STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITY COMMISSION

Implementation of the Requirements of the Federal Communications Commission's Triennial Review Order Order	)	Docket No. 3550

REBUTTAL TESTIMONY

OF

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ON BEHALF OF MCI

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PUBLIC VERSION

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I. INTRODUCTION

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

A. My name is Michael D. Pelcovits. I am a principal with the economic consulting firm of Microeconomic Consulting and Research Associates (MiCRA). My business address is 1155 Connecticut Avenue, N.W., Washington, D.C. 20036.

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

A. I received my Ph.D. in Economics from the Massachusetts Institute of Technology in 1976. After serving on the economics faculty of the University of Maryland and as a Senior Economist at the Civil Aeronautics Board, I have spent my entire career specializing in the economics of regulation and competition in the telecommunications industry.

From 1979 to 1981, I was a Senior Economist at the Federal Communications Commission, Office of Plans and Policy. From 1981 to 1988, I was a founding member and principal of the consulting firm Cornell, Pelcovits and Brenner. In 1988 I joined MCI Communications Corporation and remained with the Company following its merger with WorldCom, until 2002. I held positions of increased responsibility at MCI, and was appointed Vice President and Chief Economist of the corporation. In this position I was responsible for the economic analyses of policy and regulatory matters provided and presented by the

Corporation before federal, state, foreign, and international government agencies, legislative bodies and courts.

I have written a number of professional publications on economic and regulatory issues. I have also appeared and spoken frequently before government bodies, regulatory, industry, and academic forums. I have also testified over thirty times before state regulatory commissions. The details of my background are included in my attached curriculum vitae, MDP-1.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony is intended to provide an overall economic and policy framework for the issues raised by this case. My testimony also provides a detailed evaluation of the available evidence to determine whether Verizon has met its burden of proof in overcoming the national finding that impairment exists in certain markets throughout Rhode Island without access to unbundled switching.

First and foremost, with respect to the switching unbundled network element ("UNE"), I define the market that the Commission should use in evaluating whether competitive local exchange carriers ("CLECs") in Rhode Island are impaired without access to unbundled switching for mass-market customers. My testimony concludes that the wire-center is the appropriate geographic market that should be used for analysis of impairment issues related to unbundled switching for mass-market customers. My testimony provides the full

rationale for using the wire-center, and provides all supporting information for that conclusion.

Verizon has decided to file a "triggers" only case. That means that the Commission needs to determine whether there are a certain number of qualifying carriers provding service to mass market customers in the properly defined market. As my testimony will show, identifying the carriers that qualify as "triggers" companies is not merely a counting exercise, but involves the analysis of several complex issues.

Finally, I will provide a detailed analysis of the data and information that has been provided in this case through discovery and through Verizon's testimony. To the extent that Verizon has not provided sufficient data or other evidence to support its case, the Commission cannot make assumptions based on incomplete data, and must reject Verizon's claim that the triggers have been met.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. The FCC has made a national finding of impairment with respect to mass-market switching.[1] The FCC's national impairment finding should not be overturned in any market unless and until the Commission determines that all mass-market

[1] *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 (continued)

customers in that market have a ***real and current choice*** among three carriers who are providing local service via their own switching using the Verizon loop plant.

Pursuant to the rules set forth by the FCC in the *Triennial Review Order*, a carrier can only be considered as a triggering company for mass-market switching if it meets specific requirements in the following four areas: (1) corporate ownership; (2) active and continuing market participation; (3) intermodal competition; and (4) scale and scope of market participation. Applying these criteria rigorously in a properly defined market is essential to ensuring that "[i]f the triggers are satisfied, the states need not undertake any further inquiry, ***because no impairment should exist in that market***."[2]

The first issue this Commission must decide with respect to unbundled switching is the definition of the market. 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

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Offering Advanced Telecommunications Capability (CC Docket No. 98-147*)*, FCC No. 03-36, (rel. Aug. 21, 2003) (hereinafter, "*Triennial Review Order*"), ¶ 459.

[2] *Id.*, ¶ 494 (emphasis added).

constraints of practicality.[3] Moreover, a wire-center market definition makes sense as the wire center is the place where the loop plant terminates and where the incumbent local exchange carrier's ("ILEC's") local switch actually resides. The wire-center boundaries accurately define the physical territory that at least some competitors or potential competitors might no longer be able to serve should the Commission find "no impairment" without access to unbundled local switching at any specific switch or group of switches. As the testimonies of MCI will show, the wire-center market definition is the most practical choice.

In contrast, a market definition based on a larger geographic area, such as the Metropolitan Statistical Area ("MSA"), creates a significant risk that trigger or potential deployment analyses based on such a market definition will result in a finding of no impairment even where multiple, competitive supply does not exist today and is unlikely to occur in the foreseeable future.

I urge the Commission to adopt the wire center as the starting point for all subsequent impairment analyses. I also recommend that the Commission adopt a product market definition that includes all local exchange service options that provide service at a cost, quality and maturity equivalent to the ILEC's offerings. In defining the market, it is important to look at the physical limitations of competitors in moving to an unbundled loop strategy, which the testimonies of

[3] *Id.*, ¶ 130.

Earle Jenkins and Sherry Lichtenberg have done. To that end, it is important to look at whether carriers who are identified as trigger companies are actually providing service in a manner that demonstrates those carriers can provide service equivalent to Verizon's offerings through an unbundled loop strategy. The testimonies of Earle Jenkins and Sherry Lichtenberg discuss the technical and customer impact issues associated with an unbundled loop strategy, and why certain companies should not be considered trigger companies. Based on all of the testimony introduced by MCI in this case, I conclude that the product market definition should explicitly exclude Commercial Mobile Radio Service ("CMRS"), fixed wireless and cable telephony.

In addition, I recommend that the Commission conduct its trigger analysis in a way that evaluates whether (1) a company that only serves business customers should be treated as a trigger with respect to a market that is defined to contain residential customers,[4] and (2) whether customer locations served over integrated digital loop carrier ("IDLC") should be treated as being in a separate

[4] As I explain in detail later in this testimony and as explained in the testimonies of Earle Jenkins and Sherry Lichtenberg, my suggestion is that the Commission should separate residential and small business markets as a subdivision of the broader mass market. Alternatively, if these two submarkets are not divided, then no CLEC should be counted towards the trigger unless it provides service to residential as well as business customers. The FCC has defined the mass market in light of the crossover between serving customers via voice-grade loops (which it calls DS0s) and serving them via high-capacity DS-1 loops. 47 C.F.R. § 51.519(d)(2)(iii)(B)(4).

submarket for which unbundled switching would continue to be available, even if a finding of no impairment were otherwise justified for a given wire center.

The evidence in this case shows that Verizon has not met its burden of proof with respect to unbundled switching for any wire center.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. After an introductory section (Section II) that puts the issues in this proceeding into context, I discuss the issue of market definition (Section III). I explain why the market must be defined properly from both geographic and product dimensions. In the following section (Section IV), I present my analysis of the trigger evidence provided by Verizon in its direct case. Section V reviews the issue of post-trigger analysis. I conclude the testimony in Section VI.

II. IMPAIRMENT ANALYSIS – INTRODUCTION

A. MASS MARKET UNBUNDLED SWITCHING

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

A. Although it found that CLECs are impaired on a national basis without unbundled access to the ILECs' switching facilities, the FCC at the same time permitted the ILECs to attempt to show on a market-by-market basis that the national

impairment findings have been overcome. Verizon has challenged the FCC's national impairment findings in wide areas of the state.[5]

Unless and until the ILECs can demonstrate in a particular market that CLECs are not impaired without access to unbundled switching for mass market customers, the FCC's national impairment finding cannot be reversed. This proceeding will therefore have important implications for the future of mass market competition in Rhode Island.

The Telecommunications Act of 1996 ("Act") and the *Triennial Review Order* provide certain criteria for the Commission's determination, but it is up to this Commission to interpret those rules and determine whether Verizon has overcome the national impairment finding for mass market switching in particular markets.

The *Triennial Review Order* affords Verizon two routes to attempt to make that showing. First, it can attempt to show that there is "actual deployment" of mass market switching in a particular market. This actual deployment must be by carriers who are "actively providing voice service to mass market customers in the market."[6] The Commission must also determine whether these companies are "currently offering and able to provide service, and are likely to continue to do

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[5] See Direct Panel Testimony of Verizon Rhode Island, Theresa L. O'Brien and John White, December 8, 2003 (hereafter O'Brien-White Testimony).

[6] *Triennial Review Order*, ¶499.

so."[7] If there is not sufficient actual deployment in a defined market by carriers who meet the qualifying criteria to justify reversal of the FCC's national finding, the ILECs can attempt to show that conditions are appropriate for "potential deployment." Verizon has declined the opportunity to present a potential deployment case in its direct testimony.

In this proceeding, the Commission will examine whether the actual deployment test of the *Triennial Review Order* has been met. The actual deployment test has become known as the "trigger" test. The *Triennial Review Order* provides for two triggers—the "self-provisioning trigger" and the "competitive wholesale facilities trigger." If either trigger is met in a particular market, then the CLECs are not to be considered impaired without mass market switching in that market.[8]

Therefore, the Commission has two critical tasks in this proceeding: (1) identify the geographic and product markets in which it will conduct its impairment analyses; and (2) determine whether Verizon has presented evidence to prove that the self-provisioning trigger test is satisfied in any geographic market such that non-impairment is demonstrated. In carrying out these tasks, the Commission should be mindful of the intended role of a third task that Verizon

[7] *Id.* at ¶500.

has *de facto* eliminated through its decision not to peruse a potential deployment case. That is, the Commission should ensure that its selected market definition would be appropriate for both trigger and potential deployment analyses and that the manner in which the trigger analyses are conducted does not lead to a finding of no impairment that cannot be justified without more detailed analysis of economic and operational barriers to entry.

