSL") service on ILEC loops that are provisioned with Digital Loop Carrier ("DLC") equipment. *Triennial Review Order* at ¶ 213. This will place the CLEC at a competitive disadvantage relative to the ILECs, which in many cases have deployed DLC equipment capable of providing their own retail customers with DSL service. Further, the ILECs generally have refused to provide DSL service to customers that purchase voice telephony services from the CLECs. Therefore, CLECs will be foreclosed from offering local service from the set of customers that demand DSL service, but which can only be served over the ILECs' DLC

equipment. This group of customers is not in the same market as other customers in the same wire center for whom this competitive imbalance does not exist, either because the customers do not desire DSL or they can be served by the CLECs and the ILECs on a nondiscriminatory basis.

3. Price Discrimination

Q. PLEASE EXPLAIN THE ROLE THAT PRICE DISCRIMINATION PLAYS IN DEFINING MARKETS.

A. Basic economic principles require a departure from the ordinary process of market definition in the presence of price discrimination – "charging different prices for the same product, for example." *HMG 1.12 Product Market Definition in the Presence of Price Discrimination.* If the characteristics of the product and its buyers permit profitable price discrimination, then market definition must recognize "particular use or uses by groups of buyers" and "particular locations of buyers" that would be targeted for higher prices. *HMG 1.12 Product Market Definition in the Presence of Price Discrimination, and HMG 1.22 Geographic Market Definition in the Presence of Price Discrimination.*

This situation arises whenever the hypothetical monopolist in a tentatively defined market "can identify and price differently to those buyers ("targeted buyers") who would not defeat the targeted price increase by substituting to other products." When this situation arises, the tentative market has been defined too broadly, and must be divided to recognize "targeted buyers," whether identified by location, by the nature of their use of the product, or by membership in an identifiable group of buyers.

Q. HOW DOES THE POSSIBILITY OF PRICE DISCRIMINATION AFFFECT THE MARKET DEFINITION YOU HAVE JUST DESCRIBED?

A. As I discussed above, market definition in the presence of price discrimination must treat as separate markets those groups of "targeted buyers" who cannot effectively avoid a "targeted price increase by substituting to other products." *HMG 1.12 Product Market Definition in the Presence of Price Discrimination.* The price difference between small business customers and residential customers receiving essentially identical service is a classic example of this form of price discrimination.

The FCC specifically directs state commissions to recognize, for market definition purposes, that "competitors often are able to target particular sets of customers." *Triennial Review Order*, n. 1539, interpreting accompanying text at ¶ 495. CLECs provisioning their own switches can, and do, target business customers, even to the exclusion of residential customers. This is partly because the characteristics of business customers, even very small ones, are different than residential customers, suggesting differences in CLECs' abilities to serve these different groups of customers – a factor this Commission must consider in defining markets. Further, because of the long-standing ILEC practice of targeting business customers for higher rates than residence customers, CLECs can also target this group and price differently. The customer class distinction was upheld in the 96-98 First R&O with regard to resale (962) and in the UNE Remand Order (*Triennial Review Order* ¶126).

While the Commission need not find that residential and small business customers constitute separate markets, it must recognize that the provision of local exchange services to small businesses – where relatively high revenues per customer and a relatively low number of customers are the rule -- differs from the provision of local exchange services to residential customers, where the average revenue per customer is lower and where a much larger number of customers is involved. In particular, evidence that a CLEC is providing switch-based services only to small business customers, without also providing services to residential customers -- should not be taken as evidence that residential customers would have access to competitive alternatives in the absence of UNE-P.

IV. THE CLEC'S DEPLOYMENT DECISION (ORDER NO. PSC-03-1265-PCO-TP, ISSUE 5)

Q. PLEASE DESCRIBE THE CONSIDERATIONS THAT ENTER INTO A CLEC'S DECISION TO DEPLOY SWITCHING FACILITIES.

A. To determine whether to enter a particular market using UNE-L, a CLEC must first assess the operational barriers. A CLEC obviously will not even consider making the substantial investment involved in UNE-L service until it is persuaded that available systems are sufficient to provide the service, and until it is able to evaluate the costs involved in overcoming operational barriers.

The most substantial of these operational barriers are analyzed in the testimony of James Webber and Sherry Lichtenberg submitted in this proceeding. As detailed in that declaration, the operations support systems ("OSS") required for processing CLEC orders for UNE loops are significantly more complex than those required for UNE-P orders, and the prospect of shortcomings in those

systems impose great risks on the revenues and costs that enter into the feasibility of deploying facilities for UNE-L based service. Whereas UNE-P orders can be handled electronically, with no rearrangement of physical components of the network required, an order to change a customer's service from the ILEC to a UNE-L based CLEC requires orders to (1) disconnect the customer's loop from its termination on the ILEC's switch and connect that loop to CLEC equipment in its collocation space, (2) change the customer's record in the number portability database to reflect that the customer's number is now associated with the CLEC's switch, and (3) update 911 and 411 records. Additional internal CLEC processes are required to establish connectivity from the collocation space to the CLEC's switch, and to establish the customer's service within the CLEC's switch and in its billing systems.

Further, it is critical that these processes be closely coordinated. Failures of coordination can lead to disruption to the customer's telephone service. It is likewise critical that the operations support systems in place to process these orders be reliable and predictable, and that they be scalable to allow for a large-scale transition of customers from UNE-P to UNE-L based service, and to handle subsequent migration of customers among competing carriers. In addition to the costs incurred to ensure that this process works smoothly, a CLEC considering self-deployment of switching facilities will evaluate the possibility of failures in operational coordination, and the risks associated with such failures.

The cost of these systems and the risk that such costs may not be recoverable constitutes a substantial barrier to entry. Some of these systems, such

as systems for tracking the assignment of transport trunks and systems for entering customer records into CLEC switches, will be related to the CLEC's overall operations, and will be usable in each geographic market that the CLEC decides to enter. The cost of other systems, such as interfaces to the number portability and 411 and 911 databases, may vary from region to region. In making its evaluation of the profitability of a UNE-L based local service, the CLEC will consider whether its potential customer base, both nationally and in specific geographic markets, is sufficiently large that the CLEC can reasonably expect to recover the costs of developing and implementing its operational support systems.

Q. HOW ARE OPERATIONAL BARRIERS CONSIDERED IN YOUR ECONOMIC FEASIBILITY ANALYSIS?

A. In the analysis that follows, I assume that these operational barriers all are overcome. My understanding, however, is that many of these barriers have not been overcome, and that this assumption is counter-factual. I stress, therefore, that unless and until these operational issues have been addressed both as a technical matter and as a cost matter (that is, that the costs of addressing these operational barriers is accounted for in some competitively neutral manner), no further analysis is necessary – if UNE-L service cannot be provided in a way that meets the consumers' legitimate demands for high-quality service, any rational carrier would be extremely unlikely to make the investment necessary to provide that service. Moreover, even if these issues have been addressed sufficiently to

permit entry, the CLEC will have to take any remaining difficulties into account in assessing the risk of entry.

Q. APART FROM OPERATIONAL BARRIERS, WHAT OTHER CONSIDERATIONS INFLUENCE A CLEC'S DECISION TO ENTER THE MARKET?

A. In order to come to a decision to enter a particular market, the CLEC must conclude that it has a reasonable prospect of obtaining sufficient revenue from its customers both to defray its operating expenses and to recover any investments that it must make to enter the market. In other words, the CLEC must determine that it will make a profit taking into account likely revenues and costs. The CLEC must also take account of the risks that it will not make a profit despite its best estimate that it will. The greater the uncertainty of entry, the less likely the CLEC is to enter.

The economic calculus may differ between the "hypothetical efficient entrant" that does not already have some investment in network facilities and in its establishment of collocation facilities to serve a particular wire center and an actual carrier, such as MCI, that may already have some sunk investment in place. The *Triennial Review Order* requires analysis of a generic hypothetical efficient entrant, which is the construct underpinning the analysis that follows. *Triennial Review Order*, at ¶ 517. In a subsequent section, I will address certain issues relevant to a carrier with sunk investments.

Q. PLEASE PROVIDE AN OVERVIEW OF YOUR ANALYSIS OF THE FEASIBILITY OF POTENTIAL DEPLOYMENT.

A. My analysis separately assesses costs and revenues in order to determine whether entry in a particular wire center is likely to be profitable under a variety of scenarios. The scenarios are used to determine the likelihood of profitability.

In order to assess cost of entry using a UNE-L strategy, I used an analytical tool adapted from a model constructed by Dr. David Gabel on behalf of the National Regulatory Research Institute. Dr. Gabel's model, while quite detailed and comprehensive, did not consider several aspects of the cost problem facing the CLEC. The model has been extended to provide flexibility to consider a wide range of services, including services for small business, services for large enterprise customers, and ADSL services provided both to residential and business customers. The structure of the model also was modified to permit a very granular analysis of the individual cost components that contribute to the total per-line and total per-wire center costs faced by the CLEC. A number of different scenarios are considered, including virtual, cageless, and caged collocation options, and unbundled dedicated transport, special access, and EEL transport options. Among these options, the impairment analysis tool chooses the least-cost combination of options, and compares the cost of providing a range of services with the revenues derived from customers for those services in order to calculate the net revenue available to a CLEC contemplating facilities-based entry into each wire center.

A. CLEC Costs

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

A. In this section I will describe the costs that a CLEC would incur to obtain switching to support entry under a UNE-L strategy. I will also describe which of these costs are fixed and sunk, and which of these costs provide the ILEC with a cost advantage over the CLEC.

I begin by describing those costs that are identical (or similar) for a CLEC and ILEC. I then describe those costs that a CLEC would incur that an ILEC would not incur. To do this, I will compare the processes that the ILEC and CLEC must undertake to connect the exact same loops to their switches. It will be readily apparent that it costs the CLEC a great deal more than it does the ILEC to connect the loop to the switch, greatly raising the CLEC's costs. This is important, because, as explained above, it is well recognized that cost differences can be an important barrier to entry. *Triennial Review Order* ¶¶ 87-90 (barriers include scale economies, first-mover advantages and absolute cost disadvantages). I also describe which costs are sunk, as sunk costs can pose a particularly formidable barrier to entry. Id. ¶ 88. Finally, I'll describe in general terms the calculations that the analytical tool performs in estimating the costs that will be considered by a CLEC considering the deployment of facilities to offer service on a UNE-L basis.

Q. WHAT CATEGORIES OF COSTS MUST BE CONSIDERED?

A. The broad categories of cost to be considered are loops, switches, the connection between the loop and the switch, collocation of the CLEC's facilities in the

ILEC's wire center, the cost of digitization, concentration and aggregation, transport to the CLEC's switch, and the cost of cutting over the loops. As a rule, I estimate TELRIC costs.

Q. WHY IS IT APPROPRIATE TO USE TELRIC COST ESTIMATES?

A. The TELRIC standard has been designed to estimate the cost that would be incurred by an efficient carrier serving the relevant demand in the relevant market, using the most efficient currently available technologies and methods. As such, it comports with the FCC's directive that, in considering potential deployment of switching and transport facilities, the cost that would be faced by an efficient carrier be considered.

Q. PLEASE DISCUSS YOUR TREATMENT OF THE COST OF LOOPS.

A. The cost of loops used in the model is the rate established by this Commission in each of the three UNE rate zones. Thus, for each wire center the UNE rate applicable to the rate zone to which the wire center is assigned is the cost to the CLEC of providing the loop portion of local exchange service. In addition, the cost of interconnection between the ILEC's facilities and the CLEC's collocation space, or to Enhanced Extended Loop ("EEL") facilities is considered.

Q. PLEASE DISCUSS THE COST OF SWITCHES.

A. A CLEC evaluating the possibility of deploying facilities to provide UNE-L service must consider the cost of the switch. Switches are readily available from the various switch manufacturers as well as in secondary markets. Unlike many of the other costs faced by the CLEC, the cost of the switch is predictable and consistent (for any given level of demand) for all geographic markets that the

CLEC might contemplate entering. And, although much of the price of a switch constitutes a fixed cost, since it is necessary to purchase an entire switch processor and switch matrix to serve even one customer, it is not a sunk cost. (As discussed below, however, the cost of installing and configuring the switch may be a sunk cost.) For these reasons, the purchase of the switch itself does not in and of itself constitute an insuperable entry barrier.

Although local exchange switches are readily available and can be rapidly deployed, the CLEC must evaluate, on a market-by-market basis, whether the potential customer base is sufficiently large that the costs that are sunk in installing and configuring a switch may reasonably be expected to be recovered. Parts of modern switches (*e.g.,* line units and line cards) are designed to be scalable to customer demand; thus, the corresponding portion of the cost of switches is variable with respect to the number of customers served. Nevertheless, there may still be significant sunk costs incurred before the first customer can be served. These costs include engineering costs; the costs of purchasing, transporting, and installing the switch; the costs of acquiring space to house the switch and to supply it with power, climate control, and necessary testing equipment.

In the impairment analysis tool found in Exhibit MTB-2, I use the default values for per-port switching investment presented by Dr. Gabel in his CLEC cost model as the input for the CLEC's switching cost. I would note that the switch investment inputs used in the Gabel model result in a per-line monthly cost roughly the same as the unbundled local switching rate established by this

Commission. By using a per-line investment input (with a simple mark-up for land and building investments and other ancillary costs), I have ignored any economies of scale that may be present in provision of the switching function. In effect, I am assuming that CLEC customers can be served by a switch located in such a way as to take full advantage of economies of scale in switching, without regard to the actual location of those customers. This approach obviates any concern that my wire-center market definition might be too narrow to allow the CLEC to take advantage of pertinent economies of scope and scale in switching.

Q. PLEASE DISCUSS THE COST OF THE CONNECTION BETWEEN THE LOOP AND THE CLEC SWITCH.

A. In addition to the costs of the loop and the switch, the CLEC must incur substantial costs to connect the leased loop to its switch – costs that the ILEC does not have to incur. These costs will vary for every wire center. These costs include the cost of establishing the collocation space and equipping that space with the necessary electronics to terminate purchased UNE loops, and the cost of establishing transport facilities to carry customer traffic from each collocated ILEC wire center to the CLEC's switch location. In both instances, the costs include non-recurring charges by the ILEC for establishing collocation and transport arrangements, as well as costs incurred by the CLEC for engineering and purchasing loop termination and transport equipment. These costs too are both sunk and fixed costs. Moreover, they are costs that are not incurred by the ILECs. In what follows, I describe the costs in more detail.

Voice telephone service has traditionally been provided by connecting a customer's premises to the ILEC's central office with a twisted pair of copper wires (i.e., the local loop). The local loop terminates in the central office on a Main Distribution Frame ("MDF"). The local loops terminate on one side of the frame, the "customer facing side." On the other side of the frame – the "network facing side," short wires (referred to as "jumper wires") connect to ports on the ILEC's switch. This configuration allows for easy and flexible connections between loops and the local switch. The connection between the local loop and the ILEC switch consists of a single jumper wire, running from 15 to 100 feet in length. The cost of providing this jumper wire is very small, probably on the order of 2¢ a month.

This simple, inexpensive connection to the ILEC's switch is possible because the local network architecture was specifically designed and engineered to permit efficient and economical loop access to a monopoly local carrier. The placement of ILEC central office, and the configuration of the wires that connect these offices to the homes and businesses they serve, was based in part on engineering considerations. The ILECs' networks were designed to limit the length of most copper loops to 15,000 to 18,000 feet, to avoid having to add equipment to enhance the quality of the voice signal. Outside of rural areas, this allowed the ILECs to deploy switches that were sufficiently large to take advantage of scale economies.

