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January 7, 2004

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Re: Docket Nos. 030851-TP

Dear Ms. Bayo:

Enclosed for filing in the above-referenced docket are original and 15 copies of the Rebuttal Testimony of Ben Johnson, Ph.D.

Please indicate the time and date of receipt on the enclosed duplicate of this letter and return it to our office.

Sincerely,

Charles J. Beck
Deputy Public Counsel

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OTH

cc: All parties of record

CJB:bsr

DOCKET NO. 030851-TP

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing Rebuttal Testimony of Ben Johnson, Ph.D. has been furnished by U.S. Mail or hand-delivery to the following parties on this 7th day of January, 2004.

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ORIGINAL

BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION

In re: Implementation of requirements arising from Federal Communications Commission's triennial UNE review: Local Circuit Switching for Mass Market Customers	)))))	Docket No. 030851-TP

Rebuttal Testimony of

Ben Johnson, Ph.D.

Ben Johnson Associates, Inc.

on behalf of the

Citizens of the State of Florida

January 7, 2004

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Rebuttal Testimony
of
Ben Johnson, Ph.D.

Docket No. 030851-TP

EXHIBITS:

Introduction

Q. Would you please state your name and address?

A. Ben Johnson, 2252 Killearn Center Boulevard, Tallahassee, Florida 32309.

Q. Does your testimony include any Exhibits?

A. Yes. Exhibit BFJ-1 is an Appendix that describes my qualifications in regulatory and utility economics. I have also attached Exhibit No. BFJ-2 which contains 7 maps. These maps were prepared under my supervision and are true and correct to the best of my knowledge.

Q. What is your purpose in making your appearance at this hearing?

A. I am testifying on behalf of the Citizens of the State of Florida. My testimony will rebut certain portions of the testimony filed on behalf of BellSouth Telecommunications, Inc. (BellSouth), Sprint-Florida/Sprint Communications LP (Sprint), and Verizon Florida Inc. (Verizon). More specifically, my testimony rebuts the testimony of BellSouth witness Pleatsikas. It is also offered in rebuttal of BellSouth witnesses Aron and Tipton, since they rely on Mr. Pleatsikas's market definition. Similarly, my testimony rebuts the testimony of Verizon witness Fulp and Sprint witness Staihr, particularly with regard to market definitions. My testimony also effectively rebuts portions of the testimony of other parties, to the extent these parties have also proposed,

or accepted, flawed market definitions.

In general, my testimony is focused on the appropriate definition of the "market" for purposes of evaluating the extent to which competitors would be "impaired" in attempting to serve mass market customers if unbundled switching were no longer available from incumbent carriers.

Q. Would you please describe how your testimony is organized?

A. Yes. I agree with the position taken by BellSouth in its direct testimony regarding the proper sequencing of analyses in this proceeding:

> A state commission must first define the appropriate geographic market to which it will apply the impairment analysis outlined in the TRO. Next, state commissions must determine the definition for the class of customers that the FCC identified as "mass market." ... Once appropriate definitions of the relevant geographic areas and "mass market" customers are determined, the FCC requires state commissions to apply two "triggers" tests to see whether CLECs are impaired with respect to serving mass market customers in each defined geographic market. [Ruscilli Direct, December 4, 2003, p. 4]

Consequently, I attempt to follow this sequencing in this rebuttal testimony. In the first section, I briefly sketch the background of this investigation, focusing on the Commission's activities and certain portions of the Triennial Review Order (TRO) issued by the Federal Communications Commission (FCC). In the second section, I critique the BellSouth, Sprint, and Verizon

proposals for defining the market, and briefly discuss some alternative approaches. In the third section, I consider evidence available to the Commission which will enable it to define the mass market more appropriately than has been proposed by the incumbent LECs. In the fourth section, I discuss a concern that was not adequately considered by the witnesses for BellSouth, Sprint and Verizon–the importance of recognizing distinctions between business and residential customers–distinctions that are crucially important in reaching an appropriate result in this proceeding. In the fifth section, I briefly set forth my reasons why I believe the Commission should reject the proposals of the incumbent LECs.

Q. Would you please briefly summarize the thrust of your testimony?

A. Yes. In general, I stress the importance of properly defining the market, and the risk of inadvertently reaching conclusions concerning impairment that are valid for mass market small business customers but are not valid for residential customers. All of the geographic market definitions proposed in the direct testimony of BellSouth, Verizon and Sprint–including MSAs, CEAs and UNE rate zones–are too broad. Among other problems, these proposals greatly increase the risk of inadvertently reaching a conclusion of non-impairment that is only valid with respect to a portion of a geographic area–a conclusion that is <u>not</u> valid for other portions of that area. The Florida Public Service Commission (Commission) should take great care to ensure that the effect of its decisions in this proceeding is not to prevent competitive local exchange

carriers (CLECs) from serving residential customers. In other words, CLECs should be allowed to continue using switching UNEs to serve residential customers wherever it is not economically feasible for them to serve these customers using their own switch.

Second, considering differences in revenue and profit levels, residential and small business mass market customers should be studied separately, to the extent feasible. In its TRO, the FCC recognized the potential importance of demand differences (e.g., average revenue levels) and it asked state commissions to perform granular analyses. If the Commission follows the approach advocated by BellSouth, Verizon and Sprint, and ignores important differences between residential and small business mass market customers, it may develop an impairment analysis that is not sufficiently granular in nature, or that reaches conclusions that are only valid for small business customers (or only some small business customers)–conclusions that are <u>not</u> valid for most residential and very small business customers.