Q. DO YOU HAVE ANY GENERAL, OVERALL GUIDANCE FOR THE COMMISSION AS IT BEGINS ITS TRIGGER ANALYSIS?

A. Yes. I provide specific guidance throughout this testimony, but the central question upon which the Commission should focus is whether retail mass-market customers in a market have a ***real and current*** choice between three carriers providing local service via their own switching facilities using the ILEC loop plant.[9] Only if the answer to that question is a very clear "yes" should the Commission consider finding that CLECs are not impaired without access to unbundled local switching and "pulling" the mass market switching self-provisioning trigger.

[8] Verizon has indicated that it does not intend to provide evidence regarding the competitive wholesale facilities trigger with regard to mass market unbundled switching, but is relying solely on the self-provisioning trigger.

[9] As noted previously, the wholesale trigger does not play a role in this proceeding.

Q. WHY IS THIS CASE SO CRITICAL TO LOCAL COMPETITION?

A. If the Commission eliminates unbundled switching when customers do not have an actual ability to choose a competitor using the unbundled loop, then development of local competition in the mass market will be irreparably harmed. The number of competitors that are participating in this case is an indication of how critical this issue is to local competition in Rhode Island. It is therefore imperative that the Commission put this case into context and recognize that it must evaluate whether customers will be left in a worse situation without real alternatives to the incumbent provider.

As this Commission is aware, one of the prinicipal vehicles of local competition provided to residential customers throughout Rhode Island comes through the use of the unbundled network element-platform ("UNE-P"). That is specifically because of the barriers to entry that continue to exist in moving to an unbundled loop service delivery method. MCI has a switch in Rhode Island, yet it is not able to use this switch to serve residential and most small business customers because of the problems that exist in seamlessly switching customers using standalone unbundled loops. As discussed in more detail in the testimonies of Earle Jenkins and Sherry Lichtenberg, there are numerous technical and policy issues that must be worked out before the entire industry can realistically move to an unbundled loop world. MCI hopes that this proceeding eventually leads to a time when MCI can begin serving mass markets customers through its own switches, but that time does not exist now.

If the Commission determines that the triggers have been met and that impairment does not exist without unbundled switching, it means that local competition as it exists today will be thrown into disarray. A finding of no impairment initiates a process of upheaval in the local exchange market for virtually all parties involved: end-users, CLECs and even Verizon, who will suddenly be confronted with the challenge to cut-over mass-market volumes of customers, a challenge for which it is ill prepared. If the Commission pulls the trigger in a market prematurely, many customers would likely have no or limited alternatives to the monopoly ILEC's offering.

In contrast, if the Commission's investigation fails to demonstrate that customers have a real and current choice of three self-provisioning competitive carriers using the ILEC loop plant, and that, therefore, the FCC's impairment finding is not reversed within a market, the consequence is simply that the investigation may 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 Rhode Island 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.

Although the ILECs claim that the only type of real competition is facilities based competition, their own behavior in the long distance market does

not support that claim. The ILECs 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 contrast to their advocacy concerning local entry via UNE-P, the ILECs 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.

CLECs should have the same opportunity to procure network inputs at competitive prices. In stark contrast to the long-distance wholesale market, where there are multiple carriers from which the ILECs can obtain capacity, CLECs generally have no choice but to lease facilities from the former local monopolist in each area. This is because, as the FCC has found on a national basis, CLECs are economically and operationally impaired without access to the unbundled elements that comprise UNE-P. In particular, with respect to mass market switching, the FCC found that CLECs are impaired on a national basis based on the ILECs' hot cut processes, and the FCC found a number of other impairments that may be present and need to be examined on a market-by-market basis. As MCI witnesses Mr. Jenkins and Ms. Lichtenberg explain in detail, even if a competitor already has a switch in Rhode Island, there are many layers of operational issues that may prevent the competitor from using that switch to serve mass-market customers in the same wire centers in which it is already offering service to large business customers – let alone extending service to mass-market customers in any other wire centers.

For all of the reasons stated in my testimony and the testimonies of Earle Jenkins and Sherry Lichtenberg, I urge the Commission to conduct its analyses in a manner that errs on the side of caution in protecting the interests of Rhode Island consumers. Any decision to overturn the national finding of impairment for mass market switching should rest on incontrovertible evidence that competitive carriers will indeed be able to offer residential and small business customers with competitive choices, even without access to UNE switching.

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

Q. PLEASE DISCUSS THE FCC'S NATIONAL IMPAIRMENT FINDINGS WITH RESPECT TO MASS MARKET SWITCHING.

A. The FCC found that on a national basis—in central offices big and small, in urban and rural areas—CLECs are impaired without unbundled access to mass market switching:

> on a national basis, [ ]competing carriers are impaired without access to unbundled local circuit switching for mass market customers.[10]

[10] *Triennial Review Order*, ¶ 459.

Q. WHICH END-USER CUSTOMERS DID THE FCC INCLUDE UNDER THE HEADING OF MASS-MARKET CUSTOMERS FOR PURPOSES OF ITS ANALYSIS OF UNBUNDLED SWITCHING?

A. The FCC has defined mass-market customers to include all residential customers as well as very small business customers.[11] The FCC did not identify a specific cutoff for the size of businesses considered to be part of the mass market.

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

A. The FCC explained that its national impairment finding is based in part, on the ILECs' hot cut processes. The FCC found that the ILECs' hot cut processes on a national basis are insufficient to handle mass market volumes economically and without disruption to the customer:

> This finding is based on evidence in our record regarding the economic and operational barriers caused by the cut over process. These barriers include the associated non-recurring costs, the potential for disruption of service to the customer, and our conclusion, as demonstrated by our record, that incumbent LECs appear unable to handle the necessary volume of migrations to support competitive switching in the absence of unbundled switching. These hot cut barriers not only make it uneconomic for competitive LECs to self-deploy switches specifically to serve the mass market, but also hinder competitive carriers' ability to serve mass market customers using switches self-deployed to serve enterprise customers.[12]

[11] *Id.*, ¶ 127.

[12] *Id.*

Q. IF IMPAIRMENT RELATED TO THE HOT-CUT PROCESS VANISHED TOMORROW, WOULD THAT ELIMINATE ECONOMIC AND OPERATIONAL BARRIERS TO ENTRY FOR MASS-MARKET SWITCHING?

A. No. Even if the hot-cut process was perfected (without an increase in costs to potential competitors), there are many other operational and technical impairments that a switch-based provider of local exchange service must overcome, as Mr. Jenkins and Ms. Lichtenberg explain in their accompanying testimonies.

Q. DID THE FCC IDENTIFY ANY ISSUES OTHER THAN THOSE RELATED TO HOT CUTS THAT COULD LEAD TO A FINDING OF IMPAIRMENT FOR MASS-MARKET SWITCHING?

A. Yes. The FCC identified several additional operational and economic factors that could cause impairment, and specifically directed states to consider these factors in their deliberations, stating:

> …we ask states to examine evidence of sources of impairment other than hot cuts, in the manner we describe below, as the record shows that requesting carriers may be impaired without access to unbundled incumbent LEC local circuit switching because of operational and economic factors other than those associated with hot cuts. Commenters have alleged that these barriers – which include poor incumbent LEC performance in fulfilling unbundling, collocation, and other statutory obligations, difficulties in performing customer migrations between competitive LECs, difficulties in performing collocation cross-connects between competing carriers, and the significant cost disadvantages competitive carriers face in obtaining access to the loop and backhauling the circuit to their own switches – can be sufficient to hinder or prevent entry even if impairment caused by hot cuts were fully resolved. Although these factors *do not* form the basis of our national impairment finding, we recognize that the record evidence indicates that these factors may give rise to impairment in a given

> market, even setting aside the problems associated with hot cuts, and that they therefore will be relevant to state commissions' determinations with respect to unbundled local circuit switching.[13]

The Commission's deliberations should be informed by an awareness of the various sources of impairment that, allegedly, have been overcome by "triggering" carriers. The accompanying testimonies of Sherry Lichtenberg and Earle Jenkins, along with my testimony, provide the necessary context for the Commission's review of claims of no impairment based on trigger analyses.

The Commission should take particular care to ensure that any carrier claimed as counting toward the retail or wholesale trigger has demonstrated through its actual marketplace participation its ability to overcome the economic and operational barriers to entry that the FCC has identified. A carrier whose mass-market operations are trivial in scale and scope is not a carrier that has demonstrated an ability to overcome these significant barriers. For example, if a company only has one or even one hundred lines in a particular wire center, it is difficult to conclude that the company has succeeded in overcoming all barriers to entry that may exist in that wire center, and one must ask why the company has not been able to expand its reach or customer base.

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[13] *Id.*, ¶ 476.