To provide comparable service, the CLEC offering UNE-L service must substitute for this jumper wire a much more complex physical connection

between the MDF and its own switch. This is so because the CLEC switch will never be located as the ILEC switch is, 15-100 feet from the ILEC main distribution frame. It would be economically impossible for a CLEC to install a switch of its own at or near each ILEC central office, because those CLEC switches would serve too few customers to be cost-effective. Neither is it possible to collocate Class 5 switches in the existing ILEC offices, both because of space limitations and because existing rules do not permit it. Hence, unlike the ILEC, the CLEC cannot use an inexpensive 100-foot copper jumper to connect the local loop to its own switch. Rather, a CLEC must locate its switches in central locations and transport the traffic from the loop to that centralized location.

That transport involves a great deal more than simply connecting a very long jumper wire to connect the loop to the CLEC switch, for two reasons. First, for technical reasons, the signal would be unlikely to survive this form of transport to the distant CLEC switch. Second, even if this technical limitation were ignored, it would be very costly and inefficient to run so many wire pairs from the various central offices the entire distance to the CLEC's centralized switch.

Instead of a connecting a simple jumper cable, the network operations necessary for CLECs to connect UNE loops to CLEC switches involve four stages. First, the CLEC must rent space in the ILEC's central office to "collocate" its own network equipment. Second, the CLEC must purchase and install electronic equipment in the collocation space that converts the analog loop

signal into a digital signal, and at the same time aggregates and concentrates multiple loops into more efficient copper or fiber transmission facilities. Third, the CLEC must purchase or construct transport facilities to carry the traffic to its switch location. Fourth, when all of these connections are established, the ILEC and CLEC must coordinate a "cut over" of the loop from the ILEC's main distribution frame to the "POTS bay" at the CLEC's collocation space. I will describe each of these processes and discuss the type and nature of the costs involved in each step. The FCC recognized that an analysis of each of these costs is important to determine whether entry is economic. *Triennial Review Order*, ¶¶ 481, 484 n. 1497, 520.

Q. PLEASE DESCRIBE THE COST OF COLLOCATION.

A. The first thing a CLEC must do to provide UNE-L telephone service is to obtain collocation space at the ILEC central office at which the customer's loop terminates. Collocation is basically the rental of a small portion of central office space. There are three forms of collocation—(1) physical, caged collocation, (2) physical, cageless collocation, and (3) virtual collocation. Physical collocations are space assigned within an ILEC central office in which a CLEC can deploy its own hardware and equipment. This space is generally caged (*e.g.*, enclosed by meshed wire), to provide security. In physical, cageless collocation, a CLEC is generally assigned space in the ILEC's common equipment room where the CLEC can deploy its own equipment, but this space is not enclosed. In virtual collocations, CLECs purchase equipment; however, the ILEC takes ownership of the equipment (and responsibility for maintenance) and installs the hardware in

the ILEC's equipment lineup. The type of collocation selected by a CLEC is often driven by the availability (or lack thereof) of space in a given central office. Establishing the collocation involves a number of activities that will vary depending on the type of collocation established.

Q. PLEASE DESCRIBE THE ACTIVITIES INVOLVED IN ESTABLISHING A COLLOCATION.

A. In general, these activities include: (1) obtaining the necessary space in the ILEC's central office; (2) engineering the collocation; (3) arranging with the ILEC to provide the collocation (for physical caged collocations) as well as fire protection, heating, ventilation and air conditioning ("HVAC") and power, or, in, the case of a virtual collocation, to install the necessary equipment in ILEC-controlled space; and (4) establishing and pre-wiring the "POTS bay," which enables loops from the ILEC MDF to be connected to the CLEC's equipment at the collocation. While the cost of each element of establishing or continuing in a collocation arrangement is usually well defined by a tariff, Statement of Generally Available Terms and Conditions ("SGAT"), or interconnection agreement, determining the cost of collocation for a particular entry plan may be difficult and subject to substantial uncertainty. For instance, for a "cageless" collocation, some of the ILEC make-ready work is unnecessary. CLECs need to obtain direct current ("DC") power and emergency power from the ILEC to operate collocated equipment, and the nature of these arrangements can vary substantially. The specific equipment needed to provide this functionality includes the battery distribution fuse bay ("BDFB") and the DC power cabling that is extended from

the BDFB to the collocation arrangement. The BDFB is a large fuse bay or junction point where a large feed of DC power from the ILEC's power plant is broken down into smaller power units. The DC power cabling, consisting of copper cables in protective sheaths, is necessary to complete a power circuit from the BDFB to the collocation arrangement. In some cases, the CLEC may install its own BDFB in the collocation arrangement. In cases where it does not, it will usually install its own fuse and alarm panel in the collocation cage. Further, as described in the Transport section below, in most situations, a second collocation cage and transmission equipment are required to further aggregate traffic for the purpose of efficiently "backhauling" traffic from ILEC central offices to the CLEC's switch. It can cost the CLEC in the range of $75,000 to $150,000 to establish a collocation, and up to several thousand dollars in monthly fees to use a collocation. The impairment analysis tool calculates the cost of collocation by considering the number and type of lines that must be connected from the ILEC's main distribution frame and DLC systems to the CLEC's collocation space, and calculates, based on the ILEC's UNE tariffs, interconnection agreements, or SGATs, as appropriate, the cost not only of establishing and equipping the collocation space, but also the cost of connecting individual customer lines from the ILEC to the CLEC. Some of these costs are incurred as monthly recurring costs, and are incorporated into the cost analysis directly as a monthly cost per line. Other costs are incurred either as non-recurring charges imposed by the ILEC, or are incurred by the CLEC as capital investment. In some cases, these costs are treated as a one-time expense that is amortized over a user-adjustable

period of time. In other cases, particularly in the case of capital investments, the asset is depreciated over an appropriate economic depreciation life, and the capital carrying cost of the asset is included as a part of the monthly cost per line.

Q. PLEASE DESCRIBE THE CHARACTER OF THESE COSTS AS SUNK, FIXED, ETC.

A. A substantial portion of collocation costs is fixed, i.e., there is a large cost associated with providing service to the first UNE-L customer served. Moreover, most of the up-front costs are sunk, which means they cannot be recovered if the CLEC exits the market. As discussed in the *Order*, the existence of substantial sunk costs creates a significant entry barrier, which has profound effects on UNE-L competition.

Q. PLEASE DISCUSS THE COSTS OF DIGITIZATION, CONCENTRATION AND AGGREGATION.

A. As a consequence of the CLEC's need to place its switch at a substantial distance from the ILEC's wire center, in order for the CLEC to be able to carry the traffic from its collocation space all of the way to its switch, it must install in its collocation space equipment that digitizes and encodes the analog signals delivered over the customers' loops to that collocation space. The equipment used to perform this function is sometimes referred to as DS0 (that is, voice grade) equipment infrastructure. This equipment includes DLC equipment, high capacity digital cross-connection frames (DSX or DACS), power distribution and remote test equipment.

The DLC equipment is the equipment that receives the analog communications from the loop via the POTS bay and both digitizes and concentrates the communication for transmission to the CLEC's switch. Digitization of the analog signals from the loop is necessary in order to interface the signal efficiently with the fiber optic transmission facilities that are used in interoffice transmission paths. Concentration of the signal permits the CLEC to more efficiently use interoffice transmission capacity. The DLC also interoperates with the CLEC switch to provide and receive signaling necessary for call supervision, including the provision of dial tone and ringing current, digit reception and related functions.

The CLEC must also install other equipment at the collocation to provide UNE-L service. A digital cross connection frame (or DSX-3) is needed to connect the DLC and the transport facility. In addition, a CLEC needs to install equipment that enables it to monitor its collocation equipment remotely, thereby permitting the CLEC to maintain its equipment and to diagnose and subsequently repair any service disruptions that may occur.

As in the case of the collocation costs, there are substantial fixed costs associated with these functions. The largest costs are for the DLC equipment, which even at its smallest size costs approximately $20,000. This input, as well as many of the other investment inputs used in the impairment analysis tool are those proposed by Dr. Gabel in the original version of the NRRI model. These in turn were derived from a variety of industry sources, including the FCC's synthesis model and various *ex parte* presentations made to the FCC by

representatives of both CLECs and ILECs. And even if a CLEC can utilize the smaller DLC equipment efficiently, it will not be able to operate at the lowest possible cost unless it can achieve sufficient volume to capture the scale economies inherent in DLC technology.

The engineering and installation cost for these functions are sunk once they are committed to a particular central office. The purchase prices of the DLC and other equipment are not sunk with respect to the provision of service at a particular location, because they could be moved elsewhere. Nevertheless, if the CLEC were to exit the market entirely, it might have a hard time recovering substantial portions of the equipment cost if UNE-L-based service failed to succeed across much of the CLEC industry.

Q. PLEASE DISCUSS THE COST OF TRANSPORT TO THE CLEC'S SWITCH.

A. Once the CLEC customers' signals have been prepared for transport to the CLEC switch, the CLEC must arrange for transmission facilities to deliver traffic from the collocation to its switch. In most cases, a CLEC will not be able to use its own network facilities to connect the collocation to its switch because the traffic volumes present at a given collocation are typically too low to afford the economies of scale necessary to justify CLEC construction of transport facilities solely for this purpose. Rather, the CLEC will use the ILECs' transport facilities to connect its collocation either directly to its switch or to a "hub" location at which traffic from several sub-tending collocations in the area are aggregated and subsequently transported to the CLEC's switching location. Given appropriate

traffic volumes, this hub location may be connected to the CLEC's switching office via the CLEC's own optical fiber transport facility. In either case, whether purchased from the incumbent or self-provisioned by the CLEC, a CLEC must procure transport facilities between its collocations and switching locations to backhaul customer loops to its switch.

There are some sunk costs associated with providing transport for UNE-L based local service. If the CLEC leases transport from the ILEC, there will be sunk costs associated with any nonrecurring charges, term commitment plans, and any costs associated with "grooming" circuits to handle increased and/or changed traffic demand. If the CLEC has transport facilities already in place, then its costs were sunk before it decided to provide UNE-L based local service.

The CLEC will face significant scale effects on transport leased from the ILECs. Most transport tariffs provide substantial volume discounts, and unless the CLEC has enough traffic to utilize a DS3 or higher circuit, it will pay a high per unit cost for using DS1 circuits. Also, because transport circuits are provided in "lumpy" amounts (for example a DS1 circuit can carry 24 voice grade circuits, but the next larger size circuit, a DS3, carries 672 voice grade circuits), a CLEC will be less likely to use transport facilities efficiently, the smaller its total demand for transport.

Q. PLEASE DISCUSS THE PROCESS AND COSTS ASSOCIATED WITH CUTTING OVER THE LOOP SERVING A CUSTOMER CHOOSING TO BE SERVED BY A UNE-L BASED CLEC.

A. Once the necessary network infrastructure is in place, the CLEC is in a position to connect individual customer loops to its collocation (and ultimately to its switch). To accomplish this, the CLEC must arrange for what is typically referred to as a coordinated hot cut. The hot-cut process involves multiple activities that require coordination among both CLEC and ILEC personnel and includes, among other things (1) physically moving the CLEC customers' loops from the ILEC MDF to the POTS bay at the CLEC collocation and (2) coordinating the porting of the customer's telephone number to the CLEC's switch so that calls dialed to the customer's number can be properly completed. Once the hot-cut has been successfully completed, a CLEC can then provide service to its end-user using its own switch.

In calculating the costs a CLEC would have to pay the ILEC for a hot cut, I used the rates established by this Commission for a hot cut. In calculating the internal costs for a CLEC to oversee a hot cut, I assume that the CLEC will incur costs of $10.00 per line as a baseline input.

The cost of the hot cut required to serve a particular customer amounts to an investment the CLEC makes to acquire the stream of revenue it expects from that customer. As such, the investment loses its value entirely if the customer switches to another provider. The CLEC must therefore recover this cost within the period over which it can expect to retain the customer. Thus, the average

period over which a CLEC can expect to retain a customer is the appropriate amortization period for customer acquisition costs, including hot cut costs. As such, the average customer life, or retention period, is a crucial element of the cost that a CLEC must evaluate in deciding whether to deploy facilities for UNE-L service or not. This average customer life is conceptually related to the concept of "churn" experienced by telecommunications even in a monopoly environment, as customers enter and leave the provider's serving area, and move from place to place within the serving area. Estimates of churn can be significant in some conventional cost studies, but churn in a monopoly environment is relatively stable and subject to fairly reliable approximations. Very much to the contrary, average customer life in a competitive environment depends on the nature of competition. In this case, the competitive environment to be considered is the environment after UNE-L based entry. While we have good reason to believe that the character of competition will be significantly different after UNE-L based entry – because a UNE-L competitor will have incurred greater sunk costs and face much lower marginal costs than a UNE-P based competitor – the precise character of that competition, and its implications for average customer life, must remain subject to a great deal of uncertainty. While conventional economic models are available to approximate market prices, hence expected revenues after entry, conventional economic modeling has little to say about the likely dynamics of competition after entry. This uncertainty is relevant, not only to the present modeling exercise, but to the CLEC's evaluation of risk associated with potential deployment of facilities to support UNE-L based service.

Q. PLEASE DISCUSS THE OTHER IMPORTANT INPUTS TO THE TOOL.

A. As I noted earlier, many of the inputs used in the impairment analysis tool are those proposed by Dr. Gabel in the original version of the model he developed. Where additional inputs were needed in connection with services or collocation elements not considered in Dr. Gabel's model, a variety of sources were consulted, including prominently the HAI Model and the HAI xDSL Adjunct Model. The sources of the inputs used in the model are documented within the model itself, in the form of comments attached to the description of each input cell. Most of the costs we have described in this section are both sunk and fixed. It is difficult, if not impossible, for the CLEC to recover these costs from anyone other than the customer who ordered the service. Also, because the ILEC does not incur most of these costs to serve its embedded base, these costs fall within the classic definition of an entry barrier: namely, a sunk cost that the incumbent never had to incur.

Q. PLEASE DESCRIBE THE IMPAIRMENT ANALYSIS TOOL'S CALCULATIONS.

A. The analysis tool is organized as a set of four worksheets that provide inputs to its calculations, a number of worksheets that calculate various cost components, and two (or three) worksheets that summarize its calculations. Inputs are contained on the worksheets entitled "Inputs," "Tariff Tables – FL," and "WC Inputs." The "WC Inputs" worksheet contains detailed information on each wire center in the ILEC's operating area, including the number of lines in each of several service categories, and the distance from the wire center to a CLEC switch assumed to be

located near the largest ILEC switch in each LATA. The "Tariff Tables –FL" worksheet contains detailed information on the rates charged by the ILEC for all aspects of collocation and interconnection arrangements. This information was compiled by MCI and provided to me for use in this model. Finally, the "Inputs" worksheet contains a large number of user-adjustable assumptions that are used in the analysis tool to calculate costs. These include the assumed market share captured by a single CLEC for each of several services, estimates of CLEC internal costs for activities such as accepting hot cuts and customer acquisition and retention, and estimates of the purchase price of various items of equipment required by the CLEC in providing UNE-L based local exchange service, including DLC equipment, switches, DSL-related equipment, and digital cross-connect equipment.