Background

Q. Could you begin your background discussion by explaining how the FCC defines the mass market?

A. Yes. The FCC defines the mass market as follows:

> The mass market for local services consists primarily of consumers of analog "plain old telephone service" or "POTS" that purchase only a limited number of POTS lines and can only economically be served via analog DS0 loops. [TRO, ¶ 459]

Q. What has the FCC found regarding mass market switching specifically?

A. In the TRO, the FCC found that, on a national basis, "competing carriers are impaired without access to unbundled local circuit switching for mass market customers." [Id.] The FCC's conclusion was based upon its finding that "operational and economic factors associated with the current hot cut process used to transfer a loop from one carrier's switch to another's serve as barriers to competitive entry in the absence of unbundled switching...." [Id., ¶460] However, the FCC recognized that "a more granular analysis may reveal that a particular market is not subject to impairment in the absence of unbundled local circuit switching." [Id., ¶461] Accordingly, the FCC required state commissions to undertake a market-by-market examination, to determine whether carriers requesting the mass market switching UNE would be impaired if they were not given access to it in a given market. [Id., ¶ 461] The FCC established two "triggers" for commissions to apply in their impairment analysis.

> First, where a state determines that there are three or more carriers, unaffiliated with either the incumbent LEC or each other, that are serving mass market customers in a particular market using self-provisioned switches, the state must find "no impairment" in that market. [Id., ¶ 462]

> Second, a state must find no impairment when it determines that there are two or more competitive wholesale suppliers of unbundled local circuit switching, unaffiliated with the incumbent or each other. [Id., ¶ 463]

If either trigger is met, commissions must find impairment in that particular market. If neither trigger is met, the FCC has directed state commissions to

> proceed to the second step of the analysis, in which it must evaluate certain operational and economic criteria to determine whether conditions in the market are actually conducive to competitive entry, and whether carriers in that market actually are not impaired without access to unbundled local circuit switching. [Id., ¶ 494]

According to the FCC, "operational and economic criteria" include evidence of switch deployment that does not automatically satisfy the triggers, CLEC difficulties in obtaining collocation space and cross-connects, costs to CLECs associated with migrating incumbent local exchange carrier (ILEC) loops to their own switches, and revenue-cost comparisons associated with serving mass market customers.

Finally, the FCC has left to the states the task of defining the market for purposes of their granular impairment analyses.

Q. Has the FCC established some parameters for defining the relevant market?

A. Yes. State commissions have considerable discretion to determine the contours of the relevant

markets in their state. [TRO, ¶ 495] However, the FCC did place some limitations on that discretion. First, a state commission must use the same market definition for the "trigger" analysis and the economic impairment analysis. Second, a state commission may not define the market to encompass the entire state. Third, a commission should not define the market so narrowly "that a competitor serving that market alone would not be able to take advantage of available scale and scope economies from serving a wider market." Finally, the Commission "should attempt to distinguish among markets where different findings of impairment are likely." [Id.]

Q. Has the FCC given state commissions any further guidance?

A. Yes. When defining the market, the Commission must consider the following:

- The locations of customers actually being served (if any) by competitors
- The variation in factors affecting competitors' ability to serve each group of customers
- Competitors' ability to target and serve specific markets economically and efficiently using currently available technologies
- How competitors' ability to use self-provisioned switches or switches provided by a third-party wholesaler to serve various groups of customers varies geographically. [Id.]

The FCC gave some specific examples of additional factors that can be considered in defining the relevant market:

- How UNE loop rates vary across the state
- How retail rates vary geographically

- How the number of high-revenue customers varies geographically
- How the cost of serving customers varies according to the size of the wire center and the location of the wire center
- Variations in the capabilities of wire centers to provide adequate collocation space and handle large numbers of hot cuts. [Id., ¶ 496]

Finally, the FCC recognized that state commissions may have previously established geographic markets for other purposes, such as retail ratemaking, the establishment of UNE loop rate zones, and the development of intrastate universal service mechanisms. [Id.] A state commission's previous use of density zones or other geographic areas for purposes of setting UNE loop rates is an example of a previously established geographic market definition that could be relevant in the impairment analysis process. A state commission may use these existing geographic areas to define the market if, after considering the above factors, it determines they would be appropriate. [Id.]

Q. How has the Commission responded to the FCC's directives?

A. The Commission opened this docket on August 22, 2003 to implement the FCC's recently issued TRO. The Commission also opened a docket devoted to the examination of loop and transport impairment issues. This docket is devoted to the examination of mass market switching issues.

In the immediate docket, on September 17, the Commission issued notice that it would hold an issue identification conference on October 6. The Commission ordered parties to file a

list of potential issues by September 29. On September 22, the Commission issued its first procedural schedule which set filing dates and set guidelines for serving discovery, submitting testimony, and all hearing-related activities. On October 23, 2003, a second issue identification conference was held, affording parties the opportunity to put forth, discuss, and consolidate issues that they felt were integral to the proceeding. An issues list was confirmed and a new procedural schedule set by the Commission in its November 7 order. In response to an AT&T motion to alter the procedural schedule a second time, the Commission approved the requested changes on December 23. Aside from the filing of direct testimony on December 4, 2003, virtually all other case activity has involved discovery.

Market Definition

Q. Do you agree with the market definitions proposed by other parties in this proceeding?

A. No. I disagree with the market definitions proposed most of the parties in their direct testimonies. For the sake of brevity, my testimony will focus on flaws in the approaches used by the major incumbent LECs (ILECs)–BellSouth, Sprint, and Verizon. To the extent other parties have also used a very broad approach to defining the relevant market, my criticisms also relate to their testimony.

Sprint proposes to declare entire metropolitan statistical areas (MSAs) as the relevant

geographic markets for use in this proceeding. Verizon uses MSAs to divide UNE rate zones while BellSouth uses Component Economic Areas (CEAs) to divide UNE rate zones; the CEAs are generally larger geographic areas than MSAs. All of these proposals are overly broad.