2. The Commission's Tasks

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

A. Although the FCC made a national finding that CLECs are impaired without unbundled access to ILEC local switching to serve mass-market customers,[14] it delegated to this Commission the task of determining whether the national finding of impairment is overcome in any areas within Rhode Island. Specifically, the FCC has "ask[ed] the states to assess impairment in the mass market on a market-by-market basis."[15] The Commission must conduct a market-by-market investigation into whether barriers to entry for mass-market switching "are likely to make entry into a market uneconomic."[16]

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

A. The first step in the analytical process, logically, is to define the markets in which the Commission will consider evidence of impairment on a "market-by-market" basis.[17] Once the Commission has defined the relevant markets, the FCC expected that it would then determine where competing carriers are not impaired

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[14] *Id.*, ¶ 419.

[15] *Id.*, ¶¶ 476 and 493.

[16] *Id.*, ¶ 84.

[17] *Id.*, ¶ 495.

without access to unbundled switching in each market, using a triggers analysis and then, if necessary, a potential deployment analysis.[18] I elaborate below on the process that the Commission should follow in its "trigger" analyses, in light of Verizon's decision not to pursue a potential deployment case in this proceeding.

Finally, if the Commission does determine that a finding of no impairment is justified in one or more markets on the basis of a trigger analysis, it then may consider evidence of exceptional circumstances that would merit a waiver of any such finding.[19]

Q. ARE THERE ADDITIONAL CONSIDERATIONS THAT THE COMMISSION SHOULD BE AWARE OF WHEN DECIDING WHETHER THE TRIGGERS HAVE BEEN MET?

A. Yes. If the Commission prematurely reverses the FCC's national finding of impairment in a market when, in fact, CLECs are impaired, such a decision would do severe harm to the prospects for growth of local exchange competition in Rhode Island and would therefore deprive mass-market consumers in Rhode Island of the benefits of such additional 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

[18] *Triennial Review Order*, ¶ 473.

[19] *Id.,* ¶503.

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 alternatives to the ILEC for long distance and local service. Rhode Island consumers could lose the benefits of the long-distance competition that they have enjoyed for many years. Furthermore, since customers now purchase bundles that include DSL service, the Commission should consider in its analysis the impairments that would hinder a CLEC's offering of DSL service in a UNE-L (UNE-loop) environment.

On the other hand, if the Commission upholds the FCC's national impairment finding when, in fact, CLECs are not impaired, 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 would increase until the three-carrier retail trigger is met. Verizon would certainly bring this fact to the Commission's attention at the first available opportunity.

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 error is far greater than the cost of the latter error.

Q. WHAT DO YOU EXPECT WILL HAPPEN OVER TIME IN MARKETS FOR WHICH THE COMMISSION UPHOLDS THE FCC'S FINDING OF IMPAIRMENT THROUGHOUT RHODE ISLAND?

A. To the extent that this Commission implements procedures to diminish existing barriers to entry and remove the factors that have led to impairment, it should lead to more and more carriers increasing the provision of service via unbundled loops. This 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.

Verizon will be aware that, if it works diligently with the Commission and other parties to reduce existing barriers such as the cost and operational difficulties associated with the hot cut process, including both hot cut procedures and costs, findings of no impairment will happen sooner rather than later. This creates appropriate incentives for Verizon to be part of the solution, rather than part of the problem.

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 UNE transport was still available as an option.

III. MARKET DEFINITION

A. The Adopted Market Definition Should Permit Reasonable Conclusions About the Trigger Analysis and Consumer Choice

Q. PLEASE ELABORATE ON THE USE OF THE MARKET DEFINITION IN THE "TRIGGER" ANALYSES.

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 *Triennial Review 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."[20] 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**."[21] 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

[20] *Id.*, ¶ 498.

[21] *Id.*, ¶ 494 (emphasis added).

in the market have real choice, and competitive carriers are not impaired in their ability to reach the customers in the defined market. Otherwise, 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."[22]

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 permits 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,

[22] *Id.*, ¶ 500.

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 the provision of the specified service at the specified location.

Q. PLEASE EXPLAIN IN MORE DETAIL WHAT YOU MEAN WHEN YOU STATE THAT THE MARKET DEFINITION SHOULD PERMIT THE MOST UNAMBIGUOUS AND ACCURATE ANSWER TO THE QUESTION OF WHETHER CLECS ARE IMPAIRED WITHOUT ACCESS TO UNBUNDLED SWITCHING IN A PARTICULAR MARKET.

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."[23] This means that the markets as defined should be sufficiently uniform that evidence of actual 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.

Specifically, the T*riennial Review Order* calls for this Commission to conduct its investigation "on the most accurate level possible, while still

[23] *Id.*, n. 1536.

preserving administrative practicality."[24] Accuracy is essential to carrying out the pro-competitive purposes of the Act. As I explained in more detail above, 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 THE MARKET DEFINITION TO BE USED IN A TRIGGER ANALYSIS?

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.[25]

The *Triennial Review 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

[24] *Id.*, ¶ 130.

and handle large number of hot cuts."[26] 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 suggests that the market consider variations in the ability of wire centers to handle large numbers of hot cuts.

I interpret this language to reference the hot cut process referred to by MCI's operational impairment witness, Mr. Jenkins, as the *"Mass Market Hot Cut Process"* and not just the batch cut procedure that the FCC has directed state commissions to develop in the nine-month impairment proceedings (referred to by Mr. Jenkins as the "*Transition Batch Hot Cut Process")*. The ongoing ability of Verizon to perform hot cuts as mass-market customers change carriers is critical to the success of switch-based competition and must be considered at all phases of the impairment analysis, beginning with market definition.

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

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[25] 47 C.F.R. § 51.319(d)(2)(i).

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.[27] 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.[28] 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 Warwick is not in the same geographic market as an apartment in Providence, because the Warwick apartment does not serve as a meaningful alternative for consumers in Providence.

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[26] *Triennial Review Order*, ¶ 496.

[27] *Id.*, ¶¶ 74 and 109.

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

Q. WHAT CONCLUSIONS HAVE YOU REACHED BASED ON YOUR APPLICATION OF THE GUIDANCE IN THE *TRIENNIAL REVIEW ORDER* AND ECONOMIC THEORY CONCERNING MARKET DEFINITION?

A. I have concluded 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.

Wire centers 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; it is not possible draw conclusions about one wire center from an analysis of another wire center. Second, expected revenues will not be the same from one wire center to another, because of the differences in the demographics of the customers served out of the two offices. Third, 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. Fourth, it is administratively feasible to administer the requirements of the *Triennial Review Order* on a wire-center basis, because data on CLEC activity, including collocation, and other cost information is available on this basis. I will elaborate on the first two points below.

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 starting with a single firm's product, offered at a specific location, and then expanding beyond this point to see whether customers regard products from the expanded product set or geographic area as substitutes or alternatives for the original product.

Q. IS THIS APPROACH USED IN ANY OTHER REGULATORY CONTEXT?

A. Yes, the market definition approach I have just outlined is the same as the one used in the *Horizontal Merger Guidelines* ("HMG") of the U.S. Department of Justice ("DOJ") and the Federal Trade Commission ("FTC").[29] The HMG state 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

[29] The full text of the *Horizontal Merger Guidelines* of the U.S. Department of Justice and Federal Trade Commission, issued April 2, 1992, and revised April 8, 1997, (hereinafter, "HMG") is available online at http://www.usdoj.gov/atr/public/guidelines/horiz_book/toc.html.

> but significant and nontransitory" increase in price, assuming the terms of sale of all other products are held constant. *A relevant market is a group of products and a geographic area that is no bigger than necessary to satisfy this test.*[30]

The HMG approach "begin[s] with each product (narrowly defined) produced or sold by each merging firm" for the product dimension and "the location of each merging firm (or each plant of a multiplant firm)" for the geographic dimension.[31] This initial tentative market definition is expanded by asking whether consumers regard other products or locations as close enough substitutes that a price increase in the narrowly defined tentative market definition would be met by consumers switching to other products or locations.

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

[30] HMG, Section 1.0, emphasis added.

narrow, the definition is expanded to incorporate the next best products or locations that consumers regard as "close enough" substitutes, but stops as soon as the market definition is sufficiently expansive to meet the price increase test I cited above.

In short, the analysis of market definition under the HMG is essentially the same as the one that I have outlined.

Q. DOES THE HMG APPROACH TO MARKET DEFINITION WORK IN THE TRIGGER ANALYSIS?

A. Yes. The concept of market participants in the HMG provides a straightforward basis for linking the geographic market definition to the trigger analysis. The *Horizontal Merger Guidelines* state that:

> Participants include firms currently producing or selling the market's products in the market's geographic area. In addition, participants may include other firms depending on their likely supply responses to a "small but significant and nontransitory" price increase. A firm is viewed as a participant if, in response to a "small but significant and nontransitory" price increase, it likely would enter rapidly into production or sale of a market product in the market's area, without incurring significant sunk costs of entry and exit. Firms likely to make any of these supply responses are considered to be "uncommitted" entrants because their supply response would create new production or sale in the relevant market and because that production or sale could be quickly terminated without significant loss.[32]

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[31] HMG, 1.11 *Product Market Definition General Standards*, and 1.21 *Geographic Market Definition General Standards*.

[32] *Id.*, Section 1.0, footnote omitted.

In the context of impairment analysis, firms counted toward the trigger analysis should be participants in the geographic market. A CLEC serving a group of customers in a specific geographic area would only be counted as a participant in another geographic market if it were currently offering service in that market or would promptly extend service to that market in response to a "small but significant nontransitory" price increase.