Several worksheets perform calculations relating to the costs of establishing and operating a collocation space in each wire center. This includes all recurring and non-recurring costs incurred in establishing the collocation space, the costs of interconnection between the ILEC's loop facilities and the collocation space, and the capital costs incurred by the CLEC in equipping the collocation space. The analysis tool develops costs in each worksheet for virtual collocation, cageless collocation, and caged collocation. In addition, the worksheets calculate the cost of concentration and cross-connection equipment located in the ILEC wire center where EEL transport is used by the CLEC. These worksheets are:

1) "Collocation" – which calculates the collocation costs associated with voice grade residential and small business services;
2) "ADSL Collocation" – which calculates the combined collocation costs associated with voice grade services as well as ADSL services for residential and small business customers, and;
3) "DS1-DS3 Combined Collocation" and "DS1-DS3 Only Collocation" which calculate the collocation costs associated with the provision of DS1 and DS3 services in combination with voice grade and ADSL services, and collocation costs associated with the provision of DS1 and DS3 services only, respectively.

Another set of worksheets performs calculations relating to the costs of acquiring transport facilities in order to carry traffic from each ILEC wire center to the CLEC's switch or hub. A number of possible scenarios are considered, including DS1 and DS3 unbundled dedicated transport, DS1 and DS3 special access transport, and EEL transport. For each form of transport, the non-recurring and recurring charges imposed by the ILEC for cross-connection, multiplexing and transport fixed and per-mile components are calculated, and non-recurring charges amortized as appropriate to produce a monthly per-line cost for each scenario. These worksheets are:

1) "Transport" – which calculates the transport costs associated with voice grade services for residential and small business customers;

2) "ADSL Transport" – which calculates the transport costs associated with voice grade services as well as ADSL services for residential and small business customers, and;

3) "DS1-DS3 Transport" – which calculates the cost of transport associated with DS1 and DS3 services.

A final set of worksheets is used to summarize the outputs of the collocation and transport worksheets and to select a least-cost alternative. These worksheets are:

1) "Minicost" – which summarizes collocation and transport costs pertaining to voice grade services for residential and small business customers;

2) "Minicost ADSL" – which summarizes the collocation and transport costs pertaining to voice grade services combined with ADSL services for residential and small business customers, and;

3) "ADSL Increment" – which determines the additional costs incurred as a result of a decision to offer ADSL services and restates those results as a per-DSL line cost.

Finally, the results of the calculation worksheets are summarized in the worksheet "Summary Calcs." This worksheet brings together the results of the various collocation, transport, and hot cut worksheets and, for each type of customer calculates the monthly cost per line and the total monthly cost. The results are presented for each transport type. The analytical tool determines whether the least-cost alternative is to configure transport facilities as DS1 or DS3

facilities, and selects the least-cost alternative among the various collocation types. These costs are compared to the monthly per-line revenues for each service type, and a total net revenue per line per month and a total net revenue per month is calculated for each service type for each wire center. As a final step, the "best case" is presented for the CLEC, choosing among the various transport and collocation options.

While ADSL costs and revenues are calculated for each wire center, the ADSL service is included in the net revenue and "best case" results only where the net revenue for ADSL is positive. In some wire centers, where very few ADSL customers are available to the CLEC, the cost of the transport facilities needed to support the service cannot be justified given the available revenues. In such cases, it assumed that the CLEC would decide not to offer ADSL services to customers in that wire center.

A final summary worksheet – "Summary" – compiles information computed in the "Summary Calcs" worksheet and permits analysis of the variation in profitability among wire centers given variations within a range of inputs to the impairment analysis tool. As I have previously explained, considerable uncertainty must attend any analysis of the dynamic competitive situation that will be faced by a CLEC attempting to provide local service using its own switching facilities. Accordingly, the impairment analysis tool is designed to present a range of possible outcomes. Any two wire centers can be entered into the worksheet for comparative analysis. Six of the most important inputs to the analysis tool are shown on the worksheet and, for each, a range of

possible variation is provided. A button on this electronic worksheet – "Generate Random Scenarios" – activates a macro procedure that populates the analytical tool input with random numbers within the specified range, calculates the result for 100 random scenarios, and presents the results graphically as a histogram showing the net revenue for each of the two wire centers. This permits a view of the range of possible outcomes in each wire center, with the most likely outcomes represented by the net revenue categories with the highest frequency.

B. Anticipated Revenues

Q. PLEASE PROVIDE AN OVERVIEW OF THE PROCESS YOU USE TO ESTIMATE REVENUE.

A. First, it should be clear that the revenue estimate that is relevant to a CLEC considering potential deployment will be the revenue the CLEC expects to recover in the market as it will exist after UNE-L based competition has become established. Thus, an appropriate estimate of revenue to evaluate potential deployment is an estimate of future revenue in a different competitive environment than exists today. My judgment as to a reasonable estimate begins with existing prices, and is informed by simulations based on two widely used models of competitive interactions. These models are based on the costs faced by the ILEC and the CLECs, differentiating among costs that are fixed, sunk, or marginal, and specifying the nature of consumer demand for local exchange service. After forming estimates of costs and revenues that may obtain after deployment of facilities for UNE-L based provision of service, a CLEC considering potential deployment would compare future net revenues to the initial

cost of entering the market; my calculation mimics the CLEC's investment decision.

Q. YOU STATED THAT REVENUE PROJECTIONS SHOULD BE BASED ON FUTURE REVENUES UNDER A DIFFERENT COMPETITIVE REGIME. PLEASE EXPLAIN.

A. To determine whether to serve a market using UNE-L, the CLEC must consider not only its costs, it must also consider the likely revenues from the services it offers, including all categories of potential revenues. *Triennial Review Order* ¶¶ 484-85. Economic theory predicts that a CLEC will enter and compete against the ILEC only if the CLEC can expect to earn sufficient profits post-entry to enable it to earn an adequate return on the cost of the capital that it must commit to enter the market, recognizing the risk associated with the investment. Given the CLEC costs discussed above, and given the retail rates the competitor will be able to charge, the competitor may or may not be able to recover the costs it would have to incur to enter the market in the first place, in addition to the incremental cost of providing service.

In other words, before it enters a market, a competitor would need to understand its costs, estimate the revenue it would expect to receive, and determine whether entry would be profitable. Its revenue projections would be based on the rates it could charge, accounting for the effect of entry on competition, and the number of customers it expects to purchase its services. And, its rates are highly dependent upon the rates the other market participants would charge for substitutable services. The CLEC's price must be competitive

with the ILEC's if the CLEC is to be successful. A CLEC considering potential deployment cannot rationally assume it will be able to charge $40 for phone service in the BellSouth region if BellSouth is likely to respond to entry by offering a similar service for $35.

Q. IS IT REASONABLE TO BEGIN YOUR ANALYSIS OF ANTICIPATED REVENUE WITH THE ILEC'S EXISTING RATES?

A. Yes, but only as a starting point. The ILEC's existing rates represent the highest conceivable rates that a CLEC might hope to charge after entry, and for reasons discussed below, it is not really plausible that those rates could be maintained after UNE-L competition becomes established.

Because a new entrant must generally offer rates that are no higher than those currently charged by the incumbent, existing retail rates are an optimistic starting point for any analysis of anticipated CLEC revenue. But, analysis of existing rates is only the starting point. Firms contemplating entry into new markets rationally base their entry analysis on the prices they expect will prevail after they enter, and not on current prices. This proposition is widely accepted in industrial organization economics, and the FCC understood it to be an important factor in an impairment analysis. *Triennial Review Order* ¶ 88 ("an entrant that knows that an incumbent LEC has incurred substantial sunk costs may be disinclined to enter a market because the incumbent LEC is likely to drop its prices, possibly to levels below average cost, in response to entry). See also *id.* ¶ 75 n. 250, ¶ 83; 157 ("telecommunications prices are not static, and will change over time in response to increased competition.") Consideration of post-entry

prices in calculating potential revenue is particularly important in the case at hand because the entrant (or entrants) will be adding new capacity to a market (new switches and new transport); unless other firms are willing to watch their facilities operate well below capacity, prices will have to fall, following the well understood rules governing supply and demand. Because there is no reason to believe that other firms in the market will act unilaterally to reduce output to fully offset the increase in capacity by the new entrants, prices certainly will fall unless the firms in the market collude to constrain capacity.

Q. ARE THERE REASONS SPECIFICALLY RELATED TO A TRANSITION FROM UNE-P COMPETITION TO UNE-L COMPETITION THAT SUGGEST LOWER PRICES AFTER ENTRY?

A. Yes. There are two reasons related to marginal costs of the ILEC and CLECs that strongly suggest price reductions as UNE-L competitors become established and replace UNE-P competitors. First, the costs of providing UNE-P service largely take the form of monthly charges for the required UNEs. These costs are not fixed or sunk costs, but vary with the number of customers served. These variable or marginal costs create a floor, below which a UNE-P competitor will never allow price to fall. If the UNE-P competitor cannot recover its marginal costs, which comprise the bulk of its costs, it will not offer service. On the other hand, a UNE-L competitor faces a substantially different cost structure. For a UNE-L competitor, a large portion of costs is sunk, and the marginal costs, those that vary with the number of customers served, comprise a smaller fraction of total costs. Thus, once the initial costs of entry have been "sunk" into the business, a UNE-L

competitor will be willing to reduce price down to its lower marginal cost in order to acquire or retain customers. The urgency of covering the sunk cost of entry, which can only be accomplished by having customers that contribute something, even a small amount, above marginal cost, creates a competitive environment that is much more likely to involve substantial price reductions, than is the environment of UNE-P competition. So, under UNE-L competition, the CLECs face lower marginal costs and are under pressure to recover sunk costs by increasing volume.

When UNE-L competition becomes established, the ILEC also has a stronger incentive to win, or retain, a customer instead of having that customer served by a competitor. This is the case because the ILEC receives revenues related to a customer in two forms: If the customer chooses the ILEC at the retail level, the ILEC receives the retail price the customer pays for service. If the customer chooses a CLEC at the retail level, the ILEC still receives revenue for this customer, in the form of wholesale UNE revenue from the CLEC chosen by the end user customer. But the ILEC receives more UNE revenue from a UNE-P customer than from a UNE-L customer, as the UNE-P customer pays the ILEC for both switching and loops. In other words, the ILEC is worse off when a customer leaves it for a UNE-L CLEC than for a UNE-P CLEC and has a greater incentive to win the customer back. As a result, the ILEC is likely to cut prices further in the face of UNE-L competition than UNE-P competition.

Finally, as the market matures, CLECs' offerings should come to be regarded as closer and closer substitutes to the traditional ILEC's offerings. In the

early days of competition consumers' lack of familiarity with CLECs' services provides a source of product differentiation that leads to a less rigorous form of competition. As the different providers' offerings come to be regarded as perfectly good substitutes for each other, price takes on greater importance as the locus of competition, and entrants must anticipate corresponding reductions in market price. Potential entrants will also have to consider whether other firms will also enter the market at the same time that they do. More entry, at least when there are few firms in the market, generally will result in more aggressive price competition and lower market prices, which further reduces the post-entry profit margins of the entrants (as well as of the incumbent).

Q. BEYOND THE RELATIVELY SIMPLE NOTION OF "MARKET PRICE," WILL POTENTIAL ENTRANTS CONSIDER OTHER FACTORS?

A. Yes. A CLEC must consider what the prices are likely to be for particular types of customers in particular geographic markets. The revenue a CLEC is likely to earn is strongly affected by the ability of the incumbent to cut prices selectively in response to entry. The more the incumbent can fine tune its prices and target only those customers (by geographic area or other marketplace characteristic) where entry has occurred or is threatened, the lower the cash flows an entrant can expect. When the incumbent has greater ability to price discriminate, it has a greater incentive to cut prices in response to initial, small-scale entry. The reason is that the incumbent does need not to lose profits by "unnecessarily" cutting prices to customers who have no competitive alternatives.

Q. WOULD SUCH SELECTIVE PRICE CUTTING AMOUNT TO PREDATORY PRICING?

A. Not necessarily. It is important to recognize that the incumbent does not need to set prices at predatory levels to deter future entry. The conventional definition of predatory pricing defined it as pricing below variable or marginal cost, with the intention of driving competitors out of the market. In a case where entry requires substantial fixed and sunk costs and the incumbent can target price reductions, however, the incumbent can set prices at a level at which the entrant can recover its variable costs, but will not be able to recoup its sunk costs. In that situation, while the entrant will remain in the markets to which it already has committed, it will not recover its sunk costs in those markets, and will learn not to enter new markets and challenge the incumbent.

Once the CLEC has estimated the price the ILEC likely will charge for services when faced with competitive entry, the CLEC must consider the extent to which it will be required to offer service at a discount from whatever price the ILEC is willing and able to charge, or incur the cost of developing additional features to differentiate their product, in order to take business away from the incumbent. Customers cannot be expected to switch from the incumbent to the new entrant simply because the new entrant has entered the market. New entrants can only obtain customers from incumbents by pricing their services below the level of the incumbent's prices or by offering distinctive services at a higher cost. At lower prices, all else equal, the entrant will earn lower margins (i.e., will receive less cash flow) from each of its customers than will the incumbent. The

higher costs associated with product differentiation likewise will result in lower margins for the new entrant.

Q. HOW DO YOU FORM AN OPINION AS TO THE EXTENT OF PRICE AND REVENUE REDUCTIONS A CLEC WOULD PROJECT IN EVALUATING POTENTIAL ENTRY ON A UNE-L BASIS?

A. In addition to observing the nature of competition now in progress, I consider two formal models of the process in which prices change as a result of competitive entry. That is, it is possible to show how an ILEC, seeking to maximize its profits, will adjust its rates in response to competition from a new entrant. And, it is equally possible to show the prices that CLECs would charge in response, so that they too would maximize profits. It is then possible to calculate the revenue the competitor would receive if it charged those prices to the customers it would attract by offering those prices.

Based on modeling of the competitive interactions among the carriers following entry by CLECs as UNE-L-based providers, I would expect prices to decline somewhere in the range of 11% to 20% over the course of time following entry by UNE-L based CLECs. Some of the price decline should happen very quickly, with continued declines occurring over time.

Armed with this information, it is then possible to make a realistic assumption about whether competitors will enter the market given the costs to provide service and the expected revenues that would be gained by a competitor. That is, my ultimate aim is to compare those expected revenues with projected costs. If projected revenues are below projected costs, then a competitor would

not enter the market, because it would lose money if it did. If, on the other hand, the projected revenues allowed the competitor to recover its sunk costs, cover its operating expenses, and earn a reasonable rate of return on its investment, it would enter the market (although the competitor might enter the market only in a limited way, charging relatively high prices to relatively few customers).

Q. ARE YOU CONFIDENT OF THE PRECISION OF YOUR ESTIMATES REGARDING THE COMPETITIVE ENVIRONMENT AFTER UNE-L BECOMES ESTABLISHED?

A. No, it is inevitable that substantial uncertainty must accompany any estimates of the nature of competition after substantial UNE-L entry. For one thing, it is important to recognize that a formal model may overestimate the opportunity for CLEC entry. In calculating CLEC costs and revenue opportunities, we have to make simplifying assumptions about the way in which a CLEC would operate in a world in which it relies on the ILEC to provide UNE loops and other network functions, but utilizes its own switches. For example, my quantitative analysis assumes that the ILECs provide UNEs to the CLECs on terms that are indistinguishable from their self-provisioning of these same elements. If this assumption is violated, then it is not possible to draw any conclusions from a quantitative analysis, for two separate and important reasons. This point cannot be overemphasized.

First, deficiencies in ordering or provisioning of UNEs will raise the CLECs' costs above our estimate levels, possibly by a very large amount. Second, if ILECs provide poor service to the CLECs, then the CLECs' customers

will perceive that the CLECs' services are inferior to the ILECs. I note that opportunities for things to "go wrong" and result in inferior service for CLECs are much greater in the more complicated UNE-L arrangement than with UNE-P. This will reduce the demand for the CLECs' services and force the CLECs to either set lower prices or sell less service. My quantitative analysis assumes that customers do not perceive any actual difference in the quality of ILECs' and CLECs' services.