BellSouth contends that "the FCC's self-provisioning trigger is met in 13 of the 31 market areas." [Tipton Direct, December 4, 2003, p. 7] Also, "applying the 'potential deployment' methodology to the remaining 18 markets leads to the conclusion that CLECs are not impaired without access to BellSouth's unbundled switching in an additional 10 of those markets." [Aron Direct, December 4, 2003, p. 6] In sum, out of the 31 broad geographic markets that BellSouth defines, it contends that CLEC impairment would not exist in 23 of them if it were to no longer provide CLECs with unbundled switching. [Tipton Direct, December 4, 2003, p. 7] Verizon witness Fulp, in his direct testimony, presents a similar finding for the broad markets that it defines:

> As the data in Exhibits 2 and 3 show, Verizon meets the mass market switching trigger in the Density Zone 1 and 2 areas of the Tampa-St. Petersburg-Clearwater MSA. There are a total of eight unaffiliated CLECs currently serving mass market customers with their own switches in this area. Therefore, the Commission must find no impairment in this market in Florida. [Fulp Direct, December 4, 2003, p. 24]

Sprint, another large incumbent local exchange carrier (ILEC), seems to have reached

essentially the opposite conclusion, stating that it would not challenge the FCC's national finding that impairment exists throughout all of its markets.

Q. On what grounds do you disagree with these proposals?

A. All of the geographic market definitions proposed in the direct testimony of BellSouth Verizon and Sprint–including MSAs, CEAs and UNE rate zones–are too broad. Among other problems, these proposals greatly increase the risk of inadvertently reaching a conclusion of non-impairment that is only valid with respect to a portion of the overall geographic area–a conclusion that is not valid for other portions of that broadly defined area.

Q. How can the Commission overcome this deficiency?

A. By rejecting market definitions that utilize large geographic areas and, instead, define the relevant markets on the basis of a single wire center or small group of wire centers, thereby ensuring that each carefully defined market has reasonably homogeneous characteristics.

Q. Are you aware of any established guidelines that would support your proposed solution?

A. Yes. The Commission is venturing into largely uncharted territory, but telecommunications markets have previously been defined by regulators for other purposes (e.g., reviewing requests

for mergers, reviewing requests for extended calling areas). Of course, until recently no one has needed to define geographic markets in a manner that is specifically relevant to a finding with respect to impairment.

In the absence of a well established body of economic literature or regulatory law concerning the most appropriate method and criteria for defining the relevant market for impairment purposes, it can be useful to look at what has been learned by economists and regulators looking at similar issues under different circumstances. Of course, the conclusions we draw from this sort of comparison must be adjusted to fit the impairment issues being analyzed in this proceeding.

The Department of Justice (DOJ) and Federal Trade Commission's (FTC) Horizontal Merger Guidelines outline two types of markets–a product market and a geographic market. I believe that some of the principles set forth in these Guidelines can be appropriately applied to this proceeding. In defining both geographic and product markets, the DOJ/FTC recommend utilizing what they call the "smallest market" principle. They first define this principle in the context of a geographic market as follows:

> In defining the geographic market or markets affected by a merger, the Agency will begin with the location of each merging firm (or each plant of a multiplant firm) and ask what would happen if a hypothetical monopolist of the relevant product at that point imposed at least a "small but significant and nontransitory" increase in price, but the terms of sale at all other locations remained constant. If, in response to the price increase, the reduction in sales of the product at that

> location would be large enough that a hypothetical monopolist producing or selling the relevant product at the merging firm's location would not find it profitable to impose such an increase in price, then the Agency will add the location from which production is the next-best substitute for production at the merging firm's location. [Id.]

It is further explained in the context of a product market.

> The product market methodology ... is a conceptual process by which products are added to a group of products just until a hypothetical (unregulated) monopolist could profitably impose a small but significant, non-transitory increase in price. [Id.]

In the case of both types of markets, the DOJ/FTC methodology entails starting with a small area or group of products and adding area or products to that small set until a benchmark is reached. This "start small and build up" principle (as I refer to it) is of crucial importance to the process of defining a market in this proceeding.

Q. Has the FCC voiced any opinions as to the applicability of the DOJ/FTC Horizontal Merger Guidelines (HMGs) in this context?

A. Yes. The following is an excerpt from the TRO.

> Although we recognize a substantial amount of commonality between the HMG's framework for assessing ease of entry and our analysis of entry barriers above, we do not adopt the standards and framework of

> the HMG for evaluating committed entry. First, in contrast to the HMG, we are not considering whether new competitors will enter the market in response to a "small but significant and nontransitory" price rise, nor do we assume that incumbent LECs will be ceding a portion of the market to competitors due to this price rise. [TRO, ¶ 111]

The TRO continues with a description of some other ways in which the DOJ/FTC Merger Guidelines are not directly applicable here.

Q. Does the FCC's position in this regard preclude the Commission from utilizing the "smallest market" principle in this proceeding?

A. No. I am not suggesting that the DOJ/FTC Merger Guidelines can or should be applied on a direct, step by step basis, as some parties apparently argued to the FCC. Instead, I am suggesting that the Commission can rely upon these guidelines to extract some basic principles that can be appropriately applied to the Commission's impairment investigation.

While the FCC found that the Merger Guidelines could not be applied letter-for-letter, it did recognize how well established economic reasoning, like the DOJ/FTC Guidelines, can be utilized in a proceeding, such as this one, that considers slightly different issues. In fact, the FCC gained some insights from these guidelines in conducting its nationwide impairment investigation.

> Other doctrines and theories, such as the Horizontal Merger Guidelines (HMG) used in antitrust and the economic theories developed in the barriers to entry literature, were proffered by commenters as providing

> models for such a standard. While we discuss later why we do not adopt any single one of these doctrines or theories in toto as our standard, we find that the lessons learned from these legal doctrines and economic theories help us develop an impairment standard, and will also help us in our attempt to apply this standard in our analysis of specific network elements. [Id., ¶ 73. Emphasis added]

While the FCC has not required use of the "smallest market" principle, neither has it precluded use of this principle. In my opinion, the Commission would be well advised to use this approach in defining the appropriate market and in studying the degree of impairment that exists in providing switching services to mass market customers.