This is one reason that it is important not to adopt too broad a geographic market definition. As the FCC has observed, "if competitors with their own switches are only serving certain geographic areas, the state commission should consider establishing those areas to constitute separate markets."[33] Using market definitions that correspond to the geographies over which competitors are actually serving customers will ensure that the trigger analysis works as intended, identifying cases in which multiple, competitive supply within a single geographic area is already a reality, not just a possibility. It would be wrong as a matter of economic principles, and contrary to the purpose of the trigger analysis, to lump together multiple geographic areas, each of which has fewer than three competitive suppliers, and treat those as a single geographic market in which the trigger is met.

[33] *Triennial Review Order*, n. 1537.

Defining markets in this manner does not require a finding of impairment in every geographic market that currently lacks multiple, competitive supply. As the HMG indicates in a footnote to the passage concerning market participants quoted above:

> Probable supply responses that require the entrant to incur significant sunk costs of entry and exit are not part of market measurement, but are included in the analysis of the significance of entry. See Section 3. Entrants that must commit substantial sunk costs are regarded as "committed" entrants because those sunk costs make entry irreversible in the short term without foregoing that investment; thus the likelihood of their entry must be evaluated with regard to their long-term profitability.[34]

Q. AS YOU HAVE ALREADY NOTED, VERIZON HAS CHOSEN TO FOREGO A POTENTIAL DEPLOYMENT ANALYSIS IN THIS PROCEEDING. DOES ITS DECISION HAVE ANY SIGNIFICANCE FOR THE CHOICE OF MARKET DEFINITION?

A. The decision of Verizon to forego a potential deployment analysis raises the stakes with respect to the granularity of the market definition. A market definition that inappropriately lumps together geographic areas already served by switch-based competitors with areas that have little or no current competitive supply could lead to inappropriate findings of no impairment in substantial geographic areas that are not feasible for competitors to serve using their own switches. The Commission can address this risk by defining geographic markets

[34] *Id.*, n. 7.

that are suitably narrow and uniform. It can further minimize this risk by applying triggers in a reasoned manner, as I describe below.

C. The Geographic Market Definition Should Reflect the Customer Locations to which Competitors Now Provide Switching, Not the Physical Location or Potential Reach of Their Switches.

Q. HOW DOES THE FCC REQUIRE MARKETS TO BE DEFINED GEOGRAPHICALLY?

A. The FCC has noted 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."[35]

Because a triggering switch need not be located in the defined geographic market, it also follows that the geographic market need not correspond to the physical area that a switch can serve. The analysis should instead be focused on where CLECs actually provide *switching* in lieu of the unbundled switching that the ILEC provides throughout specific wire-center boundaries. That is, it should be focused on the actual customer locations that CLECs serve using their own switches.

[35] *Triennial Review Order*, n. 1536.

D. The Geographic Market Should Allow the Most Accurate Analysis Possible, Consistent with Administrative Practicality.

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

A. As I mentioned above, the *Triennial Review Order* requires that the Commission conduct its impairment analyses "on the most accurate level possible, while still preserving administrative practicality."[36] Market definition at the most accurate level of granularity would be conducted on a customer-by-customer basis.

This is precisely the approach that the FCC specifies in defining the geographic markets for application of trigger analysis to enterprise loops, for which impairment analyses must be conducted on a "customer-by-customer location basis."[37] It takes only a moment's reflection to recognize that mass-market consumers of qualifying telecommunications services also 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, the "most accurate" level of granularity would address switching capability for particular customer premises.

Although mass-market customers are tied to their locations just as tightly as enterprise customers, the FCC observes that considerations of practicality will

[36] *Id.*, ¶ 130.

[37] *Id.*, ¶ 307.

not permit a customer-by-customer analysis, for at least some mass-market investigations.[38] Fortunately, subject to certain important limitations I discuss below, it is possible to analyze customer-specific locations in large numbers, achieving administrative practicality with little or no loss of accuracy.

Q. WHAT AGGREGATIONS OF CUSTOMER LOCATIONS MAKE SENSE FOR AN IMPAIRMENT ANALYSIS OF MASS-MARKET SWITCHING?

A. Recognizing the limited role that can be fulfilled by non-incumbent mass-market loop facilities,[39] an impairment analysis for mass-market switching must identify substitutes to the incumbent's local circuit switch "as a means of accessing the local loop."[40] 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. There are, however, exceptions to this rule based on operational and technical impairment issues, as I explain below.

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[38] *Id.*, ¶ 309.

[39] *Id.*, ¶ 439.

[40] *Id.*, ¶ 429.

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 in 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.[41]

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. I simply note here that 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

[41] Phillip Areeda and Louis Kaplow, *Antitrust Analysis: Problems, Text, and Cases*, Fifth Edition, 1997, Aspen Publishers, p. 570, ¶ 342.

presence of operational barriers such as the hot-cut limitation that is the basis for the national finding of impairment, or the presence of IDLC – both of which are discussed in the testimony of MCI witness Earle Jenkins - 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. The *Triennial Review 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."[42] Many of these factors vary at the wire-center level.

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, *i.e.*, where there are no operational barriers to such expansion throughout the wire center, trigger analysis can proceed

[42] *Triennial Review Order*, n. 1536.

with the wire center as the geographic market definition with little or no loss of accuracy.[43]

Q. IS IT 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 rates and retail rates—are 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 TELRIC cost models, universal service models or from public sources.

Q. HOW DOES VERIZON PROPOSE TO DEFINE GEOGRAPHIC MARKETS?

A. Verizon defines geographic markets based on the UNE Density Zones within Rhode Island.[44] In its testimony, Verizon states that Metropolitan Statistical Areas (MSAs) and Density Zones are both appropriate geographic markets, but that it is compelled to use Density Zones in Rhode Island, because the State is

[43] As I discuss further below, there is an important caveat to this discussion. It is necessary to distinguish between business and residential customers because of the prevalence of price discrimination, as well as other differences, between the two groups.

[44] O'Brien-White Direct Testimony, at 9.

comprised of a single MSA, and the FCC prohibited the Commission from defining a geographic market as encompassing the entire state." Verizon presents several reasons supporting its choice of Density Zones as the correct geographic market: (1) density Zones reflect the locations of customers actually being served; (2) the revenue potential and ease of serving customers are reflected in the UNE Density Zones; (3) all three Density Zones fall within a single MSA, which reflects the geographic reach of advertising media.

Q. DO YOU AGREE WITH THE REASONS PROVIDED BY VERIZON FOR CHOOSING THE DENSITY ZONE AS THE DEFINITION OF A GEOGRAPHIC MARKET?

A. No. Let me explain the flaw in all three of these arguments briefly and then I will elaborate, as necessary, later in my testimony.

First, the Density Zones do not reflect the locations of customers actually being served by some of the CLECs. In Density Zone 2, there are enormous gaps in the geographic coverage by almost all of the CLECs that Verizon claims satisfy the triggers. There are thirteen wire centers in this Zone, and a total of six CLECs. There **is only one** wire center in the entire Zone in which all of the CLECs provide service. Of the remaining twelve wire centers, eight are served by 1 or 2 CLECs, and the other four are served by 3 or 4 CLECs. This is clear proof that the Density Zones do not correspond to the footprint of most CLECs and that a smaller unit of geography must be used to capture the marketplace realities facing the CLECs.

Verizon's second justification for a Density Zone geographic market is that the revenue potential and ease of serving customers are reflected adequately in the UNE Density Zones. While this may be true (or "close enough") with respect to the cost of loops, Verizon provides no evidence that the variations in revenues and costs across wire centers can be ignored with respect to the CLECs' decision of whether or not to provide service to customers in wire center areas. Indeed, the evidence about the CLECs' "Swiss cheese" pattern of entry into Density Zone 2 belies Verizon's presumption that the Density Zones are well-defined geographic markets for the purpose of impairment analysis. Later in my testimony, I will describe the quantitative work that I conducted to analyze the costs and revenue factors that vary across wire centers within each Density Zone.

Verizon's third justification-- that all three Rhode Island Density Zones fall within a single MSA, and therefore the media market attribute of an MSA applies to the density zones-- makes no sense. The same point could be made about <u>any</u> geographic unit used to divide markets in Rhode Island – they all fall within the same MSA, because they are all in Rhode Island, and therefore they should all be valid geographic markets! By Verizon's reasoning, the geographic market could be zip codes, census blocks, or counties, so long as they all were part of Rhode Island. Moreover, if Verizon believes that MSAs are the right geographic market, because: 1) advertising is conducted on a MSA level and 2) advertising is a crucial and big-ticket input to local telephone service, then it should say that Density Zones are <u>not</u> a good market definition, because they

subdivide a single media market and are not the geographic areas across which CLECs make entry decisions.

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 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. The size of the market, potential revenues, cost characteristics and operational issues such as number of hot cuts required, IDLC present in the market, and collocation issues (as discussed more fully in the testimony of Earle Jenkins) are likely to vary by wire center, thereby affecting a competitor's ability to serve customers on a wire center by wire center basis.

A market definition that ignored these factors 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 CLECs wishing to expand service to new locations and define away these important cost differences by simply declaring a large group of customers to be in the same geographic market.