The specific conditions that must be satisfied for my quantitative analysis to be applicable to this Commission's determination of impairment include the following:

- Customer cutovers from ILECs to CLECs and from CLECs to CLECs must be seamless. Cutovers must be available in a short time frame, and there should be virtually no possibility of cutting off service to a customer.
- All the UNEs still provided by the ILEC must be available on a non-discriminatory basis, to include TELRIC pricing, efficient and rapid ordering, provisioning, support and post-installation quality of service (e.g., static, cross-talk, downtime, echo, dial-up modem throughput, *etc.*).
- Operations Support Systems must be robust enough to support a much larger volume of customer orders than would be apparent from the size of the CLECs' customer base. Systems must allow

for significant customer turnover that is likely to occur as the ILECs engage in vigorous "winback" programs.

If these conditions are not met, the possibility of CLEC entry is likely to be much less than is shown by my analysis.

C. Impairment Analysis Tool Results

Q. WHAT ARE THE RESULTS OF THE ANALYTICAL PROCESS THAT YOU HAVE UNDERTAKEN?

A. I will first provide a snapshot view of the results of the analytical process. For any given set of input values, the impairment analysis tool produces the monthly cost per line for each wire center in the state of Florida. This cost estimate includes all of the fixed and variable costs associated with serving the residential and business customers served out of a wire center. Fixed costs are amortized over the expected lifetime of the equipment, or serving arrangement (in the case of nonrecurring fees), or customer life (in the case of customer acquisition and hot cut costs). I also assume that the CLEC constructs an optimal-sized network to serve the expected customer base, and that the "steady-state" customer base is reached immediately.

The cost inputs selected for the base case are mostly from the original model prepared by Dr. Gabel. As explained above, I have added revenues and costs from business customers and DSL service. Other key inputs in this case are:

- Market Share: 5% across all markets and services (business and residential, voice and DSL). This is based on an assumed 15% market share for the CLEC industry, spread evenly across three

CLECs. The range of market share considered in the model is between three and eight percent.

- Revenue (excluding SLC): $40/month for residential voice, and $44/month for business voice. Residential voice is based on the current nationwide average revenue *per household*, excluding taxes and SLCs. This is well in excess of the average revenue *per subscriber line*, because many households – including those in the sample from which this estimate was derived -- have two or more lines. I would consider $40 to be a good benchmark for the revenue per line for the mid to higher-end of the residential market. For example, MCI's Neighborhood Advantage 200, which includes unlimited local service, several vertical services, and 200 long distance minutes, is priced at $39.99. Business voice is based on the calculation of the differential between the bundled price for residential and business services sold by MCI in Florida for customers using 200 minutes of long distance service.
- The range of variation in revenue considered is between $30 and $50 for residential voice services and between $34 and $54 for business voice services. This is not based on a specific result of the analysis of expected price declines in the market, although I expect UNE-L-based competition to drive prices down to the low end of this range.

- Customer life is twelve months, which is based on the recent experience of MCI. The range in variation considered is between eight and sixteen months.
- Customer acquisition costs are set at $130, which a range between $110 and $150 considered.
- CLEC costs to accept hot cut transitions from the ILEC to the CLEC's service is estimated at $10.00, with a range considered between $7.00 and $13.00.

The results for each wire center market are reported in the impairment analysis tool on the "Summary Calcs" worksheet.

Q. ARE THE RESULTS OF THE BASE CASE SENSITIVE TO THE INPUTS THAT YOU SELECTED?

A. Yes. The results are highly sensitive to the inputs selected. To illustrate this point, I have selected two wire center markets in the same LATA in Florida, and run the analysis tool using a range of plausible inputs. This demonstrates that the CLEC will face significant uncertainty as to its prospects of recovering its sunk cost investment in most market.

I have selected two wire centers in the Miami to illustrate how the impact of input selections will itself be a function of the characteristics of the wire center, including: the number of residential and business customers; the extent to which customers are served by DLC, which forecloses the CLEC from providing DSL service; and the distance to the CLEC switch. Exhibit MTB-3 shows how average net revenue varies in response to changes in the inputs.

In this chart, the results of the impairment analysis tool are shown for two wire centers in the Miami exchange area. The histogram displays the number of cases, out of 300 scenarios, where the net revenue per line for the wire center fell into each of 52 categories, ranging from $(40.00) or less per month to $10.00 or more per month. While the MIAMFLBA wire center tends to be somewhat closer to profitability than the MIAMFLDB wire center, it still produces negative net revenue in 167 out of the 254 scenarios (56%). The MIAMFLDB wire center produces positive net revenue per line in only 9 of the 254 cases.

Note that although the two wire centers are both located in the Miami exchange area, the characteristics of each wire center cause dramatically different results given the same set of inputs. This reinforces the point I made at the beginning of this testimony; that the ability of a CLEC profitably to provide local exchange services in one wire center is not proof that other wire centers in the same exchange, the same metropolitan area, or the same LATA also can be served.

V. MCI IS DIFFERENT

Q. WOULD YOUR CONCLUSIONS ABOUT THE HYPOTHETICAL CLEC BE DIFFERENT FOR AN ACTUAL CLEC, SUCH AS MCI, THAT WAS NOT STARTING FROM SCRATCH?

A. Under many circumstances my analysis of the hypothetical CLEC would apply to the case of an existing CLEC like MCI. There are other circumstances in which an actual CLEC would face a different business case than the base case of the hypothetical CLEC, which I have shown in the impairment analysis tool. The

main factors that would cause the situation of the actual CLEC to differ from the hypothetical CLEC are: (1) the CLEC is already serving large business customers in the same wire center with special access or UNE transport; (2) the CLEC is already collocated in the wire center; and, (3) in addition to being collocated, the CLEC also is connected to the collocation with its own transport facilities.

In the case of a CLEC already serving business customers at that wire center, but not yet collocated, there is the potential that it could build a new collocation to serve enterprise and mass market customers. The benefit to the CLEC is that it could take advantage of any economies of scale (or scope) in the costs of collocating and transport. This may cause some collocations that are marginally unprofitable for UNE loops alone to become profitable. The impairment analysis toolhas been built with the capability of measuring the economies of scope between the enterprise market and the mass market. Therefore, if I were to be given information on the number of DS1 and DS3 circuits at every wire center in Florida, I could run scenarios to test whether entry conditions are much more favorable for a CLEC already serving enterprise customers.

If a CLEC were already collocated in a wire center, it could benefit from certain economies of scale and scope. For example, some nonrecurring costs associated with the establishment of the collocation could be spread over a larger volume of business, and per-unit costs therefore may be lower. Also, it is possible that in the short-term the CLEC would have excess, unused capacity for some components, e.g. racks that are used for the DS1 and DS3 customers. Even

so, the CLEC would still have to have enough UNE-L customers to achieve economies of scale in many of the cost components related to its mass market service. For example, DLC equipment is not used for DS1 and DS3 customers, and the CLEC would need enough customers to achieve scale economies in the use of this equipment. As in the first case mentioned above, it would be possible to measure the impact of existing collocations on a CLEC's costs using the model that I have developed for the UNE-L business case of a hypothetical CLEC.

The third case listed above would be even more favorable to UNE-L based entry by the CLEC. The reason is that the incremental cost to the CLEC of transporting traffic form UNE-L customers would be lower than when it must lease transport from the ILEC. Once again, this does not mean that the CLEC will always enter the UNE-L market, because it still must invest in additional collocation space and DLC equipment. Whether this would alter the outcome in a specific case can only be answered with the aid of the model and additional information on the capabilities and capacity of the CLEC's fiber ring.

Q. WHAT STEPS CAN THE FLORIDA PUBLIC SERVICE COMMISSION UNDERTAKE TO ENCOURAGE FACILITIES BASED COMPETITION BY COMPANIES LIKE MCI THAT ALREADY HAVE ESTABLISHED SOME LOCAL FACILITIES?

A. I earlier identified certain operational problems that must be overcome before any consideration of the economics of UNE-L based service to mass market customers by any CLEC can take place. These include rapid and seamless cutovers from ILECs to CLECs and from CLECs to CLECs, the

nondiscriminatory availability and efficient provisioning of the unbundled elements that the ILECs are still required to provide at TELRIC-based prices, and the development of robust operations support systems capable of handling large volumes of customer migration.

The economic analysis that I have presented shows that perhaps the most crucial factors affecting the economic viability of UNE-L based local service to mass market customers are the level of cost for customer-specific investments and nonrecurring charges and the period of time over which those costs may be recovered. The FCC specifically cited economic impairment resulting from hot cut costs as a concern and requires future hot cut processes to be implemented by the state public utility commissions be more efficient and have lower costs than the processes currently in place. (See, for example, Triennial Review Order at ¶ 473). While it is not my intention here to recommend a specific price rate elements related to hot cuts, I do recommend that the Commission determine hot cut costs based upon the most efficient, least-cost technologies, processes and procedures which can be utilized in order to effectuate seamless transitions between carriers switches. Moreover, I recommend the Commission consider whether costs incurred by ILECs in performing hot cuts are most appropriately recovered through nonrecurring charges, or whether some other rate structure would reduce the likelihood of impairment. The Commission could, for example, contemplate the development of a competitively neutral cost recovery mechanism whereby the costs of implementing loop portability sufficient to eliminate

impairment can be spread across all participants who may benefit from such portability similar to equal access or LNP cost recovery mechanisms.

VI. CONCLUSION

Q. WOULD YOU PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS?

A. Yes. I have shown that the most appropriate definition of the relevant market both for purpose of the actual deployment "triggers" analysis and for the purpose of analyzing potential deployment of CLEC switching facilities in the absence of UNE-P. While economic theory would compel a market definition at the level of the individual customer location, administrative practicality as well as the nature of CLEC deployment decisions strongly indicate the wire center as the appropriate level of analysis, rather than some larger aggregation of wire centers such as the exchange, the metropolitan statistical area, the LATA, or the UNE rate zone. CLECs may decide to offer local exchange service in a larger market area, but whether individual customers will actually have a choice among competitive carriers depends upon the economic characteristics of the wire center in which each is located. That local exchange service can profitably be offered in one wire center is not proof that the same service can be located in nearby wire centers – CLECs will not choose to offer services in those wire centers that will reduce profitability.

Any analysis of the profitability of CLEC local exchange service in the absence of UNE-P must make a number of assumptions regarding the situation that the CLEC will face. Market share and customer "churn" may be highly

dependent upon the marketing activities and "winback" programs undertaken by the incumbent LEC (and by other CLECs). Average revenue per customer likewise will depend upon the aggressiveness of the incumbent in cutting prices and upon the discount that the CLEC must offer to attract new customers. The external and internal costs of migrating customers from UNE-P to UNE-L service are only partially under the control of the CLEC, and any systemic problems in implementing hot cuts may affect churn, market share and average revenue.

Each of these factors is crucial in determining the profitability of CLEC UNE-L based local exchange service. Each is, to a greater or lesser extent, interdependent with the other factors. And each is only partially under the control of the CLEC. Given the uncertainty faced by the CLEC in a post-UNE-P environment, no one can say with certainty that any wire center in Florida is feasible for economic deployment of CLEC local exchange service in the absence of UNE-P. At best, one might say that some wire centers in Florida might be profitable under some set of optimistic assumptions. At worst, one would be forced to conclude that no wire center in Florida can profitably be served by UNE-L based CLECs.

As I explained at the beginning of this testimony, the consequences of an erroneous finding of non-impairment are serious and irreversible. The consequences of an erroneous finding of impairment are minor and largely will be self-correcting. In view of the uncertainty surrounding any analysis of the potential deployment of CLEC UNE-L based local exchange service, I believe the

Commission must find that the FCC's finding of CLEC impairment in the absence of access to unbundled switching should be sustained.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Mark T. Bryant, and my business address is 4209 Park Hollow Court, Austin, Texas.

Q. ARE YOU THE SAME MARK T. BRYANT WHO PREVIOUSLY FILED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to the direct testimony of BellSouth witnesses Pleatsikas, Tipton, Stegeman, and Aron and Verizon witness Fulp.

I. REBUTTAL OF THE TESTIMONY OF DR. PLEATSIKAS

Q. DO YOU AGREE WITH THE ROLE OF MARKET DEFINITION IN DETERMINING THE DEGREE OF ACTUAL COMPETITION FOR LOCAL EXCHANGE SERVICE (THE "TRIGGERS" ANALYSIS) AND IN DETERMINING THE POTENTIAL FOR CLEC SWITCH DEPLOYMENT IN FLORIDA AS OUTLINED BY DR. PLEATSIKAS?

A. In general, yes. In discussing the role of market definition, Dr. Pleatsikas correctly notes that the market definition should permit a granular analysis and should reflect cost or other differences that might affect a competitor's

ability to provide service and that the market should be defined in such a way as to reveal differences in markets that would result in differing findings of impairment. Dr. Pleatsikas also correctly identifies some of the cost differences that have an impact on a CLEC's decision to offer UNE-L based local exchange service.

Q. DO YOU AGREE WITH DR. PLEATSIKAS' CONCLUSION THAT A MARKET DEFINITION OF UNE RATE ZONES DIVIDED BY COMPONENT ECONOMIC AREAS ADEQUATELY CAPTURES THE FACTORS THAT AFFECT A CLEC'S DECISION TO OFFER UNE-L BASED SERVICE?

A. No, I do not. Among the factors cited by Dr. Pleatsikas to support his proposed market definition are the differences in rates for UNE loops and the cost of transport from customers' locations to the CLEC's switch. While Dr. Pleatsikas' market definition captures the differences in recurring rates for UNE loops and other ILEC rate elements, it fails to adequately capture the effect that the cost of transport and the costs imposed by other ILEC charges may have on a CLEC's decision to enter the market as a UNE-L based local service provider.

Q. IN WHAT WAY DOES DR. PLEATSIKAS' MARKET DEFINITION FAIL TO ADEQUATELY ADDRESS THE EFFECT OF THE COST OF TRANSPORT?

A. The rates charged by BellSouth for transport rate elements vary by distance as well as by rate zone. As a result, providing service at a wire center that is located further from a CLEC's switch is more costly to the CLEC than serving a wire center that is close to the CLEC's switch. Failure to recognize this cost differential in effect averages transport costs across all wire centers in BellSouth's proposed markets. While the market as a whole might be profitable under Dr. Pleatsikas' market definition, the potential exists that some wire centers within the proposed market would be unprofitable to serve. If a market as broad as a CEA is defined, differences in profitability in wire centers will be obscured, and the impairment analysis will thus fail to capture any areas where the CLECs cannot profitably provide service.

Q. WHAT OTHER CLEC COSTS VARY AMONG WIRE CENTERS?

A. There are a number of cost factors that vary among wire centers. These include the number of addressable lines in the wire center, the number of lines for which the CLEC is capable of offering DSL services, the number of lines in the wire center served by digital loop carrier technology, the relative number of business and residential customers in the wire center, and the demographics of customers served from the wire center.

Q. HOW DOES THE NUMBER OF ADDRESSABLE LINES IN THE WIRE CENTER AFFECT THE CLEC's COSTS?

A. The number of addressable lines in the wire center affects the CLEC's ability to recover the substantial fixed cost associated with establishing a collocation in the wire center. Some of these costs are in the form of ILEC nonrecurring charges for the establishment of the collocation, and other are in the form of CLEC capital expenditures for equipment to be located in the collocation space, and the cost of installing and configuring the equipment. The fewer the number of lines that are served from a particular wire center, the fewer the number of potential CLEC customers over which these costs may be spread, and thus the higher the CLEC's per-customer cost will be.