Q. Do BellSouth, Sprint, or Verizon correctly apply the "smallest market" approach as recommended by the DOJ/FTC in their assessment of the relevant market?

A. No. In their direct testimonies, these ILECs essentially ignore the lessons that can be learned from this well established body of knowledge. In fact, rather than following a "smallest market" approach, the ILECs take the opposite tack, starting with extremely large areas (e.g. entire UNE rate zones) then dropping down. The resulting geographic market proposals are all very large. Although, Verizon and BellSouth are to be commended for at least considering the geographic differences that are reflected in the existing UNE rate zones, none of these parties followed a "start small and build up" approach. They started with UNE rate zones, then subdivided these with respect to MSAs (Verizon) or CEAs (BellSouth) (or vice versa–the

process and results are essentially the same regardless of which division is applied first). The final result are proposals for some very large geographic market areas.

Q. Are there disadvantages to using large geographic areas as markets?

A. Yes. If the state is divided into just a handful of broad markets, each containing widely varying market conditions, the Commission will encounter grave difficulties in performing the sort of granular analysis sought by the FCC in the TRO, and it runs a greater risk of inadvertently reaching conclusions concerning impairment that are valid for some customers but not valid for other customers.

MSAs, defined by the Office of Management and Budget, are no better a market definition than the entire state, which the FCC has specifically prohibited. [TRO, ¶ 495] There are currently 19 MSAs in Florida. These cover large portions of the state, encompassing widely varying conditions. The MSAs do not cover the entire state, because many small towns and rural areas are excluded (e.g., the Everglades). However, MSAs are not limited to urban areas; they also include many smaller cities and towns, as well as some rural areas. In my view, the MSAs are not sufficiently homogenous to offer an acceptable option. MSAs lump together customers with fundamentally dissimilar choices.

BellSouth and Verizon proposals to use UNE rate zone as "markets" are similarly flawed. Since these zones tend to separate the most urban wire centers from most rural wire

centers, the UNE rate zones are a step in the right direction. However, combining large geographic areas like MSAs and CEAs with the UNE rates zones still results in markets that are quite heterogenous. BellSouth's CEA proposal is a good example. Fort Pierce-Port St. Lucie, FL is one of the 21 Florida CEAs. This is a vast geographic area. BellSouth uses its boundaries to separate the UNE zones contained therein from UNE rate zones in neighboring CEAs (e.g., West Palm Beach-Boca Raton, FL) because the zones can be "so geographically distant that the costs of transport could impact the ability to consider these two distant locations to be a single market." [Pleatsikas Direct, December 4, 2003, p. 6] While transport concerns are alleviated by this proposal, it isn't sufficient to alleviate the problem of heterogeneity. CEAs (like MSAs) are a mix of both urban and rural areas and, consequently, a UNE rate zone that encompasses Fort Pierce may have widely differing geographic and demographic characteristics than a UNE rate zone that includes Port St. Lucie, which is in the same CEA. The Federal Reserve Bank of Kansas City spoke to the heterogeneity of CEAs in a recent study.

> The 348 CEAs form an excellent basis for analyzing the rural economy because each one has a central node and a surrounding area. There are a few difficulties, however. ... For instance, 59 of the Commerce Department economic areas are in places such as the Washington-Boston corridor that lack rural counties. In addition, there are 47 economic areas in places like the Great Plains that lack an urban center. For the purposes of this article, therefore, both groups have been excluded. The remaining 242 economic areas are shown in Figure

1. [*A New Micro View of the U.S. Rural Economy*, Mark Henry and Mark Drabenstott, p. 2]

To be clear, this means that almost 70% of CEAs nationwide include a mixture of urban and rural areas. While considering only a single UNE rate zone within each CEA provides a good step toward granularity, it isn't necessarily sufficient. The risk remains that vast geographic areas will be treated as a single market, leading to conclusions concerning impairment that are valid for some customers (e.g., residents living in upscale high rise condominiums along the coast, and small businesses in downtown business districts) that are not valid for other customers within the same CEA/UNE rate zone (e.g., customers located in lower density, lower income suburbs).

Q. Witnesses for Sprint, Verizon and BellSouth argue that their market definitions meet the TRO's market definition guidelines. Do you agree with these assessments?

A. No. Recall from the previous section that the FCC directed state commissions to "attempt to distinguish among markets where different findings of impairment are likely." [TRO, ¶ 495] Large geographic areas like those proposed by the ILECs in this proceeding are not sufficient to distinguish among markets where different findings of impairment are likely. For instance, if areas with numerous enterprise customers are segregated from an area with very few enterprise customers, the Commission might conclude that impairment exists in the latter area but not in

the former one (because CLECs serving enterprise customers may find it is feasible to also serve smaller customers). While the UNE rate zones are useful in this regard, since they were established in part to account for the urban/rural distinction, these are not sufficiently granular, and can still vary widely over large areas like MSAs or CEAs.

A better approach is one that is more closely analogous to the method set forth in the DOJ/FTC Merger Guidelines. Markets should not be defined by focusing on media markets or vast statistical areas, but rather by "starting small and building up." In this way the Commission can better ensure that customers facing fundamentally different competitive choices are analyzed separately. For instance, this approach reduces the risk of concluding that impairment doesn't exist within an MSA, based upon conditions in areas where per-customer revenues are high, then being forced to apply this same conclusion to portions of the market where per-customer revenues are low, despite the fact that impairment does exist in the latter portions of the MSA.

Because the TRO seems to contemplate a "one size fits all" conclusion of impairment, or non-impairment, for an entire market, a broad market definition increases the risk of reaching a conclusion with regard to the presence or absence of impairment that is only valid for a portion of the market in question.

The "start small and build up" approach better serves a host of other TRO guidelines as well. For instance, by starting at the wire center level, one can more easily determine "the locations of customers actually being served (if any) by competitors." [TRO, ¶ 495] If one were

to begin such an effort at the MSA or CEA level, it would prove far more daunting for the Commission.