Q. VERIZON WITNESSES ARGUE THAT DEFINING THE MARKET ON AN OVERLY GRANULAR LEVEL WOULD COMPLETELY IGNORE AVAILABLE SCALE AND SCOPE ECONOMIES THAT THE CLEC WOULD ENJOY BY SERVING A WIDER MARKET. DOES THE EXISTENCE OF THESE SCALE ECONOMIES COMPEL A MORE EXPANSIVE MARKET DEFINITION THAN THE INDIVIDUAL WIRE CENTER?

A. No. Although 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 customers, 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.

E. Empirical Proof of the Difference in the Characteristics of Different Wire Centers

Q. EARLIER IN YOUR TESTIMONY YOU STATED THAT ONE OF THE REASONS TO DEFINE EACH WIRE CENTER AS A SEPARATE MARKET WAS THAT COSTS AND DEMAND CONDITIONS VARY ACROSS WIRE CENTERS. HAVE YOU ANALYZED THIS ISSUE WITH RESPECT TO THE WIRE CENTER MARKETS SERVED BY VERIZON IN RHODE ISLAND?

A. Yes. I have examined the cost that a hypothetical CLEC would incur, and the potential revenue the CLEC would earn, if it entered the different wire center markets in Verizon territory of Rhode Island. The purpose of this analysis is to show that the conditions affecting entry and competition vary significantly from wire center to wire center – even within the same MSA/density zone, and therefore it would be a mistake to aggregate dissimilar wire center areas into a single market.

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 model 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.

Q. WHAT CATEGORIES OF COSTS DID YOU CONSIDER?

A. The broad categories of cost I 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.

Q. WHAT ARE THE FACTORS THAT WOULD CAUSE VARIATION IN A CLEC'S COST OF SERVING DIFFERENT WIRE CENTER MARKETS USING THE UNE LOOP?

A. The most relevant measure of cost is the *average cost per line*. Many of the cost components described above are subject to significant economies of scale, meaning that average cost per line falls as more customers are served. Since the size of the available market, i.e. Verizon's customer base, will vary several-fold across wire centers, it is reasonable for a CLEC to expect that its own customer base also will vary across wire centers in a roughly parallel manner. This would

result in the CLEC experiencing very different average costs from one market to another.

The cost of serving different wire centers will also vary because of the differences in transport cost, which vary based upon the distance between the wire center and the CLEC switch. Other sources of cost differences are: the variability in UNE loop rates, the potential economies from using facilities to serve other customers, e.g. enterprise customers, and type of loop equipment used in the wire center, e.g. IDLC vs. UDLC.

Q. WHAT CATEGORIES OF REVENUE DID YOU INCLUDE?

A. I used the current average local plus long distance revenue per household in each wire center. This estimate was obtained from the TNS Telecom database. I used current revenues as a proxy for anticipated revenues, even though I would expect revenues to decline substantially following the entry by UNE-L-based CLECs into the residential market. Nevertheless, because the purpose of my testimony is to address market definition, I have limited my analysis to factors that differ from one wire center market to another, and for that purpose it is sufficient to consider current revenues.

Q. PLEASE DESCRIBE THE RESULTS OF YOUR MODEL, AND THEIR RELEVANCE TO THE GEOGRAPHIC MARKET DEFINITION.

A. The "best case" net revenue per line is estimated for each wire center. I have extracted and organized the results into the two Density Zone markets where Verizon is seeking relief. These are reported in MDP-2. The analysis provides

clear evidence that conditions are very different from one wire center market to another within the MSA/density zone "markets" defined by Verizon. In Density Zones 2, net revenue per line varies from negative $2.60 in wire center NWPTRIBU to negative $ 21.26 per month in wire center JMTWRINA. In Density Zone 1, net revenue per line varies from positive $2.25 in wire center PTVDRIWA to negative $2.60 per month in wire center PWTCRIHI.

The purpose of this analysis is not to emphasize the level of net revenues. Many factors will affect the level of anticipated costs and revenues, and have important implications for the prospects of UNE-L-based entry. This is beyond the scope of my testimony. What the analysis clearly shows, however, is that conditions vary significantly across the large geographic areas included with the individual markets proposed by Verizon, and that the wire center is the proper geographic market definition.

Although the wire center markets in Density Zone 1 are more homogeneous than in Density Zone 2, this is not a reason for adopting the Density Zone as the geographic market, for several reasons. First, there are cost and revenue differences across the wire centers in Density Zone 1, and these differences may be sufficient to influence a CLEC's entry decision. Second, it would make no sense to adopt different geographic measures for different parts of the state. Wire centers can and should function as the lowest common denominator for geographic market definition across the entire state. Finally, if the wire centers in Density Zone 1 are sufficiently homogeneous, then they would

all be likely to meet the trigger conditions at the same time, and the final outcome of the Commission's process would be the same for these wire centers, regardless of market definition chosen.

F. The Commission Must Define Product Market(s) as well as Geographic Markets.

Q. ARE THERE ANY OTHER ASPECTS TO THE MARKET DEFINITION THAT THE COMMISSION MUST DETERMINE IN THIS PROCEEDING?

A. Yes. The Commission must also determine the relevant product market(s), so that it can evaluate whether potential triggering companies are offering a product that substitutes for the ILEC's retail local exchange services and/or the retail local exchange services that a CLEC can offer to mass-market customers via UNE-P.

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 market based on the *Triennial Review Order*'s discussion of qualifying services: in short, "those services that have been traditionally the exclusive or primary domain of the incumbent LECs."[45] Within the product market, the Commission should include any alternative to the ILEC's local voice service, including vertical features and access service, that is comparable in "cost, quality and maturity" to the ILEC's

[45] *Triennial Review Order*, ¶ 135.

own retail local exchange services.[46] This product definition includes traditional circuit-switched local exchange services provided by competitors that self-deploy switches (or use third-party switches) in conjunction with the incumbent's voice-grade UNE loops (what is sometimes described as a "UNE-L" entry strategy) and may include packet-switched local service or "intermodal" alternatives when such services meet the "cost, quality and maturity" requirements of the *Triennial Review Order*. I provide further discussion of intermodal alternatives below, where I describe the criteria necessary to determine whether a competitor should be considered as a potential triggering company.

Q. ARE THERE OTHER POTENTIALLY RELEVANT DISTINCTIONS RELATED TO THE PRODUCT MARKET OR MARKETS?

A. Yes. As one example, it may be necessary to subdivide the ILEC's customers into two different markets, residential and business, even though most of the same products are sold to these two classes of customers. There are at least two reasons for this. First, price discrimination can be enforced between the two market segments. Second, many CLECs appear to be specializing in providing UNE-L-based products to business customers and do not provide similar products to residential customers.

[46] *Id.*, ¶ 97.

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."[47] 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.[48]

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.[49]

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[47] HMG 1.12, *Product Market Definition in the Presence of Price Discrimination*.

[48] 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.*

[49] The use of the term "targeted buyers" in the HMG is the inverse of the way in which the FCC uses the term "targeted customers." In the HMG, the targeted buyers are the ones who lack competitive options, whereas in the FCC's parlance, the targeted customers are the ones singled out for competitive supply. The fundamental logic of the HMG's discussion of price discrimination, however, aligns precisely with the FCC's identified concern about targeted customers.

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."[50] The price difference between small business customers and residential customers receiving essentially identical service is a classic example 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."[51] CLECs provisioning their own switches can, and do, target business customers, even to the exclusion of residential customers.

This targeting of switch-based service to business, rather than residential, customers occurs in part because the characteristics of business customers, even very small ones, are different from those of 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 longstanding ILEC practice of targeting business customers for higher rates than residential customers, CLECs can also target this group and price differently to residential and small business customers.

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[50] HMG 1.12 *Product Market Definition in the Presence of Price Discrimination.*

[51] *Triennial Review Order*, n. 1539, interpreting accompanying text at ¶ 495.

Q. WHAT DOES THE EVIDENCE ABOUT THE ACTIVITIES OF THE CLECS PROVE ABOUT THE DISTINCTION BETWEEN RESIDENTIAL AND BUSINESS CUSTOMERS?

A. Several CLECs are serving the business market by combining their own switching with UNE loops, and it is very likely that these companies are specializing in serving business customers that are very different from the residential or very small business customers. I have learned that MCI, which is one of the CLECs in this category, does not offer or provide local service to any residential customers via unbundled loops. To the extent that MCI does order unbundled loops from Verizon, it is almost exclusively for larger business customers and not for very small business customers. MCI offers UNE-L based services mostly to multi-product, multi-location customers and sells through agents, such as the PBX vendors that provide complete solutions to the customer. MCI always has to assign a dedicated install team to handle orders that involve UNE loops (as opposed to UNE-P) due to the problems associated with hot cuts. Such a dedicated install team is not even remotely realistic when dealing with residential customers or very small business customers. Whether the customer requires several DS0s or a DS1 loop depends upon a number of factors, including whether the customer's PBX can function with a digital loop.

The way the real world functions, therefore, stands in stark contrast to Verizon's position that:

> At its simplest, this 'cutoff' should be between customers actually being served with one or more voice grade DS0 circuits and customers actually being served by DS1 loops…If a CLEC is currently serving a customer

> using DS0 loops—regardless of how many -- it has already made the determination on its own that it is most economical to serve the customer as a mass-market customer, rather than as a DS1 enterprise customers.[52]

Verizon is confusing the goods or services that are purchased in a particular transaction with the proper definition of a market. This fallacy of economic logic would imply that a household and a large restaurant both purchase food supplies in the same market, because they both buy the same size ketchup bottles. And by this reasoning, the restaurant supply company, which has "chosen" to provide the restaurant with 16 ounce bottles of ketchup, would also be able to constrain the prices that a supermarket would charge a typical shopper for the same bottle of ketchup. For certain, this is not the way that antitrust authorities would define markets in merger investigations or enforcement actions.