Q. HOW DOES THE NUMBER OF LINES SERVED BY DIGITAL LOOP CARRIER AFFECT THE CLEC'S PROFITABILITY?

A. The use of digital loop carrier technology affects CLEC profitability in two ways. First, under the terms of the FCC's Triennial Review Order, the ILEC is not obligated to provide unbundled access to the packet switching capability of hybrid fiber-copper loops. This provision of the order effectively precludes the CLEC from offering DSL services to those customers whose loops are provisioned using DLC technology. This reduces the revenue potentially available to the CLEC in the wire center to recover its fixed costs. It also may reduce the market share that the CLEC is capable of achieving, particularly among the higher-spending residential customers and business customers, who are more likely to demand broadband data services.

Second, the use of digital loop carrier technology, and particularly next-generation DLC systems, complicates the process of unbundling loops for use by the CLEC. As explained in the testimony of Mr. Webber, the methods proposed thus far for unbundling of loops provided over digital loop carrier systems either are not yet tested, or result in significant quality of service or cost issues for CLECs.

Q. IN WHAT WAYS DO THE PROPORTION OF BUSINESS AND RESIDENCE CUSTOMERS AND THE DEMOGRAPHIC CHARACTERISTICS OF CUSTOMERS IN THE WIRE CENTER AFFECT CLEC PROFITABILITY?

A. Each of these factors affect the revenue that is potentially available to the CLEC in each wire center. Because business customers generally produce more revenue than residential customers under current pricing practices, a larger proportion of business customers means a larger potential revenue stream for the CLEC. Likewise, the demographic characteristics of the wire center may affect the potential revenue available to the CLEC. A wire center with a large proportion of affluent customers, or a wire center with a large proportion of younger, more tech-savvy customers will likely generate more revenue per customer than wire centers without these characteristics.

Q. DR. PLEATSIKAS HAS ARGUED THAT A WIRE CENTER MARKET DEFINITION DOES NOT CAPTURE THE

ECONOMIES OF SCALE THAT PERTAIN TO CERTAIN COSTS INCURRED BY THE CLEC IN PROVIDING SERVICE. DO YOU AGREE?

A. Yes, I agree that certain costs that the CLEC will incur in providing local exchange service using its own switching facilities are not specific to the wire center. Examples would include the fixed cost purchasing and installing switching and signaling facilities, and the development of billing and provisioning systems. The question, however, is whether consideration of the economies of scale that pertain to these cost factors should rule out consideration of the cost differentials that exist between wire centers. I believe that both wire center specific costs and costs that are incurred over a broader area are important considerations for a CLEC considering offering local exchange service using its own switching facilities. However, because the costs of switching, and billing and provisioning systems are incurred on behalf of a relatively much larger pool of customers over which the costs may be spread, they are a less important factor in the entry decision than wire center specific fixed costs, which must be spread over a relatively much smaller number of customers.

To illustrate this point, I have attached a chart as Exhibit MTB-4. This chart illustrates the investment per customer for a local exchange switch, with the assumption that the fixed investment for the switch is $1,000,000, and the per customer investment is $100. As the chart clearly

shows, the economies of scale in the switch are achieved fairly rapidly. By the time the CLEC is serving a few thousand customers, the rate of decline in the per-customer investment has slowed dramatically, and adding additional customers results in a miniscule decrease in the per customer investment.

II. REBUTTAL OF THE DIRECT TESTIMONY OF MS. TIPTON (TRIGGERS)

Q. MS. TIPTON STATED IN HER DIRECT TESTIMONY THAT THE "TRIGGERS" ANALYSIS IS A SIMPLE COUNTING EXERCISE – ONCE THE COMMISSION HAS DETERMINED THAT THREE CARRIERS ARE PROVIDING LOCAL SERVICE TO MASS MARKET CUSTOMERS, IT NEED LOOK NO FURTHER. DO YOU AGREE?

A. Only in part. To be sure, once the Commission has determined what sort of carriers are suitable for inclusion in the counting exercise, the counting itself is a simple process. The more challenging aspect of the decision that the Commission faces is in determining which carriers may appropriately be counted. The FCC has identified a number of factors that must be considered in this determination. These include:

(1) Corporate ownership;

(2) Active and continuing market participation;

(3) Intermodal competition; and

(4) Scale and scope of market participation.

I discuss each of these rules, and other pertinent considerations, below. To aid the Commission in reviewing evidence that purports to show that either the retail or wholesale trigger has been met in a particular market, I have also prepared a flowchart that summarizes the requisite analysis. This flowchart is attached as Exhibit MTB-5 to my testimony.

Q. WHAT ARE THE FCC'S RULES WITH RESPECT TO CORPORATE OWNERSHIP?

A. The FCC has imposed two separate restrictions on corporate ownership. First, a carrier can only count toward the retail or wholesale trigger in a particular market if that carrier is unaffiliated with the incumbent. *Triennial Review Order*, ¶ 499. Second, to prevent "gaming," carriers affiliated with one another, but not the incumbent, only count as a single carrier toward satisfying the pertinent trigger. *Id.* (In both instances, the FCC relied on a definition of affiliation found in Section 3 of the Act (47 U.S.C. § 153(1)). *Id.*, n. 1550). These two requirements appear as the second and third items on the flowchart in Exhibit MTB-5.

Q. WHAT ARE THE FCC'S RULES WITH RESPECT TO A POTENTIAL TRIGGERING CARRIER'S ACTIVE AND CONTINUING MARKET PARTICIPATION?

A. The FCC stresses that potential triggering carriers must be "actively providing voice service to mass market customers in the market." *Id.*, ¶ 499. Moreover, the state commission must verify that the competitors in

question have not, for example, filed a notice to terminate service in that market (*Id.*, n. 1556) or provided other evidence demonstrating that they no longer intend to be an active participant in that market. These requirements are reflected in the fourth item in the flowchart in Exhibit MTB-5.

The clear intent of these rules is to ensure that any company counted toward a trigger is an active and continuing participant in the relevant market. To give these rules economic meaning, the Commission should require evidence that any company counted toward a trigger is actively soliciting new customers and has, in fact, added new customers *in that market* within the recent past (*e.g.*, the most recent month for which data are available).

Q. WHAT ARE THE FCC'S RULES WITH RESPECT TO INTERMODAL COMPETITION?

A. The FCC requires states to consider whether intermodal alternatives are comparable in "cost, quality and maturity" to the incumbent's switched mass-market voice services before counting such alternatives toward the trigger in any market. *Id.*, n. 1549. *See also* ¶ 97. Based on these criteria, the FCC specifically indicated that it did not expect states to count CMRS carriers toward either trigger. *Id.*, n. 1549. The FCC defines CMRS carriers as "any mobile service, as defined in section 3 of the Act, as amended, provided for profit and making interconnection services available to the public." *Id.*, n. 164, citing 47 U.S.C. § 332(d)(1). This

definition includes, but is not limited to, traditional cellular carriers. Similarly, the FCC indicated that fixed wireless has "not proven to be viable or deployable on a mass market scale," implying that fixed wireless services do not meet the "comparable in cost, quality and maturity" standard for inclusion in the trigger analysis. *Id.*, ¶ 310. The FCC did, however, leave open the option of counting carriers that use packet switches or soft switches to provide voice services to mass-market customers. *Id.*, n. 1549.

To give economic meaning to these rules, I recommend that the Commission place the burden of proof on the ILECs to demonstrate that any intermodal alternative it proposes to count toward the triggers satisfies the "comparable in cost, quality and maturity" standard identified in footnote 1549 to the *Triennial Review Order*. I have therefore included as the fifth item in the Exhibit MTB-5 flowchart an evaluation of the incumbent's showing as to the cost, quality and maturity of any intermodal providers proffered as potential triggering companies.

Q. SHOULD CABLE TELEPHONY PROVIDERS BE CONSIDERED POTENTIAL MASS-MARKET TRIGGERING COMPANIES?

A. No. As the FCC acknowledged, cable telephony fails to serve the "crucial function" of affording access to the incumbent's loops, (*Id.*, ¶ 439) and therefore "provides no evidence that competitors have successfully self-deployed switches as a means to access the incumbents' local loops, and have overcome the difficulties inherent in the hot cut process." *Id.*, ¶ 440.

Cable telephony's strategy is to "bypass the incumbent LECs' networks entirely." *Id.* This strategy is only available to a single firm in any market because cable TV companies, due to "unique economic circumstances of first-mover advantages and scope economies, have access to customers that other competitive carriers lack." *Id.*, ¶ 310. As a result, neither cable telephony nor CMRS "can be used as a means of accessing the incumbents' wireline voice-grade local loops. .... Accordingly, neither technology provides probative evidence of an entrant's ability to access the incumbent LEC's wireline voice-grade local loop and thereby self-deploy local circuit switches." *Id.*, ¶ 446. Any competitive facilities that allow access to some customer locations but not others clearly cannot be regarded as probative evidence of no impairment concerning those customer locations that cannot be reached by the competitive facilities. Cable telephony is at most an alternative to the ILEC's local voice service for the specific customer locations served via the cable company's facilities, which typically do not reach all of the ILEC's mass-market customer locations. (For example, cable facilities frequently do not serve the central business districts in which many mass-market small business customers may be located. *Id.*, n. 1349.)

For similar reasons, the FCC determined that the availability of cable telephony does not eliminate impairment with respect to the ILEC's voice-grade loop facilities. *Id.*, ¶¶ 228, 229 and 245. Because cable telephony offers an alternative to the ILEC's mass-market switching

facilities only where it also offers an alternative to the ILEC's loop facilities, it logically follows that cable telephony does not cure impairment with respect to mass-market switching, either.

In addition, cable telephony does not unambiguously fulfill the "cost, quality and maturity" criteria established by the FCC. Cable telephony services (particularly the recent variants provided using Voice over Internet Protocol, or VoIP, technology) are relatively new; it is not yet clear whether most consumers perceive such services to be comparable to local telephone service, especially with respect to reliability issues such as E-911 and backup power in emergencies. Thus, I believe that a reasoned analysis disqualifies cable telephony from being considered as a "close enough" substitute for the ILEC's local voice services to be included in the product market for the mass-market switching impairment analysis.

Q. WHAT ARE THE FCC'S RULES WITH RESPECT TO THE SCALE AND SCOPE OF MARKET PARTICIPATION?

A. The FCC identified specific rules with respect to scale and scope of market participation for wholesale providers and more general guidance with respect to the scale and scope of such participation for retail competitors that self-deploy switching.

For a competitor to be counted toward the wholesale trigger in a given market, the carrier must "be operationally ready and willing to provide wholesale service to all competitive providers in the designated

market." *Triennial Review Order*, ¶ 499 (as amended by the FCC's *Errata* released on September 17, 2003). The wholesale carrier need not, however, provide "the full panoply of services offered by incumbent LECs." *Id.*

For retail providers, the FCC provides state commissions with the far more general guidance that, "in circumstances where switch providers (or the resellers that rely on them) are identified as currently serving, or capable of serving, only part of the market, the state commission may choose to consider defining that portion of the market as a separate market for purposes of its analysis." *Id.*, n. 1552. In the context of this Commission's investigation, the FCC's general guidance provides for instances in which the Commission may choose to conduct its trigger analysis on a more granular basis than the wire center or, in the alternative, provides guidance as to whether a particular competitor should count toward the trigger in a given wire-center market as defined by the Commission.

The Commission can achieve the same effect either by narrowing the market definition in such a way that the potential triggering companies do in fact offer services to all, or virtually all, customers within the defined market, or 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. Either approach accomplishes the essential economic purpose of applying triggers in a

manner that ensures that all, or virtually all, customers within a given market have significant alternatives.

Q. WHY DO YOU SAY THAT TRIGGERS SHOULD BE APPLIED IN A WAY THAT ENSURES ALL, OR VIRTUALLY ALL, CUSTOMERS WITHIN A GIVEN MARKET HAVE SIGNIFICANT ALTERNATIVES?

A. First and foremost, such an approach is consistent with the pro-competitive goals of the Act and this Commission. To date, UNE-P has proven to be the most successful and widespread vehicle for providing mass-market customers with competitive alternatives to the incumbents' retail local exchange services. By its very nature, UNE-P allows competitors to offer alternatives to each and every customer that the ILEC serves. Eliminating access to unbundled switching is inherently anti-consumer unless the Commission can be very sure that *all* of the customers who can be served via UNE-P can also be served through some alternative form of competitive entry.

Q. IS IT YOUR TESTIMONY THAT THE ILEC MUST DEMONSTRATE THAT POTENTIAL TRIGGERING COMPANIES ARE CURRENTLY OFFERING RETAIL LOCAL EXCHANGE SERVICES TO (OR WHOLESALE SERVICES THAT ALLOW POTENTIAL RESELLERS TO REACH) EVERY SINGLE MASS-MARKET CUSTOMER IN A GIVEN WIRE CENTER?

A. No. The Commission should, however, require evidence that: (1) each company counted toward the retail trigger has a demonstrated capability of holding itself out to provide retail local exchange service to all, or virtually all, mass-market customers within that wire center; and (2) the volumes at which the potential triggering company is presently providing service demonstrate that it has overcome the hot cut barrier to entry that is the basis for the national finding of impairment and all of the other economic and operational barriers to entry that the FCC identified as appropriate topics for consideration in a potential deployment analysis. This means that the company in question must have demonstrated, by the sheer scale and scope of its participation in the market, that it has overcome the operational and technological issues associated with, *e.g.*, UNE-L, OSS, collocation, transport and EELs necessary for mass-market entry. If that is not unambiguously clear from the nature of the triggering company's operations, then a potential deployment analysis would be necessary to justify a finding of no impairment and no such finding should be made on the basis of the existence of the alleged trigger company in the

relevant market. I have included these two evidentiary requirements as the sixth and seventh, respectively, on the flowchart in Exhibit MTB-5.

Q. ARE THERE BROAD CATEGORIES OF POTENTIAL TRIGGERING COMPANIES THAT WOULD FAIL TO MEET YOUR PROPOSED STANDARD OF HAVING A DEMONSTRATED CAPABILITY OF HOLDING ITSELF OUT TO PROVIDE RETAIL LOCAL EXCHANGE SERVICE TO ALL, OR VIRTUALLY ALL, MASS-MARKET CUSTOMERS WITH THE WIRE CENTER (ITEM 6 ON THE FLOWCHART IN EXHIBIT MTB-5)?

A. Yes. As I mentioned in discussing product market distinctions, at least two broad categories come to mind:

(1) Companies that serve small business, but do not serve residential customers; and

(2) Companies that serve customers whose ILEC loop is provided over all-copper facilities, but do not serve customers whose ILEC loop is provided over fiber feeder and IDLC.

Q. WHY DO YOU SAY THAT COMPANIES THAT DO NOT SERVE RESIDENTIAL CUSTOMERS IN A GIVEN GEOGRAPHIC MARKET SHOULD *NOT* BE CONSIDERED AS POTENTIAL "TRIGGERING" COMPETITORS?

A. As I have already explained, residential customers are not identical to small business customers, which in turn are not identical to the medium and larger businesses that the FCC has included in what it describes as the "enterprise market."

The FCC recognized the "swing" role of small business customers in the distinctions it drew between "mass-market" and "enterprise-market" customers, noting:

> Very small businesses typically purchase the same kinds of services as do residential customers, and are marketed to, and provided service and customer care, in a similar manner. Therefore, we will usually include very small businesses in the mass market for our analysis. We note, however, that there are some differences between very small businesses and residential customers. For example, very small businesses usually pay higher retail rates, and may be more likely to purchase additional services such as multiple lines, vertical features, data services, and yellow page listings. Therefore, we may include them with other enterprise customers, where it is appropriate in our analysis. *Triennial Review Order*, n. 432.