Starting with wire centers leaves the Commission with plenty of opportunity to "build up" to a larger market areas, if an individual wire center is too small to meet other TRO guidelines like CLEC "scale and scope economies." Although ILEC witnesses have used this guideline to argue against the use of wire centers as markets in this proceeding, I am unaware of any study conducted by these ILECs which proves that CLECs cannot achieve "scale and scope economies" in individual wire centers, or small groups thereof (which is my proposal in this proceeding). At least from an economist's perspective, scale and scope economies are not looked at in isolation, based upon a single market, unless that market is completely unrelated to any other markets. To the contrary, it is well understood that economies of scale and scope can often be best achieved by serving multiple markets. Thus, for example, airlines achieve greater economies of scale and scope by serving the package shipping market, the leisure travel market, and the business travel market. Similarly, economies of scale and scope may be enhanced by serving both the Boston-to-Miami market, the Miami-to-Atlanta market, and the Atlanta-to-Boston market. While these are all separate markets, airplanes can serve multiple markets, and thus while an analysis of economies of scale and scope is relevant to the appropriate definition of the geographic market, the TRO requirement that such an analysis be performed does not suggest that a market must be large enough to exhaust all potential

economies of scale and scope without regard to the physical proximity of other markets, or the potential for achieving economies of scale and scope across multiple markets.

Q. Another argument that Sprint, Verizon and BellSouth have put forward in support of their proposals is that they better simulate the "markets" that CLECs typically enter. Do you agree with this position?

A. No. By this logic, if it could be shown that CLECs make their initial entry decisions on the basis of broad multi-state regions, it would be plausible to define the "Southeastern United States" as a single market–e.g. the overall "market" in which BellSouth operates. Needless to say, the entire Southeast may constitute a relevant telecommunications market for some purposes, but it is not relevant for purposes of this proceeding. The reason is that *initial* CLEC entry decisions are not the end of the line when it comes to CLEC entry. Entry actually entails a series of decisions that a CLEC will make over time regarding operating regions, geographic markets, entry method (e.g., resale, UNE-P, UNE-L), switch installation, targeted customers, and others.

Q. Can you explain why entry occurs as the result of a series of decisions?

A. Yes. The correct way to view the entry process is that it is a series of decisions. From a business planning standpoint, this process includes how to enter, which products to offer,

whether to use their own switch or to rely on resale and the like. For example, a CLEC quite realistically might decide to install a switch in Orlando, with the thought that the same switch could potentially serve markets like Ocala, Jacksonville, Titusville, Melbourne, and perhaps even Tampa. Similarly, the CLEC may have some specific customers in mind when it installs the switch, and thus it may immediately start marketing and selling to these particular customers in the Orlando area. Once it has hooked up these customers, it may look for other growth opportunities. Since its switch is already in place, it might examine whether it would be profitable to broaden its marketing effort and attempt to serve other customers in the Orlando area, or whether it should expand to other parts of the state.

At some point in the expansion/entry process, the CLEC will need to analyze individual wire centers, looking at the cost of collocation, the cost of connecting to customers in that wire center and other factors, in order to determine if it can profitably serve that wire center with its switch. This process may start with consideration of specific wire centers in the Orlando area, but it may also involve analysis of wire centers in Titusville, Lakeland, Melbourne, Jacksonville, etc.

Each step of the way, the CLEC needs to consider the fixed and variable costs of the entry decision in question, taking into account the fixed cost of collocation and the other investments involved in that entry option. The CLEC will not likely take the next step unless it has a reasonable expectation of recovering its fixed costs over the life cycle of the investment in

question. The CLEC might incur collocation costs, costs for various pieces of equipment to be installed in the collocation area, and additional costs required to serve both DS1 and DS0 customers. Thus, the decision to serve DS1 customers using the CLEC's own switch does not automatically entail a decision to serve DS0 customers in that wire center. That is a different entry decision–one that is separate from the decision to serve DS1 customers. Once the CLEC has made the investments needed to serve DS1 customers, it may eventually find it is feasible to also consider serving at least some DS0 customers. As a result, CLEC entry is not an all-or-nothing decision that occurs exclusively at the MSA or CEA level. Rather, it is a sequential process that evolves and changes over time, with many of the key entry decisions occurring at the wire center level or at an even more granular level.

In order to answer the most important question in this proceeding, that being whether or not Florida CLECs would be impaired if they did not have access to switching UNEs, the Commission must look at the factors that influence CLEC decisions concerning the installation and use of their own switching equipment–and this requires consideration of the demographic, engineering and economic characteristics of individual wire centers.

In fact, some of the factors involved in a CLEC's decision to enter an MSA or CEA may be completely irrelevant in this context, because initial entry may occur using a mixture of pure resale, UNE-P and UNE-L. Similarly, the contours of existing media markets are not especially important, since these contours tell us little about the cost of serving mass market

customers with a CLEC switch. Even if a CLEC makes its initial entry decision on the basis of broad media markets, MSAs or CEAs, this tells us nothing about whether that CLEC will use its own switch, rely on pure resale, rely on UNE-P, or rely on a combination of different methods. A CLEC might install a switch to serve enterprise customers, while planning to serve smaller customers using pure resale or UNE-P. However, once the switch has been installed, its plans may evolve, and eventually it may use the switch to serve additional types of customers in some wire centers.

A CLEC may find it feasible to serve mass market customers in one wire center, and only find it possible to serve enterprise customers in an adjacent wire center, due to differences in the mix of customers (e.g., high and low revenue customers), physical constraints, or other reasons. The mere fact that a CLEC switch exists in an MSA or UNE rate zone, or the mere fact that a switch is used to serve some mass market customers within a particular MSA or UNE rate zone, tells us very little about the ability of that CLEC, or other CLECs, to serve customers in other wire centers using that switch–regardless of whether or not these wire centers happen to be in the same MSA or UNE rate zone.