The way to avoid this fallacy is to look at the evidence and keep our fingers off the trigger until there is clear evidence that the CLECs are actually serving the residential market.

Q. ARE YOU PROPOSING TO CHANGE THE FCC'S DEFINITION OF MASS-MARKET CUSTOMERS?

A. No. With respect to unbundled switching, the FCC has drawn a distinction between customers that it is economically feasible for a CLEC to serve via a DS-1 arrangement (and therefore are unaffected by the hot-cut barrier to entry that is

[52] O'Brien-White Direct Testimony, at 13.

the basis for the national finding of impairment) and customers that can only be served economically via voice-grade loops (which the *Triennial Review Order* describes as DS-0s). All of the latter customers logically fall into a broad category of mass-market customers that are affected by the national, hot-cut-based finding of impairment; hence, the Commission should consider in this proceeding whether CLECs are impaired without access to unbundled switching to serve any and all of these customers.

My point, however, is somewhat different. There are numerous other potential sources of impairment besides the hot-cut problem, many of which relate to economic issues. The economics of providing UNE-L based service to residential and small business customers may be quite different. A potential deployment analysis would reveal whether these differences matter, but without a potential deployment analysis, the Commission cannot tell whether actual deployment of UNE-L to serve small business customers (*i.e.*, trigger evidence) implies anything about the ability of CLECs to serve residential customers via that same entry strategy. The Commission should avoid any risk of basing a finding of no impairment on evidence that applies only to, *e.g.*, small business customers. The Commission, therefore, must be prepared either to treat residential and small business customers as falling into two separate submarkets of the mass market or, in the alternative, to require that a competitor must serve both residential and small business customers to be considered as a potential triggering company. I discuss these possibilities further in Section IV.B.4 below.

Q. IS THERE ANY OTHER INSTANCE IN WHICH THE COMMISSION MAY NEED TO MAKE FURTHER DISTINCTIONS AMONG MASS-MARKET CUSTOMERS OR CUSTOMER LOCATIONS?

A. Yes. The ILECs have claimed in prior UNE proceedings that they cannot unbundle IDLC loops (hence, CLECs using their own switches cannot serve mass-market customers via IDLC); however, the ILECs also admit that CLECs can serve mass-market customers over IDLC when they obtain UNE-P from the ILEC. As the Commission is well aware, IDLC plays a large role in Verizon's plans for its network, as represented in its alleged forward-looking network architecture and in Verizon's network modernization plans. Hence, over time, the portion of the market that CLECs using their own switches cannot reach as efficiently as the ILEC (or, as CLECs can today, using UNE-P) will grow.

Q. IS THERE ANY ADDITIONAL COMPETITIVE SIGNIFICANCE TO THE ILECS' IDLC LOOP PLANT?

A. Yes. The *Triennial Review Order* determined that the ILEC is not required 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. 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. According to data provided by Verizon, statewide in Rhode Island [**PROPRIETARY INFORMATION BEGINS**] ********** [**PROPRIETARY INFORMATION ENDS**] of working lines are served on IDLC, with a maximum

of [**PROPRIETARY INFORMATION BEGINS**] ********** ********** [53] [**PROPRIETARY INFORMATION ENDS**]

Further, Verizon has generally and specifically, in Rhode Island, refused to provide DSL service to customers that purchase voice telephony services from 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.

Q. HOW SHOULD THE COMMISSION TAKE THESE POTENTIAL PRODUCT MARKET DISTINCTIONS INTO ACCOUNT?

A. The Commission should consider each of these potential product market distinctions in its "trigger" or actual deployment analyses. I elaborate on the approach that I recommend in the sections that follow.

[53] See Verizon's response to ATT-VZ-1-8 a-c (proprietary attachment).

IV. ANALYSIS OF TRIGGERS ON A MARKET-BY-MARKET BASIS

A. Introduction – Triggers

Q. ONCE THE COMMISSION HAS ESTABLISHED A MARKET DEFINITION, WHAT IS THE NEXT STEP IN THE ANALYSIS REQUIRED BY THE FCC?

A. The next step in the analysis is the review of evidence concerning so-called "triggers." There are both retail and wholesale triggers, although Verizon has indicated that it only intends to present evidence regarding the retail triggers for unbundled mass market switching.

Q. WHAT IS THE STATED PURPOSE OF THE TRIGGER ANALYSIS PRESCRIBED BY THE FCC?

A. The triggers are to be "a principal mechanism for use by states in evaluating whether requesting carriers are in fact not impaired in a particular market."[54] The FCC found that "presence of facilities-based competitors is the best indicator that requesting carriers are not impaired."[55]

However, it is important to remember that the FCC's national finding of impairment with respect to mass-market switching is based upon impairments related to the ILECs' hot cut processes. Therefore, the most reasonable

[54] *Id.*, ¶ 498.

interpretation of the trigger test is that the triggers are intended to deal with the unambiguous cases in which it is virtually certain that the national finding of impairment does not apply to a particular geographic market because competitors deploying their own switching facilities (or using third-party switching) have been able to overcome existing barriers to entry in a manner that ensures that all, or virtually all, of the customers in the market have meaningful alternatives to the incumbent's local exchange services.

Q. WHAT IS THE RETAIL TRIGGER?

A. The self-provisioning or "retail" trigger relates to the number of competitors that are self-deploying switching to provide retail local exchange services to mass-market customers located in each geographic market. The FCC requires that there be at least three such competitors in a given geographic market to satisfy the retail trigger and thereby justify a finding of no impairment in the geographic market.[56]

Q. HOW CAN THE COMMISSION DETERMINE WHETHER THE TRIGGERS HAVE BEEN MET IN A PARTICULAR MARKET?

A. The Commission can apply the rules found in the *Triennial Review Order* in a manner that comports with the pro-competitive goals of the Act and sound economic principles. In the discussion that follows, I describe the rules presented

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[55] *Id.*

[56] *Triennial Review Order*, ¶ 501.

in the *Triennial Review Order* and explain how the Commission can apply them in a meaningful way. 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 Attachment MDP-3 to my testimony.

B. FCC Rules for Identifying Relevant Competitors

Q. WHAT GUIDELINES HAS THE FCC PROVIDED CONCERNING THE COMPETITORS THAT CAN BE COUNTED TOWARD THE RETAIL TRIGGER?

A. In addition to the basic requirement that potential triggering companies must be "using or offering their own separate switches,"[57] the FCC has identified rules with respect to the following:

(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.

[57] *Triennial Review Order*, ¶ 499. This requirement appears as the first item on the flowchart in Attachment MDP-3.

1. Corporate Ownership

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 trigger in a particular market if that carrier is unaffiliated with the incumbent.[58] Second, to prevent "gaming," carriers affiliated with one another, but not the incumbent, only count as a single carrier toward satisfying the pertinent trigger.[59] These two requirements appear as the second and third items on the flowchart in Attachment MDP-3.

2. Active and Continuing Market Participation

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."[60] Similarly, paragraph 500 of the *Triennial Review Order* states that in conducting the trigger analysis, state commissions must determine whether the identified trigger companies "are currently offering and able to provide service, and are likely to continue to do so."

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[58] *Id.*, ¶ 499.

[59] *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.

[60] *Id.*, ¶ 499.

The state commission must also verify that the competitors in question have not filed a notice to terminate service in that market[61] 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 Attachment MDP-3.

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).

3. Intermodal Competition

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

[61] *Id.*, n. 1556.

market.[62] Based on these criteria, the FCC specifically indicated that it did not expect states to count commercial mobile radio service ("CMRS") carriers toward either trigger.[63] 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.[64] 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.[65]

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 Attachment MDP-3 flowchart an evaluation of the incumbent's showing as to the cost, quality and maturity of any intermodal providers proffered as potential triggering companies.

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[62] *Id.*, n. 1549. *See also* ¶ 97.

[63] *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.

[64] *Id.*, ¶ 310.

Q. SHOULD CABLE TELEPHONY PROVIDERS BE COUNTED AS A MASS MARKET TRIGGERING COMPANY?

A. In my opinion, it is bad public policy to count cable companies as triggering companies. The experience of cable companies provides evidence of limited value concerning the ability of CLECs that rely on the ILEC's loops to use their own switches. As the FCC acknowledged, cable telephony fails to serve the "crucial function" of affording access to the incumbent's loops,[66] 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."[67] Cable telephony's strategy is to "bypass the incumbent LECs' networks entirely."[68] 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."[69] 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

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[65] *Id.*, n. 1549.

[66] *Id.*, ¶ 439.

[67] *Id.*, ¶ 440.

[68] *Id.*

[69] *Id.*, ¶ 310.

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."[70]

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.[71] 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.

4. Scale and Scope of Market Participation

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

[70] *Id.*, ¶ 446.

[71] *Id.*, ¶¶ 228, 229 and 245.

service to all competitive providers in the designated market."[72] The wholesale carrier need not, however, provide "the full panoply of services offered by incumbent LECs."[73]

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."[74] 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,

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[72] *Triennial Review Order*, ¶ 499 (as amended by the FCC's *Errata* released on September 17, 2003).

[73] *Id.*

[74] *Id.*, n. 1552.