This statement, in combination with the FCC's observations on the use of actual marketplace deployment as evidence that barriers to entry are surmountable, suggests that the Commission should allow the empirical evidence to dictate its view of whether residential and small business customers are in the same market for purposes of the trigger analysis. If a

carrier serves small business customers but not residential customers using its own switch, that very fact implies that there is a meaningful difference between small business and residential customers. If that pattern is repeated, so that multiple carriers serve small business customers but not residential customers using their own switches, the evidence for distinct customer class markets becomes even more compelling.

It would be a grave public policy error to base a finding of no impairment solely or largely on evidence of carriers self-deploying switching to serve small business customers, leaving Florida residential customers with no meaningful competitive alternative. The Commission should require evidence that both residential and small business customers have competitive choices before it decides to eliminate CLECs' access to unbundled switching in any geographic market. Thus, a company that is not actively providing residential service with its own switches (*i.e.*, one that is only providing business service) should not be counted as a trigger company for mass-market switching.

Q. YOU ALSO SUGGESTED THAT THE COMMISSION SHOULD CONSIDER WHETHER THE SWITCH-BASED COMPETITOR IS OFFERING SERVICE OVER BOTH ALL-COPPER AND IDLC LOOPS. WHY IS IT IMPORTANT FOR THE COMMISSION TO CONSIDER THE TYPES OF UNE LOOPS OVER WHICH POTENTIALLY TRIGGERING COMPANIES ARE PROVIDING RETAIL LOCAL EXCHANGE SERVICE?

A. ILECs and CLECs have engaged in a long and contentious battle over the procedures and cost for providing stand-alone unbundled loops to customer locations that the ILEC serves via fiber feeder and IDLC. To date, there is no consensus on a cost-effective means for making such loops available. There is, however, no dispute that UNE-P can be provisioned over the same IDLC facilities that the ILEC uses to provide its own retail services. Unless a potentially triggering company is providing switch-based services 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. Elimination of access to UNE switching under these circumstances would effectively deny competitive alternatives to the growing number of Florida customers served via IDLC.

Q. HOW DOES THE PRECEDING DISCUSSION RELATE TO THE FLOWCHART IN EXHIBIT MTB-5?

A. I have identified two specific "screens" that should be considered during the analysis that occurs as part of Item 7 in the flowchart. The first "screen" asks whether the potential triggering carrier serves both residential and small business customers. The second asks whether the potential triggering carrier serves customers over both all-copper and IDLC loops. The Commission should not consider the triggers to be satisfied unless all customer groups within the identified market can be reached by at least three retail or two wholesale providers that deploy their own switches.

Q. MS. TIPTON HAS IDENTIFIED A NUMBER OF CLECs THAT SHE CLAIMS MEET THE SELF-PROVISIONING TRIGGER. DO YOU AGREE THAT THESE CARRIERS SHOULD BE COUNTED AS TRIGGERING COMPANIES?

A. No. Several of the carriers cited by Ms. Tipton clearly do not actively market services to residential customers. As I explained in my discussion of the trigger "screens" above, these companies should be excluded from the analysis. These companies are: ****BEGIN PROPRIETARY INFORMATION**** [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]****END PROPRIETARY INFORMATION****

Q. HOW DID YOU DETERMINE THAT THESE COMPANIES ARE NOT ACTIVELY MARKETING SERVICES TO RESIDENTIAL SUBSCRIBERS?

A. Very simply, I examined the marketing materials placed by these companies on their web sites. For each of the above companies, the description of services offered plainly indicated that their focus was on the provision of services to business customers.

****BEGIN PROPRIETARY INFORMATION****[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]****END PROPRIETARY INFORMATION****

I have attached to my rebuttal testimony Exhibit MTB-6. This exhibit reproduces relevant pages from the web sites of ****BEGIN PROPRIETARY INFORMATION**** [redacted] ****END PROPRIETARY INFORMATION****

Q. ARE THERE COMPANIES OTHER THAN THE ONES THAT YOU HAVE CITED THAT FAIL TO MEET THE CRITERIA FOR TRIGGERING CLECs?

A. Yes. ****BEGIN PROPRIETARY INFORMATION**** [redacted] ****END PROPRIETARY INFORMATION****does not appear to be marketing any kind of local exchange service. Attempting to access the ****BEGIN PROPRIETARY INFORMATION**** [redacted] ****END PROPRIETARY INFORMATION****

Additionally, two companies, ****BEGIN PROPRIETARY INFORMATION**** [redacted] ****END PROPRIETARY INFORMATION**** are cable

operators providing service via cable lines. For the reasons cited in my earlier discussion regarding the provision of local phone service by cable operators, these companies should not be counted toward the self-provisioning triggers.

Finally, ****BEGIN PROPRIETARY INFORMATION**** [redacted]

[redacted]

[redacted]

[redacted] ****END PROPRIETARY INFORMATION****

Q. IS MCI A TRIGGERING COMPANY?

A. Based on the rebuttal testimony of Ms. Sherry Lichtenberg, I believe that MCI is not a triggering company. MCI provides service to residential and small business customers using only UNE-P.

Q. DO THE COMPANIES YOU HAVE DISCUSSED THUS FAR EXHAUST THE LIST OF TRIGGERING COMPANIES CITED BY BELLSOUTH?

A. No. I was unable to determine the extent to which ****BEGIN PROPRIETARY INFORMATION**** [redacted]

[redacted] ****END PROPRIETARY INFORMATION actively market local exchange services to residential customers.

Q. CAN YOU SUMMARIZE YOUR CONCLUSIONS REGARDING THE TRIGGER EVIDENCE PRESENTED BY BELLSOUTH?

A. Yes. Of the twenty companies cited by BellSouth as satisfying the self-provisioning trigger, I have been able to determine that fourteen obviously do not meet the criteria for a triggering company. I have been unable to determine whether or not the remaining six companies should qualify as triggers. I have attached a summary of my conclusions as Exhibit MTB-8.

III. REBUTTAL OF THE DIRECT TESTIMONY OF DR. FULP (TRIGGERS)

Q. VERIZON HAS PRESENTED THE TESTIMONY OF DR. ORVILLE FULP. WHAT IS THE SUBJECT OF DR. FULP'S TESTIMONY?

A. Dr. Fulp offers a proposed market definition, and presents evidence that he claims support a finding that the triggers for self-provisioning of local exchange switching have been met in Verizon territory.

Q. WHAT MARKET DEFINITION DOES DR. FULP PROPOSE?

A. Dr. Fulp proposes that the Commission adopt a market definition based on Metropolitan Statistical Areas ("MSAs"), or alternatively, that the market be defined as UNE rate zones within MSAs.

Q. DO YOU AGREE WITH THE MARKET DEFINITION PROPOSED BY DR. FULP?

A. No, I do not. For the same reasons that BellSouth's proposed density zones are not an appropriate market definition for evaluating the self-provisioning triggers or the analysis of potential deployment, Verizon's proposed market definition is equally deficient.

Q. DR. FULP ALSO ARGUES AGAINST THE ADOPTION OF THE WIRE CENTER AS THE APPROPRIATE MARKET DEFINITION. ON WHAT BASIS DOES DR. FULP REJECT A WIRE CENTER MARKET DEFINITION?

A. Like Dr. Pleatsikas, Dr. Fulp believes that defining the market as the ILEC wire center would fail to capture the economies of scale pertaining to switch deployment. As I showed earlier, these economies of scale are not significant once a certain level of demand is achieved, and consideration of these costs certainly should preclude consideration of wire center specific cost differences. Dr. Fulp goes further, however, and seems to suggest that adoption of the ILEC wire center boundaries as the relevant market would fail to recognize the network architecture that CLECs might deploy. I disagree. Certainly the CLEC will endeavor to place its switches in locations that permit it to operate most efficiently, and this can certainly be taken into account in estimating CLEC costs. The fact is, however, that CLECs are and will continue to be dependent upon the ILECs for access to unbundled loops. These loops terminate in ILEC wire centers, and the CLEC must inevitably take into account the network structure currently deployed by the ILECs.

Q. DR. FULP ALSO LISTS COMPANIES THAT HE CLAIMS SHOULD BE COUNTED AS TRIGGERS IN THE ACTUAL DEPLOYMENT ANALYSIS. DO YOU AGREE THAT THE COMPANIES HE LISTS QUALIFY AS TRIGGERING COMPANIES?

A. No, I do not. Dr. Fulp identifies many of the same companies identified by BellSouth in its triggers analysis. These include ****BEGIN PROPRIETARY INFORMATION**** [redacted] ****END PROPRIETARY INFORMATION**** Only one additional company not identified in Ms. Tipton's testmiony, ****BEGIN PROPRIETARY INFORMATION**** [redacted] ****END PROPRIETARY INFORMATION**** is identified by Dr. Fulp as operating in Verizon territory. As I noted earlier, I have been unable to determine whether or not ****BEGIN PROPRIETARY INFORMATION**** [redacted] ****END PROPRIETARY INFORMATION**** is actively marketing UNE-L based local exchange residential service in Florida, and I have also not been able to locate any information regarding ****BEGIN PROPRIETARY INFORMATION**** [redacted] ****END PROPRIETARY INFORMATION**** The remaining companies identified by Dr. Fulp are all either not actively marketing residential local exchange service, are not using UNE-L to provide local exchange service, or, in the case of ****BEGIN PROPRIETARY INFORMATION****

[redacted]

[redacted]

[redacted]

[redacted] ****END PROPRIETARY INFORMATION**** Exhibit MTB-9 presents a summary of my conclusions.

IV. REBUTTAL OF THE DIRECT TESTIMONY OF MR. STEGEMAN (POTENTIAL DEPLOYMENT MODEL)

Q. BELLSOUTH HAS PRESENTED THE BELLSOUTH ANALYSIS OF COMPETITIVE ENTRY ("BACE") MODEL THROUGH THE TESTIMONY OF MR. STEGEMAN IN THIS PROCEEDING. WHAT IS YOUR UNDERSTANDING OF THE PURPOSE OF THIS MODEL?

A. According to Mr. Stegeman and Dr. Aron, the model is presented to show the feasibility of market entry to CLECs seeking to provide local exchange service using their own switches in combination with certain unbundled loop, transport, and collocation facilities obtained from the ILEC.

Q. HAVE YOU BEEN ABLE TO ASSESS THE MODEL'S METHODOLOGY AND CALCULATIONS?

A. No, I have not. The model presented by BellSouth is a compiled Visual Basic application. As such, none of the formulae or intermediate results of calculations are accessible or viewable. BellSouth did not provide any of the source code used in the model. Consequently, at this time the model is

a "black box." I have only been able to view the effect that changes in inputs have on the model's outputs.

Q. HOW DO THE MODEL'S INPUTS AFFECT THE MODEL'S OUTPUTS?

A. In testing the sensitivity of the model to various input changes, I was surprised by how insensitive the model's outputs are to the model inputs. For example, I tested the model by changing inputs that should have a dramatic impact on CLEC profitability. In particular, the customer churn rate and the customer acquisition cost should be significant factors in determining profitability. If the customer churn rate is high, or if the customer acquisition cost is high, the CLEC will likely be unable to recover customer specific costs from the revenue derived from each customer during the time that the customer remains with the CLEC. The CLEC's cost of capital and the CLEC's market share likewise should be significant factors in determining profitability, in that they will affect the CLEC's ability to recover its capital expenditures for collocation and other capital equipment, and the nonrecurring charges associated with establishing collocation facilities and transport facilities.

Surprisingly, varying these inputs did little to change the net present value of providing service in BellSouth wire centers. Using BellSouth's default inputs, but turning off certain filters used by the model that eliminate unprofitable market segments, the BACE estimated that net

present value would be negative for mass market customers in 42 of 196 wire centers in BellSouth territory. Increasing the cost of capital from BellSouth's default value of 13.09% to 15% caused only three additional wire centers to produce negative net present value. Changes in the CLECs market share had a somewhat greater effect on model resutls. Decreasing market share from BellSouth's default value to 10% in all mass market segments increased the number of negative net present value wire centers from 42 to 59. Decreasing market share further to 5% in all mass market segments resulted in a further increase in negative net present value wire centers to 73.

Manipulating the customer churn rates also had a surprisingly small effect on the model results. Keeping the cost of capital at 15%, increasing monthly customer churn from BellSouth's default values to 5% across all mass market customer segments increased the number of negative net present value wire centers from 45 to 47. Increasing churn to 8.33% (representing a 12-month average customer life) increased the number of unprofitable wire centers only to 56.

I have attached to this testimony Exhibit MTB-10, which presents the results of several sensitivity tests that I performed on the BACE model.

Q. WHAT DO YOU CONCLUDE FROM THE SENSITIVITY TESTS THAT YOU HAVE PERFORMED?

A. Without access to the model algorithms and the results of intermediate calculations, I cannot say with any certainty whether the model is appropriately calculating the costs and revenues pertinent to the potential deployment analysis. While, with one or two exceptions that I discuss below, I cannot fault the general approach outlined in Mr. Stegeman's testimony and in the model documentation, I find it curious that factors that are known to have a significant impact on CLEC profitability do not seem to have a significant impact on CLEC profitability as predicted by the model.

Q. DO YOU HAVE ANY OTHER CONCERNS WITH THE OPERATION OF THE BACE MODEL?

A. Yes. In testing the sensitivity of the model to various inputs, I discovered that the model occasionally produces anomalous results. That is to say, in some cases the output of the model does not change in ways that would be anticipated with changes in inputs.

For example, one would expect that increases in customer churn would result in a decrease in profitability for the CLEC, all else equal. In one pair of model runs that I performed, I changed the customer churn rate from 6.5% to 8.33%. All other inputs to the model were held constant. While most wire centers in Florida did indeed become less profitable with this change, the BACE predicted that in 29 wire centers, the CLEC would actually be *more* profitable with the higher churn rate.

I cannot account for this result, and it certainly raises questions as to whether the model accurately calculates the effect of customer churn rates or other variables.

Q. DOES THE MODEL ACCURATELY PORTRAY THE CHALLENGES FACED BY CLECs IN PROVIDING LOCAL EXCHANGE SERVICES UNDER SUCH CIRCUMSTANCES?

A. No, it does not, in its default configuration. An analysis of the inputs used in the model and the overall operation of the model reveals a number of aspects of the model that cause it to present misleading and inaccurate results.

Q. HOW DOES THE MODEL PRESENT MISLEADING RESULTS IN ITS DEFAULT CONFIGURATION?

A. A part of the problem is that the BACE, operated with default inputs, discards certain markets where CLEC entry is, on the model's own terms, unprofitable. The default inputs used in the model cause the model to discard: 1) LATAs for which CLEC entry is unprofitable, 2) markets for which CLEC entry is unprofitable, and 3) customers that may not profitably be served. The results of these exclusions is that the model results portray CLEC entry as more profitable than is actually, under the model's own terms, the case.