Consequently, to fully explore the issues in this proceeding, it is preferable for the Commission to examine the characteristics of individual wire centers – those factors which would cause or prevent a CLEC from serving that area "economically and efficiently using currently available technologies." [TRO, ¶ 495] This is a more ambitious process than simply

focusing on initial CLEC entry patterns, marketing efforts, or locations of existing switches, but it is a necessary one if the Commission hopes to credibly define the relevant market.

Q. Can you expand upon your concerns with respect to using large geographic areas like MSAs for purposes of defining markets in this proceeding?

A. Yes. Many MSAs cover large geographic areas that encompass a wide range of heterogeneous conditions. According to the Office of Management and Budget ("OMB"):

> The general concept of a Metropolitan Statistical Area or a Micropolitan Statistical Area is that of an area containing a recognized population nucleus and adjacent communities that have a degree of integration with that nucleus. [Federal Register, Vol. 65, No. 249, Wednesday, December 27, 2000]

While an MSA involves a "high degree of integration" that doesn't imply a high degree of homogeneity. To the contrary, an MSA can encompass vastly different neighborhoods, and can include multiple towns, cities and counties with widely varying economic and demographic conditions. Because an MSA includes "a recognized population nucleus", it will invariably include a substantial urban component. Since most urban areas include a suburban fringe of bedroom communities, a typical MSA includes a mixture of both urban and suburban markets. Furthermore, in a state like Florida, which includes many rural areas, an MSA may include miles of lightly populated rural areas beyond the suburbs.

Q. Has the OMB recognized the heterogeneity of MSAs?

A. Yes. The OMB explains:

> The Metropolitan and Micropolitan Statistical Area Standards do not equate to an urban-rural classification; all counties included in Metropolitan and Micropolitan Areas and many other counties contain both urban and rural territory and populations. [Id.]

Collectively, the OMB refers to Metropolitan and Micropolitan Statistical Areas as Core Based Statistical Areas (CBSAs). CBSAs are used to "provide nationally consistent definitions for collecting, tabulating, and publishing federal statistics for a set of geographic areas". [OMB Press Release 2003-18, June 6, 2003]. The OMB cautions against using CBSAs for anything other than their intended purpose:

> In periodically reviewing and revising the definitions of these areas, OMB does not take into account or attempt to anticipate any non-statistical uses that may be made of the definitions, nor will OMB modify the definitions to meet the requirements of any non-statistical program. Thus, OMB cautions that agencies should not use the Metropolitan Statistical Area and Micropolitan Statistical Area definitions to develop and implement Federal, State, and local non-statistical programs and policies without full consideration of the effects of using these definitions for such purposes. [Id.]

The OMB further states:

> Program designs that treat all parts of a CBSA as if they were as urban as the densely settled core ignore the rural conditions that may exist in some parts of the area. [Federal Register, Vol. 65, No. 249, Wednesday, December 27, 2000]

Q. What is the danger of ignoring the distinction between the rural and urban components of an MSA?

A. There can be extreme differences in operating and engineering characteristics between wire centers within the downtown urban core and wire centers toward the far edges of the MSA. In turn, these differences translate into substantial differences in the cost of using a CLEC switch to serve mass market customers in different wire centers within a single MSA. For example, different UNE loop rates may apply to urban and rural wire centers within an MSA. For this and other reasons there may be substantial differences in the effective cost per line of serving customers using a CLEC switch (e.g., due to differences in available economies of scale with respect to inter-office transport facilities and collocation facilities).

Similarly, the mix of high revenue customers and low revenue customers may differ throughout an MSA. Hence, CLECs may confront entirely different conditions in considering the potential for using their own switch to serve mass market customers in different parts of an MSA. By overlaying UNE rate zones with MSAs or CEAs, Verizon and Bellsouth have mitigated some of this heterogeneity, but they have not eliminated the problem. Instead, it would be preferable to define the relevant markets on the basis of individual wire centers, or small

clusters of wire centers having homogeneous characteristics.

Q. Have you prepared any evidence which validates this concern?

A. Yes. I have prepared some maps of the State of Florida, the Tampa-St. Petersburg-Clearwater MSA, and the combined Miami and Fort Lauderdale Component Economic Areas (CEA). The latter maps coincide with an example of a BellSouth recommended geographic market area in South Florida.

Q. Can you describe these maps in more detail?

A. Yes. Exhibit No. BFJ-2, page 1 shows the 19 Florida MSAs. This map reflects the current MSA boundaries as published by the U.S. Census Bureau.

For reference and orientation, Exhibit BFJ-2, page 2 shows these 19 MSAs in context, with the city limits and U.S. highways and interstates. One can easily see that all of the major population centers in the state are centered within an MSA, but the MSAs are not limited to urban areas. The MSAs are large geographic areas that encompass numerous small towns and rural areas, as well as suburban areas.

Q. Now let's turn to your map of the Tampa MSA. What do you show on this map?

A. Exhibit No. BFJ-2, page 3 shows the location of the ILEC switches (dots), and the

approximate location of ILEC wire center boundaries within the Tampa MSA. There are 55 wire centers in the Tampa MSA, including 49 served by Verizon, 3 by Bell South, and 3 by Sprint. This map visually distinguishes wire centers on the basis of approximate line density. As this map demonstrates, the MSA is quite heterogeneous. Comparing the CLEC switch data presented in Verizon Witness Fulp's Exhibit No. ODF-1 with the data in this map, it is clear that the CLECs have only penetrated portions of the MSA–primarily some of the denser, more urbanized areas.

Q. Now let's turn to your maps of the combined Miami Ft. Lauderdale CEAs. What do you show on these maps?

A. Exhibit No. BFJ-2, page 4 is very similar to the map just discussed. This map shows the location of the ILEC switches (dots), and the ILEC wire center boundaries within the 3 counties comprising these CEAs (Dade, Broward, and Monroe). Of the 57 wire centers in this 3 county area, 56 are served by Bell South, and 1 by Sprint. This map distinguishes wire centers on the basis of density (access lines per square mile). Exhibit No. BFJ-2, page 5 shows the same wire centers distinguished on the basis of UNE rate zone.