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 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.[75] I have included these two evidentiary requirements as the sixth and seventh, respectively, on the flowchart in Attachment MDP-3.

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 ATTACHMENT MDP-3)?

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

[75] 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. These operational and technological impairments are discussed more fully in the testimonies of Earle Jenkins and Sherry Lichtenberg.

(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, who 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 ass 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.[76]

[76] *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 Rhode Island 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.

If the Commission does not apply the trigger analysis in this manner, then it must consider defining separate markets for residential and small business customers to avoid the public policy harm that I describe above. The small

business submarket would include all business customers up to the identified boundary between mass-market and enterprise customers.

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 POTENTIAL 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. This issue is discussed fully in the testimony of MCI witness Earle Jenkins. 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 potential 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 the impairments 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 Rhode Island customers served via IDLC.

Q. HOW DOES THE PRECEDING DISCUSSION RELATE TO THE FLOWCHART IN ATTACHMENT MDP-3?

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. HAVE YOU BEEN ABLE TO DETERMINE HOW MANY OF VERIZON'S CUSTOMERS ARE BEING SERVED OVER IDLC LOOPS, OR WHETHER VERIZON IS CAPABLE OF PROVIDING UNBUNDLED LOOPS SERVED BY IDLC?

A. Yes. Verizon indicates that about **[PROPRIETARY INFORMATION BEGINS] ********* [PROPRIETARY INFORMATION ENDS]** of the loops in its service territory in Rhode Island are served over IDLC, with a maximum of **[PROPRIETARY INFORMATION BEGINS] ********** [PROPRIETARY INFORMATION ENDS]**[77] Verizon also continues to claim that these customers cannot be served via UNE loop over IDLC. Therefore, for the customers served by these lines, it is impossible to tell whether any of the

[77] See Verizon's response to ATT-VZ-1-8 a-c (proprietary attachment).

UNE-L-based CLECs listed by Verizon as trigger companies are in fact able to serve all customers within any geographic market. Until Verizon presents evidence that the CLECs will be able to access customers served by IDLC, none of these UNE-L based CLECs should be counted as trigger companies, and Verizon's application should be rejected outright.

C. Verizon's Proposed Trigger Companies

Q. HAS VERIZON IDENTIFIED COMPANIES THAT IT BELIEVES SATISFY THE TRIGGER CONDITIONS?

A. Yes. Verizon appears to claim that there are 6 triggering CLECs in Density Zones 1 and 2 in Rhode Island. These are the only CLECs for which Verizon has produced line counts in its testimony.[78] [**PROPRIETARY INFORMATION BEGINS]**

1) *********
2) *********
3) *********
4) *********
5) *********
6) *********

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********** [**PROPRIETARY INFORMATION ENDS]**

[78] O'Brien-White Direct Testimony, Attachment 2 (Proprietary).

Q. DO YOU AGREE THAT VERIZON HAS DEMONSTRATED THAT IT HAS SATISFIED THE RETAIL TRIGGER CONDITIONS?

A. No. **[CLEC PROPRIETARY INFORMATION BEGINS]**

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**********.[79] **[CLEC PROPRIETARY INFORMATION ENDS]**

CLECs that are not actively serving residential customers should not count as trigger companies. As I explained above, there are many barriers to entry in the residential market, and unless a CLEC has demonstrated that it has effectively surmounted these barriers, it provides no evidence that the CLECs are not impaired without access to the ILECs switching UNE. Moreover, the fact that the CLECs that are active in the business market do not serve residential customers with UNE-L, even though they have the facilities to do so, is itself powerful evidence that major impediments to competition remain in Rhode Island.

[79] Broadview Networks Response to PUC Data Request 1-2 e, j, k.

Q. WHAT DOES THE PRESENCE OF COX COMMUNICATIONS SAY ABOUT WHETHER THE CLECS ARE IMPAIRED WITHOUT ACCESS TO VERIZON'S SWITCHING UNE?

A. The presence of an active cable telephone operation tells us virtually nothing about whether other CLECs can survive without access to Verizon's switching UNE. Cox provides service using its own switch and its own loops. The challenge for every other CLEC is to combine its own switching with loops leased from Verizon. The greatest impediment to successful switched-based competition has very little to do with these CLECs' ability to purchase and operate the switch itself. Rather, the barriers to entry are related to the need to overcome the operational and technological issues associated with UNE-loop service delivery, *e.g.*, hot cuts, OSS, collocation, transport and EELs, which are necessary for mass-market entry using UNE-L. The actual deployment, or trigger, test is meant to be a shorthand method for determining that competitors have overcome such economic and operational barriers in a particular geographic area.[80] If this 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; no such finding should be made on the basis of the mere presence of the alleged trigger company in the relevant market.

[80] *Id.*, ¶ 498.

Q. WHAT DO YOU CONCLUDE ABOUT WHETHER THE TRIGGER CRITERIA HAVE BEEN MET BY VERIZON IN RHODE ISLAND?

A. Based on the considerations I discussed above, I do not believe the triggers are met anywhere in Rhode Island. The only active switched-based provider of service in the residential market in Rhode Island is Cox Communications. Although I do not believe that Cox should count as a trigger company, it would not matter if it is counted, because the test is not satisfied without two other CLECs satisfying the requirements. In fact, there are no other CLECs anywhere in the state that should be counted towards the trigger. Therefore, Verizon has failed to meet the test.

V. POST-TRIGGER ANALYSIS OF OPERATIONAL AND ECONOMIC CRITERIA

A. Markets Where Triggers Are Satisfied

Q. PLEASE EXPLAIN THE "EXCEPTIONAL CIRCUMSTANCES"[81] THAT MAY COME INTO CONSIDERATION IF THE TRIGGERS ARE MET?

A. If the Commission should deem that the triggers are satisfied in a particular market, the *Triennial Review Order* allows for the consideration of "exceptional circumstances" that still might prevent further entry. The FCC described these as follows:

[81] These exceptional circumstances are described in the *Triennial Review Order* at ¶ 503.

> *Exceptional Sources of Impairment.* In exceptional circumstances, states may identify specific markets that facially satisfy the self-provisioning trigger, but in which some significant barrier to entry exists such that service to mass market customers is foreclosed even to carriers that self-provision switches. For example, if there is no collocation space available for additional competitive LEC equipment, further competitive entry may be impossible, irrespective of other economic or operational circumstances. Where the self-provisioning trigger has been satisfied and the state commission identifies an exceptional barrier to entry that prevents further entry, the state commission may petition the Commission for a waiver of the application of the trigger, to last until the impairment to deployment identified by the state no longer exists.[82]

Q. HAVE YOU PERFORMED AN ANALYSIS OF "EXCEPTIONAL CIRCUMSTANCES" ON A MARKET-BY-MARKET BASIS?

A. Not at this point. As the evidence shows, Verizon has not met its burden of proof in showing that the triggers have been met in any market in Rhode Island.

VI. SUMMARY AND CONCLUSION

Q. PLEASE BRIEFLY SUMMARIZE YOUR RECOMMENDATIONS.

A. I recommend that the Commission adopt the wire center as a geographic market definition for its trigger analyses.

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

[82] *Triennial Review Order*, ¶ 503.

each is located. That local exchange service can profitably be offered in one wire center is not proof that the same service can be offered profitably in nearby wire centers.

I recommend that the Commission conduct its trigger analyses in a way that (1) separates residential and small business customers into separate markets, even at the wire-center level, or alternatively does not count CLECs that only serve business customers as triggers with respect to a market defined to include residential customers, and (2) determines that customer locations served over IDLC should be treated as being in a separate submarket for which unbundled switching would continue to be available, even if a finding of no impairment were otherwise justified for a given wire center.

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. Thus, I believe that the triggers must be applied in a way that avoids harmful and irreversible findings of no impairment. At this time, the evidence simply does not show that at least three "qualifying" CLECs have self-deployed switching to serve mass-market customers in even a single wire-center in Rhode Island on a scope and scale that demonstrates those CLECs have overcome existing economic and operational barriers to mass market entry. Therefore, 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 throughout the entire state.

Q. DOES THAT CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes, it does.

Michael D. Pelcovits

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PROFESSIONAL EXPERIENCE

October 2002 – Present: Principal, MiCRA (Microeconomic Consulting & Research Associates, Inc.)

Recent Assignments:

- Developed a model demonstrating the cost faced by a competitive local exchange carrier entering local exchange markets. The model was submitted to the Federal Communications Commission in its Triennial Review of the 1996 Telecommunications Act
- Testified on intrastate access charges before the Connecticut Department of Public Utilities and the Pennsylvania Public Utility Commission
- Analyzed the market for termination of calling on mobile phones in the UK and Netherlands markets

1988 – September 2002: WorldCom Inc. (MCI Communications, prior to merger)

1998 - 2002*: Vice President and Chief Economist*

Major Responsibilities:

- Supervised professional staff of economists, engineers, and policy analysts, with full responsibility for departmental budget, personnel, and quality of output.
- Directed economic analysis of policy and regulatory matters before federal, state, foreign, and international government agencies, legislative bodies, and courts.
- Advocated corporate policy positions before domestic and foreign governmental bodies, spoke at industry forums, and participated in briefings and interviews with the press.
- Recruited and directed independent, outside consultants (academic and private sector) to testify in regulatory and antitrust proceedings.
- Advised senior corporate management on public policy issues.