A second aspect of the problem lies in the market definition proposed by BellSouth and in the way that the model aggregates results to conform to this market definition. The model performs this aggregation in two ways. First, although the model calculates results separately for the mass market and enterprise market in each wire center, it aggregates results for these two product markets into a single value. Second, although the model operates fundamentally at the level of the individual wire center, it aggregates the results for all wire centers in each of BellSouth's proposed market areas into a single value. The result is that the model result presented by BellSouth obscures differences in the profitability of the enterprise and mass markets, and in the profitability of each wire center in a manner that in turn obscures factors that enter into each CLEC's decision whether or not to enter a given market. Exhibit MTB-11 to this testimony presents the results of the BACE model, using BellSouth's default inputs with the exclusionary filters turned off, for the individual wire centers in each of BellSouth's proposed markets. Given BellSouth's optimistic assumptions, very few of the wire centers shown in the results have a negative net present value. Note, however, the results for the PLCSFLMA wire center in the Daytona Beach "market." The BACE results, as presented by BellSouth, would lead one to a conclusion that this wire center is profitable for a potential CLEC entrant (the wire center as a whole is profitable). This conclusion is only reached, however, because the large net present value derived from serving enterprise customers

offsets the loss that the CLEC would incur from serving mass market customers. While this issue does not affect many wire centers using BellSouth's default input assumptions, the effect is much more pronounced when the input assumptions used result in a lower profitability for mass market customers.

Q. ARE YOU SAYING THAT IT IS INAPPROPRIATE TO CONSIDER THE CASE WHERE A CLEC SERVES BOTH ENTERPRISE AND MASS MARKET CUSTOMERS?

A. No, I am not. In fact, the FCC's Triennial Review Order, at ¶519 requires that the potential deployment analysis consider this case. What is inappropriate in BellSouth's presentation is that it suggests that a CLEC would offer services to mass market customers where it would not be profitable to do so. The appropriate consideration is whether the simultaneous offering of enterprise and mass market services reduces cost and increases profitability for each market relative to the offering of service to either market separately. In other words, the relevant question is whether a carrier offering enterprise services would gain additional economies of scale by also offering mass market services, or *vice versa*. No rational firm, however, would provide service to a market if that service offering would reduce its overall profitability.

V. REBUTTAL OF THE DIRECT TESTIMONY OF DR. ARON (POTENTIAL DEPLOYMENT)

Q. DR. DEBRA ARON HAS PRESENTED TESTIMONY ENDORSING THE APPROACH TAKEN BY THE BACE IN ESTIMATING THE CLECS' PROFITABILITY IN OFFERING LOCAL EXCHANGE SERVICE USING THEIR OWN SWITCHES. DO YOU DISAGREE WITH DR. ARON'S STATEMENTS IN THIS REGARD?

A. As I have already stated, I do not disagree with the general approach to estimating CLEC profitability outlined in Dr. Aron's and Mr. Stegeman's testimony. I also have stated concerns with the manner in which this approach is implemented by the model.

Q. DR. ARON ALSO PROPOSES A NUMBER OF INPUTS TO THE MODEL THAT SHE CLAIMS SHOULD BE USED IN THE POTENTIAL DEPLOYMENT ANALYSIS. DO YOU AGREE WITH DR. ARON'S RECOMMENDATIONS?

A. No, I do not. Many of the input assumptions proposed by Dr. Aron for use in the BACE model are unrealistic, and represent a quite optimistic view of the challenges that would face CLECs in a post-UNE-P environment.

Q. AS JUSTIFICATION FOR CHOOSING VALUES THAT DO NOT REFLECT CURRENT CLEC EXPERIENCE, DR. ARON STATES THAT THE FACT THAT SEVERAL CLECS HAVE GONE BANKRUPT SUGGESTS THAT "...ON AVERAGE, CLECS DO NOT HAVE OPTIMALLY EFFICIENT OPERATIONS." DO YOU AGREE?

A. Certainly not. If anything, it should suggest the opposite. Any firm faced with bankruptcy will do anything it can to cut operating expenses in an effort to remain solvent. This may not be an "optimally efficient" mode of operation, but it would be suboptimal to the low side; the operating expense would not reflect the level of expense that would be expected for an efficient firm in sustainable operation.

Q. DR. ARON RECOMMENDS THAT THE ULTIMATE MARKET SHARE FOR THE EFFICIENT CLEC BE SET AT 15% OVER ALL MARKET SEGMENTS. DO YOU AGREE WITH THIS RECOMMENDATION.

A. No, I do not. Dr. Aron cites penetration levels achieved by CLECs using UNE-P to provide local exchange service and penetration levels by cable operators achieved among customers that subscribe to cable as justification for her recommeendation. I would note first that the 15% market share number cited for CLEC market penetration is for all CLECs in aggregate, not for individual CLECs (with the exception of the penetration cited for AT&T in New York). I also would note that the cable penetration figures are for penetration among only those customers that are subscribers to the cable system, with a total subscriber base only of those subscribers for whom cable services are availabile – not the entire universe of telephone subscribers. Nationwide, CLECs, *in aggregate*, have achieved a market penetration to date of just under 15%. If the FCC has established as a benchmark the presence of three unaffiliated retail

providers of local exchange service, this would imply a market share for each carrier of only 5%, assuming each is equally successful in winning customers' business.

In view of the challenges that will face CLECs in moving from a UNE-P based service to a service based on self-provisioning of the switching function, and in view of the increasingly aggressive winback activities being pursued by ILECs, including BellSouth, I believe that a 15% market share projection is far too aggressive. The ultimate market share that an individual CLEC may achieve is unknown and unknowable, depending as it does on many uncertain factors, including the price that the CLEC is able to establish relative to the ILEC, the quality of service that the CLEC is able to provide (a factor that is only partly under the control of the CLEC, because the loop and transport components of the service will remain under the control of the ILEC, from a technical perspective), the ability of the ILEC to efficiently manage the hot cut process, and the ability of the CLEC to bring new products and service capability to the market and the cost of doing so. Additionally, as I have discussed earlier in this testimony, the FCC's decision to preclude CLECs from obtaining access to the broadband data capabilities of hybrid fiber/copper loops means that CLECs will be unable to serve a large and increasingly important segment of the market, particularly higher-spending residential and small business customers, who will demand broadband data services.

Q. DR. ARON ALSO RECOMMENDS A CHURN RATE OF 4% PER MONTH FOR RESIDENTIAL CUSTOMERS. DO YOU AGREE WITH THIS RECOMMENDATION?

A. No, I do not. The same factors that I have discussed with regard to the market share that will be attainable by CLECs in the post-UNE-P market apply as well to the churn rate that CLECs will experience. Any input to the model that relies exclusively on the experience of UNE-P based CLECs will likely understate the actual churn rates that will be experienced going forward. Again, the actual churn rate is unknown and unknowable at this time. In making its findings regarding potential deployment, the Commission should consider a range of possibilities, including scenarios that increase the level of churn over historical levels.

Q. DR. ARON CITES SEVERAL ANALYST'S REPORTS TO SUPPORT HER RECOMMENDED CUSTOMER ACQUISITION COST OF $95. DO YOU AGREE WITH THIS RECOMMENDATION?

A. No, I do not. Dr. Aron cites a number of sources, including (at the low end) a reference to ZTel's estimated customer acquisition costs that does not include advertising. She goes on to claim that an efficient UNE-L based CLEC would likely incur lower customer acquisition costs than current UNE-P based CLECs.

In supporting a customer acquisition input of $130, Dr. Gabel cites in notes attached to his model a range of estimates from the same types of sources cited by Dr. Aron. These estimates range from $80 to more than $400 per customer, a range higher at the low end and much higher at the high end than the estimates provided by Dr. Aron.

Again, customer acquisition cost in a post-UNE-P market is an unknown and unknowable quantity. Some of the factors that I already have discussed with regard to market share and churn also will have an impact on customer acquisition costs, particularly the price that the CLEC will be able to establish relative to the ILEC's price, the aggressiveness of ILEC winback efforts, and the quality of service that the CLECs are able to attain. Given that the range of estimates for current CLEC customer acquisition cost varies so widely, I believe that it would be prudent for the Commission to consider a range of scenarios with regard to customer acquisition costs, including scenarios where customer acquisition costs in the post-UNE-P market substantially exceed those for UNE-P based CLECs.

VI. RESULTS OF RUNNING BST MODEL WITH MORE REALISTIC INPUTS, AND WITH THE CORRECT WIRE CENTER MARKET DEFINITION.

Q. DR. BRYANT, IN YOUR DIRECT TESTIMONY YOU PRESENTED THE RESULTS OF THE IMPAIRMENT ANALYSIS TOOL THAT YOU SUBMITTED USING A RANGE OF POSSIBLE

INPUTS, SHOWING THE RESULT FOR A NUMBER OF POSSIBLE SCENARIOS. HAVE YOU PERFORMED A SIMILAR ANALYSIS USING THE BACE?

A. Not in the same way. Because the impairment analysis tool calculates results relatively quickly, it was possible to evaluate several hundred randomly-generated scenarios in a relatively short period of time. The BACE is a more complex model, and takes approximately 40 minutes to produce results for any set of specified inputs. Due to the short time frames in this proceeding and the press of similar proceedings in other states, I was not able to produce the same type of analysis using the BACE as I presented using the impairment analysis tool.

I have already presented in Exhibit MTB-10 a summary of the results of a sensitivity analysis that I performed for several individual user inputs to the model. I have also performed a series of runs of the model using combinations of certain key variables. The results of this analysis are shown in Exhibit MTB-12. Each column in this exhibits presents the model results for the mass market customers in each wire center. For all model runs, BellSouth's exclusionary filters were turned off. The column header in each of the columns show the user inputs that were changed from BellSouth's default values.

Q. IN THIS EXHIBIT, YOU USE A MONTHLY REVENUE OF $47.25. WHAT DOES THIS VALUE MEAN?

A. MCI recently has obtained data from TNS Telecoms on the monthly average residential telecommunications spending by household for each wire center in Florida. This is the same source of information that is used by the FCC in compiling its annual statistics on telecommunications expenditures, and is based on a survey of actual customer bills. The $47.25 value that I used is the weighted average household spending for local and long distance services, and includes the subscriber line charge and taxes. As such, it likely overstates the actual current spending by residential consumers on a per-line basis. This value was applied only to the residential revenue inputs in the BACE model. Business revenues were left at BellSouth default values.

Q. WHAT DOES YOUR ANALYSIS SHOW?

A. It is difficult to draw conclusions from my analysis. Due to the lack of sensitivity of the model to certain key inputs, and the occasional anomalous results that the model produces, I do not have confidence in the ability of the model to produce valid results. However, just as in the analysis that I presented in my direct testimony, the results are both highly variable among wire centers and overall quite dependent upon the inputs values chosen. Exhibit MTB-12 shows that, depending upon the input values chosen, CLECs are not profitable in varying numbers of wire centers in BellSouth's territory in Florida.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE BACE MODEL.

A. Having had only a limited amount of time to work with the model, and without access to the source code or intermediate calculations produced by the model, I am not in a position at this time to either endorse or reject the model itself. As I have discussed in this testimony, there are aspects of the model's operation and the relationship between inputs to the model and the outputs the model produces that raise serious questions as to whether the model accurately and reliably calculates the costs and revenues that are pertinent to a CLEC's decision to provide local exchange service using self-provisioned switches.

I would emphasize again that many of the inputs to the model are uncertain – it cannot be known with any certainty what costs would be incurred and what revenues would be available to CLECs in a post-UNE-P environment. The best that can be said, whatever model is used, is that under some sets of assumptions, CLECs can be profitable in some wire centers in Florida. Under other sets of assumptions, CLECs are not profitable in any wire center in Florida. Given this uncertainty, the Commission cannot conclude that CLECs are not impaired in any market in Florida.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Mark T. Bryant, and my business address is 4209 Park Hollow Court, Austin, Texas.

Q. ARE YOU THE SAME MARK T. BRYANT WHO PREVIOUSLY FILED DIRECT AND REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to the rebuttal testimony of BellSouth witnesses Aron, Pleatsikas, and Ruscilli, and Verizon witness Taylor with respect to Issues 1, 2, and 5.

I. Response to Rebuttal Testimony of Dr. Aron.

Q. DR. ARON HAS CHARACTERIZED YOUR TESTIMONY REGARDING THE SOCIAL COSTS OF AN ERRONEOUS FINDING OF NON-IMPAIRMENT AS "UNSUPPORTED" AND "SERIOUSLY MISGUIDED." HOW DO YOU RESPOND TO DR. ARON'S CRITICISMS?

A. Dr. Aron argues that the social costs of an erroneous finding of non-impairment are in lost investment, innovation, and economic development whereas the social cost of an erroneous finding of impairment is "merely" the foregone entry of carriers that rely entirely on the network of the incumbent to provide service. Dr.

Aron's arguments misstate the situation facing the Commission and are both unsupported and misleading.

Q. IN WHAT WAY IS DR. ARON'S TESTIMONY MISLEADING?

A. In my direct testimony, I urged the Commission to be cautious in assessing the degree to which CLECs are impaired without access to unbundled switching, and to act to eliminate the availability of unbundled local switching only where a lack of impairment is unambiguously proven. In her rebuttal testimony, Dr. Aron appears to be suggesting that my recommendation was that impairment be found for all markets, whether it exists or not. Dr. Aron, for example, comments that I envisioned (in discussing the exit from the market of UNE-P based providers in the case of an erroneous finding of non-impairment) "instances in which a CLEC would rather exit the market than pursue the UNE-L opportunity." Aron Rebuttal at 5. She goes on to note that the exit of carriers that cannot survive in a UNE-L based market would create opportunities for those that can survive. Contrary to Dr. Aron's suggestion, however, an erroneous finding of impairment means that unbundled local switching would be eliminated where CLECs are, in fact, impaired without access to unbundled switching. Thus, an erroneous finding of non-impairment would eliminate *all* current competitors, even the most efficient ones, from the local exchange market.

I do not recommend that the Commission find impairment where none exists. What I do recommend is that the Commission be very certain that

impairment does not exist, in view of the irreversible consequences of an erroneous finding of non-impairment.

Q. DR. ARON MAINTAINS THAT AN ERRONEOUS FINDING OF IMPAIRMENT WOULD DAMAGE THE INCENTIVES OF BOTH THE CLECS AND THE ILECS TO INVEST IN NETWORK INFRASTRUCTURE, AND THAT INNOVATION WOULD BE SUPPRESSED. DO YOU AGREE?

A. No, I do not. While I do agree that reliance upon the ILEC's switching facilities limits, to some extent, the ability of CLECs to develop certain types of new services, I do not agree that CLECs have failed to bring new services to market. The innovation of bundled offerings of local service, long distance service, and vertical features was one introduced to the market by CLECs, and the ILECs have been quick to follow suit. UNE-P based CLECs such as MCI and Z-tel have introduced sophisticated voice mail services that were not previously available from the ILECs. It simply is not true, as Dr. Aron implies through her use of terms such as "synthetic competition," that UNE-P based competition is without value.

That said, however, there is no question that CLECs would prefer to offer service using their own switches where it is economically feasible to do so. Doing so would give the CLEC greater control over its own service offerings and permit the introduction of more new service offerings than is possible with the use of UNE-P. A CLEC owning its own switch also would gain additional flexibility in

the pricing of its services, since its prices would not be governed by the rate structure imposed by the ILEC for use of unbundled switching. These are powerful incentives for the CLEC to invest in switching facilities – that more CLECs have not begun to offer mass market local exchange service using their own switches is thus equally powerful evidence that there are operational and economic barriers to doing so that have not been overcome.

Q. IS THERE ANY EVIDENCE TO SUPPORT DR. ARON'S CLAIM THAT THE CONTINUED AVAILABILITY OF UNBUNDLED LOCAL SWITCHING WILL SUPPRESS INVESTMENT BY THE INCUMBENT CARRIERS?