The actual area served in the western portions of Dade and Broward county is less than the areas shown, because much of the western portion of these counties are uninhabited parts of the Everglades. In the maps to follow we have estimated the actual area being served by

the ILEC switches using a Bell South Exhibit (Pleatsikas' Exhibit No. CJP-2) and publically available wire center area data from the FCC's Hybrid Cost Proxy Model (HCPM).

Q. Have you been able to analyze CLEC activity in detail?

A. No. According to Bell South, "CLECs have deployed more than 100 switches in Florida, at least 30 of which are serving over 100,000 'mass market' customers." [Tipton Direct (revised), December 30, 2003, p. 3].

A close inspection of Bell South witness Tipton Exhibit No. PAT-1 (which purports to list the CLEC switches deployed in Florida) reveals that there are many entries with the exact same CLLI (Common Language Location Identifier) code. While it is possible to have multiple switches at the same location, they are normally assigned different CLLI codes to distinguish the different types of equipment.

The source of the data included in Exhibit No. PAT-1 is the Local Exchange Routing Guide (LERG) database, but it is unclear how the database was queried, or why there are so many seemingly duplicate entries with the same CLLI codes. Moreover, the CLEC switch data from the Bell South Exhibit apparently includes all CLEC switches regardless of their type (e.g., voice, data) or the customers they are serving (e.g., mass market, enterprise). Ideally Bell South would have identified only CLEC voice grade switches that it has reason to believe are serving significant numbers of mass market customers. At the time this testimony was written I

did not have access to detailed data concerning CLEC switches. Without access to the underlying CLEC switch data, I was not able to analyze this issue in detail, and thus I am unable to confirm or refute the BellSouth allegations with respect to CLEC switches.

However, Exhibit No. PAT-1 included street address locations of CLEC switches deployed in Florida. Using this Exhibit we were able to digitize 28 of the 31 non-duplicate CLEC switch addresses in Dade and Broward counties. These data have been superimposed upon the ILEC switches and wire centers in my Exhibit No. BFJ-2, pages 6 and 7.

Q. Can you please describe these next two maps?

A. Yes. Exhibit No. BFJ-2, page 6 shows the 17 CLEC switches in Bell South's UNE Rate Zone 1. Exhibit No. BFJ-2, page 7 shows the 11 CLEC switches in Bell South's UNE Rate Zone 2. These maps do not show where the CLECs are serving customers, nor do these switches necessarily serve any mass market customers. Nevertheless, they do provide some useful information concerning where the CLEC switches are located. It is apparent that the CLECs have generally chosen to locate their switches in the more urbanized portions of the CEAs. It appears likely that many of these switch locations were chosen for their proximity to enterprise customers.

Q. Do you agree with the ILEC proposals for defining geographic markets?

A. No. Defining broad geographic markets may appear to simplify the issues, but it will actually make the Commission's decision making process much more difficult, and it could lead to results that are inappropriate, illogical, or misleading. If the Commission uses a top-down approach (e.g. defining the market to include entire MSAs or rate zones within MSAs), it increases the risk that it will not be able to resolve important differences in the degree of impairment within that large area.

For instance, the data may reveal that CLEC entry has been disproportionately concentrated in certain portions of the MSA or CEA (e.g. where enterprise customers are located). There is no basis for assuming that entry patterns that have occurred in a downtown area or business district can easily be replicated in a suburban or rural area. This is particularly true if differences between business and residential customers are ignored. Market conditions in the downtown area (e.g., number of enterprise customers) may be atypical, and thus entry may not easily be replicated in the residential market, or in other parts of the overall MSA.

The pattern of entry revealed in the data may suggest that some CLECs have entered the market and have installed switching facilities primarily to serve enterprise customers. Some parties may argue from this evidence that the entire large geographic market should be assumed to be competitive, and the presence or absence of enterprise customers is irrelevant. Other parties may argue on the same basis that the entire large geographic market should be assumed

to be impaired, since none of the CLECs are serving mass market customers throughout the entire large geographic area. Neither argument would be completely persuasive, or responsive to the FCC's request for a granular analysis.

Mass Market/Enterprise Market Breakpoint

Q. Do you agree with the "mass market customer" definitions proposed by other parties in this proceeding?

A. Not necessarily; while they correctly state some aspects of this issue, they do not adequately consider all of the important factors that the Commission should consider. For instance, Sprint defines a mass market customer as one who purchases less than 13 DS0 loops.

> Exhibit KWD-1, attached to my testimony, calculates the average economic crossover a competitive local exchange carrier (CLEC) would experience in serving the [*sic*] an analog customer in the territories of the three largest incumbent local exchange carriers (ILEC) within the state of Florida based on the number of analog voice lines used by the customer. ... The model results indicate that up to 12 DS-0s at a customer's location purchasing individual loops is more cost effective than purchasing single DS-1. [Dickerson Direct, December 4, 2003]

Similarly, Mr. Gillan, a witness for Florida Competitive Carriers Association (FCCA) in this proceeding, advises the Commission to not set the "cut-over" (or dividing line) between mass

market and enterprise customers too low.

> By failing to consider these factors, the DS0/DS1 cut-over required by the FCC will strand some customers from competitive choice because they will not *really* be in a position to take advantage of a DS-1 connection, they will only be *presumed* able to do so. Consequently, the Commission should be especially careful that it not adopt a cut-over that is unreasonably low, because even a "theoretically correct" cut-over is likely to adversely effect some customers. [Gillan Direct, December 4, 2003, p. 27]

While I understand the reasoning that underlies this portion of their testimony, I am concerned that they are taking too narrow a view of the issue, and the approach they are advocating could exacerbate the problem of accurately distinguishing between markets (or sub-markets) that CLECs are able to serve using their own switching equipment, and markets (or sub-markets) where impairment exists. Setting a high "cut-over" may exacerbate the already considerable risk that the impact of this proceeding will be to reduce competitive options for residential and small business customers.