Recent Activities:

- Developed successful economic case and presented testimony before Oftel (the UK telecommunications regulator) and the European Commission, on regulation of terminating interconnection rates on mobile carriers.
- Served as U.S. telecommunications carrier representative in the ongoing Working Group formed by the Ministry of Telecommunications in Japan studying incremental cost models and universal service policy.
- Directed economic analysis and testimony supporting the merger application of WorldCom and Sprint, including experts from five consulting firms and four universities.

1996 – 1998: Executive Director

- Directed the Company's strategy, advocacy, and representation on costing and pricing issues in formal proceedings implementing the Telecommunications Act of 1996.
- Responsible for development, management, and allocation of $10 million budget for outside consultants.

1992 – 1996: Director

- Supervised professional staff responsible for regulatory filings at the Federal Communications Commission on pricing, costing, and tariff issues.
- Represented MCI and long distance industry association at Congressional forums, committee staff meetings, and industry negotiations prior to passage of the Telecommunications Act of 1996.

1988 – 1992: Senior Policy Adviser

- Provided economic analysis of local and long distance telecommunications industries for regulatory and legal filings.
- Prepared economic analysis in support of advocacy on Capitol Hill. Prepared senior corporate management for testimony before Congressional Committees.

1982 – 1988: Vice President and Treasurer, Cornell, Pelcovits & Brenner Economists Inc.

- One of three managing principals who founded and directed an economic consulting firm, specializing in telecommunications, broadcasting, and antitrust economics. Client engagements included testifying over twenty times before state public utility commissions on pricing, costing, and competitive entry issues; analysis of cost and demand studies and their application to tariff design; and analysis of antitrust issues in transportation markets, among other projects.
- Served as Treasurer of the corporation managing the finances and supervising the accounting, tax, and benefits plans.

1981 – 1982: Senior Economist, Owen, Cornell, Greenhalgh & Myslinski Economists Inc.

- Provided economic consulting on telecommunications and environmental issues. Major client engagements included copyright issues for the Sony Corporation and water pollution issues for the American Iron and Steel Institute.

1979 – 1981: Senior Economist, Federal Communications Commission, Office of Plans and Policy

- Provided policy analysis of domestic and international common carrier and cable television issues.
- Presented recommendations to Office and Bureau Chiefs, Commissioner offices, and to Commissioners in open Commission meetings.

1978 – 1979: Industry Economist, Bureau of International Aviation, Civil Aeronautics Board

- Provided economic analysis of industry structure, international routes and fares for Board rulemakings and adjudication.
- Testified before administrative law judge in two cases recommending the opening of international airline markets to competition.

1976 – 1978: Assistant Professor, Department of Economics, University of Maryland, College Park

- Taught undergraduate and graduate courses in International Economics and Microeconomics.
- Conducted and supervised research in International Economics

1975 – 1976: Teaching Assistant, Department of Economics, M.I.T.

- Taught separate section in Principles of Economics and assisted in teaching Econometrics

1974 Instructor, Tufts University, Department of Economics

- Taught undergraduate course in Comparative Economic Systems

EDUCATION

Ph.D. (Economics), Massachusetts Institute of Technology, 1976
Dissertation title: "The Non-Equivalence of Tariffs and Quotas Under Uncertainty"

B.A. (Economics), *summa cum laude,* University of Rochester, 1972

AWARDS

National Science Foundation Graduate Fellowship, 1972 – 1975
Phi Beta Kappa, 1972
Isaac Sherman Graduate Fellowship, 1972 (University of Rochester)
John Dows Mairs Prize in Economics, 1971 (University of Rochester)

PUBLICATIONS

"The WorldCom-Sprint Merger" in John Kwoka, Jr. and Lawrence J. White, editors. The Antitrust Revolution, The Role of Economics, 4th Edition (Oxford University Press), 2003.

"Economics of the Internet," (with Vinton Cerf), in Gary Madden and Scott Savage, editors, The International Handbook On Emerging Telecommunications Networks (Edward Elgar), 2003.

"Application of Real Options Theory to TELRIC Models: Real Trouble or Red Herring" in James Alleman and Eli Noam, editors, The New Investment Theory of Real Options and its Implications for Telecommunications Economics, (The Netherlands, Kluwer Academic Publishers, 1999).

"The Promise of Internet Access over Cable TV: Should the government force open access requirements?" (with Richard Whitt), CCH Power and Telecom Law, Vol. 2, No. 7, November/December 1999.

"Toward Competition in Phone Service: A Legacy of Regulatory Failure," (with Nina W. Cornell and Steven R. Brenner), Regulation, July/August 1983.

"Access Charges, Costs, and Subsidies: The Effect of Long Distance Competition on Local Rates," (with Nina W. Cornell), in Eli Noam, editor, Telecommunications Regulation Today and Tomorrow, (New York: Harcourt Brace Jovanovich, 1983).

"The Equivalence of Quotas and Buffer Stocks as Alternative Stabilization Policies," Journal of International Economics, May 1979.

"Revised Estimates U.S. Tax Revenue (with Jagdish Bhagwati), in Bhagwati and Partington editors, Taxing the Brain Drain, (North Holland, 1976).

"Quotas Versus Tariffs," Journal of International Economics, November, 1976.

OTHER PROFESSIONAL ACTIVITIES

Speaker and Panelist (selected examples):

National Association of State Utility Consumer Advocates, "Telco Structural Separations, Costs & Benefits," June 19, 2001

LeBoeuf, Lamb, Greene & MacRae, "Telecom Restructuring: The Road to Profitability -- Is there a Map?" June 11, 2001

Columbia University, Graduate School of Business, Institute for Tele-Information, "European Lessons in Liberalization: The German Experience in Telecommunications & Internet Applications," February 16, 1999

Massachusetts Institute of Technology, "Economics of the Internet: Lessons from Regulation of Telephony," April 30, 1998

National Association of State Utility Consumer Advocates, "The Telecommunications Act Two Years Later," February 10, 1998

Columbia University, Graduate School of Business, Institute for Tele-Information, "From the Blueprint to Reality: A Look Into the Second Year of the Telecommunications Act of 1996," April 10, 1997

Federal Communications Commission, Federal State Joint Board on Separations, February 26, 1997

Alliance for Public Technology, "Technologies of Freedom: Linking the Home to the Highway," February 21, 1997

Federal Communications Commission, Federal-State Joint Board on Universal Service, June 5, 1996

Columbia University, Graduate School of Business, Institute for Tele-Information, "Telecommunications Act of 1996: The Morning After," February 6, 1996

New York Law School, Communications Media Center, "Universal Service in Context: A Multidisciplinary Perspective," December 6, 1995

Kansas University, "Stakeholders Symposium on Telecommunications," November 2, 1995

California Foundation of the Environment and the Economy, "Roundtable on Telecommunications Policy, October 27, 1994

Guest lecturer in graduate and undergraduate courses at:

New York University, Stern School of Business
Georgetown University, McDonnough School of Business
George Washington University
Johns Hopkins University
University of Maryland
American University

RECENT TESTIMONIES

State of Connecticut, Department of Public Utility Control, DPUC Investigation of Intrastate Access Charges, Docket No. 02-05-17.

State of Connecticut, Department of Public Utility Control, Application of Southern New England Telephone Company for Approval to Reclassify
Certain Private Line Services from Noncompetitive to Competitive Category, Docket No. 03-02-17.

Pennsylvania Public Utility Commission, AT&T Communications of Pennsylvania, Inc. v. Verizon North, Inc. Docket Number C-20027195.

COMMUNITY SERVICE

Melvin J. Berman Hebrew Academy, Rockville, Maryland

- President of the Board, 2002- present. Chaired board of directors, with responsibility for budget, fundraising, and educational policies of a private, Orthodox Jewish institution, with over 700 students, 100 faculty members, and a budget of $7 million.
- Chair of the Board of Education, 1998-2001. Chaired committee of lay leaders responsible for educational programs and policies.
- Co-chaired successful search committee for a new Headmaster, 2000-2001.
- Member of five-person Interim Oversight Committee, which, in the absence of a Headmaster, supervised and coordinated school principals, 2000-2001.
- Treasurer, 1985-1988. Prepared budget, chaired the Budget and Finance Committee, and oversaw work of the Comptroller.

Member, Economic Advisory Committee, Office of the Honorable Michael Subin, Member and Past Chair, Montgomery County Council, Rockville, Maryland

- A three-member committee of economists that meets periodically with Councilman Subin to provide informal discussion and recommendations on selected policy issues under consideration by the Council, such as cable television franchising.

Monthly Recurring Net Revenue Per Line

CLLI Code	Density Zone	Avg Cost per Line, Best Case
CNTNRIPH	1	($2.17)
PRVDRIBR	1	($1.01)
PRVDRIWA	1	$2.25
PWTCRIHI	1	($2.60)
WRWKRIWS	1	$0.52
ASTNRIAN	2	($6.05)
EGRNRICH	2	($4.25)
EPRVRINB	2	($2.71)
JMTWRINA	2	($21.26)
NPRVRIMS	2	($6.10)
NRGNRIMA	2	($4.52)
NWPTRIBU	2	($2.60)
PTMORIEM	2	($10.05)
RVSDRISO	2	($10.12)
WNSCRICL	2	($8.60)
WRLYRIMA	2	($8.16)
WRRNRIEV	2	($4.62)
WWWKRIMA	2	($6.39)

ATTACHMENT MDP-3