A. No. In fact, the available evidence is to the contrary. Prior to the passage of the Telecommunications Act of 1996, with its requirement that the ILECs make available unbundled network elements to CLECs, BellSouth's investment in its facilities was essentially flat. Beginning in 1996, BellSouth's plant additions increased dramatically, reaching a peak in 2001. In 2002, plant additions declined somewhat from this peak, but remained substantially above pre-1996 levels. Exhibit MTB-13 attached to this testimony is a chart illustrating the investment additions that BellSouth has made in its plant during the period 1990-2002. If the availability of unbundled network elements is a serious disincentive to ILEC investment, the empirical evidence should show a decline since 1996. It only makes sense that the increased competition resulting from the entry of new firms into the local exchange market would stimulate investment by the incumbent, and that is exactly what the evidence shows.

Q. HAVE YOU SEEN OTHER EVIDENCE THAT THE INCREASED COMPETITION RESULTING FROM THE AVAILABILITY OF UNBUNDLED NETWORK ELEMENTS HAS STIMULATED ILEC INVESTMENT?

A. Yes, in a recent essay addressing this topic, Professor Robert D. Willig of Princeton University has examined the available evidence and concluded that the availability of unbundled network elements stimulates incumbent investment. Robert D. Willig, "Investment is Appropriately Stimulated by TELRIC." Prof. Willig further found that decreases in rates for UNEs actually are correlated with in an increase in ILEC investments. According to Prof. Willig, "...raising TELRIC or restricting access to UNEs, as the ILECs advocate, would both reduce the competitive alternatives available to consumers and reduce the ILEC's capital spending on their own networks." *Id.* at 3.10. Exhibit MTB-14 attached to this testimony is a copy of the essay by Prof. Willig.

Q. DR. ARON ARGUES THAT A FINDING OF NO IMPAIRMENT INTRODUCES CONSISTENCY FOR THE USE OF LOCAL AND LONG DISTANCE NETWORKS. DO YOU AGREE?

A. No. Dr. Aron attempts to form an analogy between the availability of long distance network capacity and the market-based prices that obtain in that market and the supposed availability of local switching at market-based prices if a ruling of no impairment for local switching is made. The analogy fails because there simply is no market for local switching in existence in Florida. To my knowledge,

no carrier has stated in this proceeding that it makes available local switching on a wholesale basis. This being the case, and because BellSouth has every incentive to raise its rivals' costs and the ability to do so in the absence of competitive switching supply, one could not reasonably expect that CLECs would pay anything like a cost-based rate for local switching if BellSouth were freed from the obligation to charge TELRIC-based rates.

Q. DR. ARON CRITICIZES YOUR IMPAIRMENT ANALYSIS TOOL FOR ADOPTING AN IMPROPER FRAMEWORK FOR THE ANALYSIS OF THE CLEC PROFITABILITY IN THE ABSENCE OF UNBUNDLED LOCAL SWITCHING. DO YOU HAVE A RESPONSE?

A. Yes. Dr. Aron's criticism is that the model fails to recognize that certain costs are incurred in the early periods of a company's operation, when revenues are low and net revenues therefore are likely to be negative. This is not the case. The impairment analysis tool that I presented with my direct testimony performs an annualization of capital costs over the depreciation life of each category of investment. This calculation involves a calculation of the net present value of future capital costs in order to levelize these costs over the life of the investment. Thus, with regard to capital costs, the model does not, as Dr. Aron claims, ignore the effect of high startup costs on CLEC profitability. The approach taken in the impairment analysis tool is similar to that that has been used in setting rates for unbundled network elements, an approach designed to determine the forward-looking cost of an efficient network operator.

Dr. Aron goes on to criticize the impairment analysis tool for failing to consider growth in revenue or market share over time. While it is true that the model considers a "steady state" single period in time, the input assumptions can be varied to consider any level of market share or price that is of interest.

II. Response to Rebuttal Testimony of Dr. Pleatsikas

Q. DR. PLEATSIKAS CLAIMS THAT YOU "CANNOT DECIDE" WHICH MARKET DEFINITION TO USE FOR PURPOSES OF THIS PROCEEDING. IS THAT THE CASE?

A. No. I believe I unambiguously stated that the appropriate market definition is the wire center. My discussion of a possible market definition that would comprise individual customer locations was intended to illustrate the different characteristics of customers that contribute to differences in wire center costs.

Q. DR. PLEATSIKAS CLAIMS THAT AGGREGATIONS OF WIRE CENTERS THAT SHARE SIMILAR COST AND REVENUE CHARACTERISTICS MAY CONSTITUTE AN APPROPRIATE MARKET DEFINITION. DO YOU AGREE?

A. No, I do not. One certainly can aggregate markets for administrative convenience, perhaps, but such an aggregation is not a market definition. In order to determine, as Dr. Pleatsikas suggests, that "wire centers in a geographic area share certain cost and other economic characteristics," it is necessary first to examine the costs and economic characteristics *for each wire center*. Dr. Pleatsikas seems to assume

that because UNE rates are applicable to all wire centers in a particular UNE rate zone, those wire centers must share similar cost characteristics. The rate for unbundled network elements, however, is only one factor that affects the costs and revenues that in turn affect a CLEC's entry decision. Wire centers also vary along other dimensions. The number of customers served from each wire center, the mix of business and residential customers in each wire center, the proportion of customers served via digital loop carrier equipment, the demographic characteristics of the customers in the wire center, and the distance of the wire center from the CLEC's switch all have an impact on the potential profitability of providing service in the wire center.

Q. DR. PLEATSIKAS CITES A RESPONSE BY FCCA TO A BST INTERROGATORY TO THE EFFECT THAT ONLY TWO OF THE MEMBER COMPANIES DECIDE TO ENTER A MARKET ON A WIRE CENTER BASIS AS SUPPORT FOR THE PROPOSITION THAT CLECS DO NOT, IN FACT, DECIDE TO ENTER MARKETS WIRE CENTER BY WIRE CENTER. DO YOU HAVE A RESPONSE TO THIS TESTIMONY?

A. Yes. The interrogatory question cited by Dr. Pleatsikas was not specific enough to yield useful information on the situation that would be faced by CLECs in a post UNE-P environment. The question asked is as follows:

> Identify each individual carrier that comprises the FCCA and state whether each such carrier decides to enter a market at the wire-center level.

The question does not state the market to be served, nor does it state the circumstances to be assumed in answering the question. A carrier providing mass

market service today using UNE-P might interpret the question to refer to its current situation. Such a carrier naturally would not consider the market in terms of individual wire centers, but would be focused on the cost of UNE rates as they vary among rate zones, and perhaps on the entire state of Florida as a potential market. If the same carrier were asked whether it would consider wire center specific costs in making entry decisions under the assumption that unbundled local switching is no longer available, and that, in order to provide local exchange service, it would have to establish collocations in each wire center, almost certainly would consider the question in a different light. I do not know how the CLECs answering the question interpreted it, but the question is so vague that no confidence should be placed in the quality of the answers received.

In addition to the two CLECs in the FCCA interrogatory response that said that they make entry decisions at the wire center level, at least one other CLEC has responded to discovery indicating that it does, in fact, make entry decisions by considering the characteristics of individual wire centers. In response to BellSouth's Interrogatory number 95, Allegiance responded as follows;

Question:

95. Describe the criteria you consider to enter a specific market offering qualified services. In your response please detail how, and the extent to which, you rely on both business customers and residential customers to meet the financial criteria. Also identify the criteria used to select the customer that are marketed to or contacted in your marketing campaigns.

Answer:

Allegiance deployed a switch in Miami as part of its strategy to become a national local service provider. The geographic location of the switch was

based on several factors including minimizing backhaul costs from collocation sites, space availability and where Allegiance could get access to CAPs.

The single most important criterion for Allegiance in determining where to build a collocation is the number of lines served by the individual wire center. Given the costs of collocation construction, equipment, power, and the like, a CLEC must be reasonably confident it can acquire enough customers in a wire center to cover those costs and earn a profit in order to proceed with construction of the collocation. Allegiance generally has not built collocations in wire centers with fewer than 9,000 - 10,000 business lines.

The factors cited by Allegiance in its response are some of the same factors that I have noted in defining the relevant market as the ILEC wire center.

Q. DR. PLEATSIKAS STATES THAT A PROPER MARKET DEFINITION MUST CONSIDER BOTH DEMAND-SIDE AND SUPPLY-SIDE SUBSTITUTABILITY. DO YOU AGREE?

A. Yes, I agree that supply-side substitutability should be considered in defining a market. I also agree that the cost of a CLEC switch and some of the costs incurred by a CLEC in marketing services apply to a geographic area larger than the wire center. The real question, however, is whether the economies of scale achievable through recovery of these costs over a larger customer base are sufficient to overcome the cost differences that exist among wire centers. As I demonstrated in my rebuttal testimony, the greater proportion of the economies of scale that are present in switch costs are achieved very rapidly, and, once the CLEC has gained a relatively small share of the market, acquisition of additional customers does not result in significant additional cost savings. This being the case, a CLEC contemplating adding a collocation to a wire center where profitability is marginal

or negative must balance the losses that it will incur by collocating in that wire center against the cost savings that it will achieve in its switch costs. A wire center that is losing two or three dollars per line per month will not be made to look profitable if the cost savings in switch costs are a few pennies per line per month. In effect, Dr. Pleatsikas is ignoring the 800-pound gorilla of collocation costs in his exclusive attention on the gnat that is economies of scale in switching and marketing costs.

III. Response to the Rebuttal Testimony of Dr. Taylor

Q. DR. TAYLOR STATES THAT EVIDENCE THAT CLECS ARE SERVING MULTIPLE WIRE CENTERS FROM A SINGLE SWITCH "CONFIRMS THAT CLECS DO NOT SEE THE MARKET AS INDIVIDUAL WIRE CENTERS." (TAYLOR REBUTTAL AT 31). DOES THIS EVIDENCE PROVE WHAT DR. TAYLOR CLAIMS IT DOES?

A. No. According to this logic, a wire center could only be considered a market if a CLEC were to locate a switch in every wire center that it chooses to serve. This again points up the fallacy of focusing on economies of scale in switching as the *sine qua non* of market definition. Certainly, a CLEC switch is capable of serving areas larger than the MSA proposed by Dr. Taylor. For that matter, a CLEC switch could serve the entire state of Florida, or even customers in multiple states, and serving these larger areas would result in greater economies of scale, however small, for the switching function. Defining these larger market areas, however, would violate the FCC's directive that the state commissions attempt to identify

those factors that determine the CLECs' ability to provide service profitably. As I explained in my response to Dr. Pleatsikas earlier, the realization of economies of scale in switching is not a significant factor. Cost and revenues differences among wire centers are significant factors.

Q. DR. TAYLOR ARGUES THAT THE COMMISSION SHOULD CONSIDER WHERE CLECS CURRENTLY PROVIDE SERVICE, AND THAT THE FACT THAT SOME CLECS SERVE SOME CUSTOMERS IN THOSE AREAS USING UNE-P AND SOME CUSTOMERS USING THEIR OWN SWITCH SHOULD NOT BE USED TO EXCLUDE SOME CUSTOMERS FROM THE MARKET DEFINITION. DO YOU AGREE WITH THIS ARGUMENT?

A. No. Dr. Taylor's argument begs the question that the Commission must answer in this proceeding. CLECs today can and do provide mass market service over a wide area. This question is not what areas do CLECs serve today, but what areas they would serve if UNE-P were no longer available.

Q. DR. TAYLOR SUGGESTS THAT THE INABILITY OF CLECS TO OFFER HIGH-SPEED INTERNET SERVICES IS OF NO CONSEQUENCE FOR MARKET DEFINITION, AS HIGH-SPEED INTERNET SERVICE AND LOCAL TELECOMMUNICATIONS SERVICES ARE SEPARATE PRODUCTS. DO YOU AGREE WITH THIS ARGUMENT?

A. No. As a first consideration, the FCC has required that in conducting the potential deployment analysis, the Commission must consider all sources of revenue (and the corresponding costs) available to the CLEC in the relevant market. Certainly the ILECs would not argue that the potential profits from DSL service should be excluded from the potential deployment analysis. If DSL services were excluded, many wire centers or other geographic areas would be less profitable or unprofitable than would be the case if these services were considered. The ability or inability of CLECs to provide customers with a bundle of services that includes high-speed internet access is a significant factor in determining CLEC profitability, and one that varies from wire center to wire center depending upon the extent of digital loop carrier technology, the size of the wire center, and the demographic characteristics of the wire center.

Beyond this, however, anyone who is familiar with current events in the telecommunications market generally is aware that traditional voice services and high-speed internet services are rapidly converging, and that most major telecommunications service providers have announced plans to transition their voice services to voice over IP, or "VOIP," technology. To the extent that this technology permits cost savings or enables the provision of new service offerings and new features, CLECs will be significantly disadvantaged in those wire centers where they are unable to provide customers with access to broadband services due to the deployment of DLC technology.

Q. DR. TAYLOR ARGUES THAT THE DISTINCTION YOU DRAW BETWEEN RESIDENTIAL AND SMALL BUSINESS CUSTOMERS IS INCORRECT. DO YOU HAVE A RESPONSE?

A. The distinction that I have made between small business and residential customers is based both on the increased revenue opportunity available to a CLEC serving small business customers and on the relative volumes of residential and small business customers, respectively. A CLEC holding itself out as providing service only to small business customers obviously must do so for good reasons. As the ILEC witnesses have noted, CLECs, all else equal, would prefer to spread the fixed costs of their switches and the cost of their marketing efforts over as large a customer base as possible. That some CLECs – and particularly those CLECs that rely on UNE-L based service – do not offer residential service is evidence that they do not believe that they can profitably do so. The Commission must face the very real likelihood that, if it relies upon companies that provide services only to small and medium businesses to satisfy the FCC's switching triggers, Florida residential consumers will be left without competitive alternatives for local exchange services.

IV. Response to the Rebuttal Testimony of Mr. Ruscilli

Q. MR. RUSCILLI CLAIMS THAT YOUR WIRE CENTER MARKET DEFINITION IS INCONSISTENT WITH TESTIMONY PREVIOUSLY FILED BY A WITNESS ON BEHALF OF MCI STATING THAT MCI

SWITCHES SERVE A LARGER GEOGRAPHIC AREA THAN ILEC SWITCHES. IS THIS INDEED AN INCONSISTENCY?

A. No, it is not. I have never stated that CLEC switches are not potentially capable of serving a large geographic area. The consistent thrust of my testimony has been that the cost of placing a switch is not the most significant factor affecting a CLEC's decision to enter a particular market. Rather, it is the cost of establishing collocations and the potential revenues available in each wire center that will determine CLEC profitability.

In the testimony cited by Mr. Ruscilli, the witness was describing MCI's provisioning of service to enterprise customers that are located in buildings served by MCI's metropolitan fiber networks. These networks have been designed to reach buildings and campus environments that have a sufficiently large concentration of customers with a high enough demand for telecommunications services that the construction of fiber optic networks to serve those concentrations is economically justified.

This is an entirely different proposition than attempting to provide service to the mass market, where customers are widely dispersed, and where the cost of establishing collocation and transport facilities to aggregate customer traffic at the CLEC switch may render the provision of service unprofitable. There is no contradiction at all in the testimony cited by Mr. Ruscilli and my own testimony.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes, it does.

(Transcript continues in sequence with Volume 23.)

STATE OF FLORIDA)

: CERTIFICATE OF REPORTER

COUNTY OF LEON)

I, JANE FAUROT, RPR, Chief, Office of Hearing Reporter Services, FPSC Division of Commission Clerk and Administrative Services, 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' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 1st day of March, 2004.

JANE FAUROT, RPR
Chief, Office of Hearing Reporter Services
FPSC Division of Commission Clerk and
Administrative Services
(850) 413-6732