Q. Would you please describe how the "cut-over" relates to the process of defining a mass market customer?

A. Yes. In the TRO, the FCC found that, on a nationwide basis, CLECs serving "mass market" customers are presumed to be impaired, unless individual state commissions determine

otherwise. The FCC concluded that impairment differed for large and small customers, leading it to establish a distinction between what it referred to as the "enterprise" and "mass" markets. The FCC apparently saw the tradeoff between DS1 and DS0 service as the primary consideration in distinguishing these two market categories:

> The mass market for local services consists primarily of consumers of analog "plain old telephone service" or "POTS" that purchase only a limited number of POTS lines and can only economically be served via analog DS0 loops. [Id., ¶ 459]

On its face, this language seems to suggest the "cut-over" between the "enterprise" and "mass" markets would reflect the technical and economic factors that determine when it is feasible to serve customers using DS1 loops. An important factor that influences this "cut-over" is the number of lines used by the customer.

> Mass market customers are analog voice customers that purchase only a limited number of POTS lines, and can only be economically served via DS0 loops. ... At some point, customers taking a sufficient number of multiple DS0 loops could be served in a manner similar to that described above for enterprise customers–that is voice services provided over one or several DS1s. [Id., ¶ 497]

In its TRO, the FCC adopted a tentative cut-over of four lines, while delegating to the states responsibility for making a final determination on the appropriate cut-over:

> This cross over point may be the point where it makes economic sense for a multi-line customer to be served via a DS1 loop. We expect that in those areas where the switching carve-out was applicable (i.e., density zone 1 of the top 50 MSAs), the appropriate cutoff will be four lines absent significant evidence to the contrary. [Id.]

Q. Given this context, is there other support for the higher cut-overs that Sprint proposes and FCCA wants?

A. Yes. While the FCC adopted a cut-over of four lines, some of the FCC's language seems to suggest the possibility of a much higher cut-over. In the quote I cited above, the FCC states that "at some point" mass market customers could require a "sufficient" number of DS0 loops such that they take on the characteristics of an enterprise customer. Phrased in that manner, it sounds as if the cross over point isn't necessarily at four lines. A "sufficient" number could easily be more than four lines. In a supranote to that same portion of the TRO, the FCC states the following.

> ... Setting the cut-off at an unconditional four lines would result in more customers being treated as enterprise customers subject to our finding of no impairment. If, on the other hand, a state finds based on record evidence that a cut-off of more than four lines is appropriate, more multi-line customers will be treated as mass market customers. ... In such markets, then, it is more likely that there will be a finding of no impairment for the entire market, leading to significantly less unbundled switching than was available under the previous four-line carve-out. [Id., supranote 1546]

Q. Are there some potential risks if the Commission concludes that the appropriate cut-over is higher than four lines?

A. Yes. This will increase the number of customers that are classified as falling within the "mass market" and reduce the number of customers in the "enterprise" category. With a higher cut-over, the potential impact on residential consumers increases, because it increases the chances that the Commission will conclude that "no impairment" exists for CLECs serving at least some of the customers in the mass market (so defined). For instance, there may be instances in which CLECs are customers with 7 or more lines, but they are serving very few (if any) customers with fewer than four lines. With a cut-over of 12 lines, rather than four lines, the Commission may conclude that impairment doesn't exist for the "mass market," based on the observed competitive activity involving customers with 7 or more lines. However, the characteristics of these small business customers may be completely different than the characteristics of smaller business and residential customers.

As the FCC stated above, a higher cut-over tends to classify more customers as being in the "mass market." If the cut-over is increased from four lines to twelve lines, the mass market category will include not only residential and very small business customers, but it will also include somewhat larger small business customers–those that purchase as many as eleven lines. As the FCC suggested, under that scenario, "it is more likely that there will be a finding of no impairment for the entire market," and there will be "significantly less unbundled switching

than was available under the previous four-line carve-out." [TRO, supranote 1546] Unless some other steps are taken to distinguish between small business and residential customers, this could result in significantly less competition for residential customers because CLECs will no longer be able to use UNE switching to serve residential customers, nor will they necessarily be able to use their own switching facilities to do so.

Demand-Based Market Distinctions

Q. Do you have any additional concerns with the direct testimonies of other parties to this proceeding?

A. Yes, and it is a significant one. I am very concerned that no other party in this proceeding has recognized the importance of studying residential and small business customers separately. Once a geography-based market has been defined, and once mass market customers have been defined according to an appropriate cut-over, the Commission should consider another layer of granularity before reaching its final decisions in this proceeding–by considering important demand factors that tend to distinguish which customers can economically be served using a CLEC's own switch.

In its TRO, the FCC recognized the potential importance of demand differences (e.g., average revenue levels) when it asked state commissions to perform granular analyses. If the

Commission follows the approach advocated by other parties, and conducts an impairment analysis that is not sufficiently granular in nature, it risks reaching conclusions that are only valid for some portions of the mass market (e.g. higher revenue customers)–conclusions that are not valid for all portions of that market (e.g. lower revenue customers).

None of the ILEC witnesses adequately consider this type of granularity. While geography is important, it isn't the only factor that needs to be considered. Most obviously, residential and small business mass market customers have different demand characteristics, which may impact the degree to which impairment exists. Hence, data for these customers should be obtained and analyzed separately. Residential and small business mass market customers tend to purchase different products (or pay different rates for similar products), and this may influence the degree to which impairment exists. From an economic perspective, it is appropriate to recognize that residential and business customers purchase services in distinct product markets (or sub-markets). Residential and business mass market switched services can appropriately be placed in separate markets, since the underlying market conditions, including typical rate structures, rate levels and gross profit margins, are so different.

Q. Earlier, you indicated that the definition of the market that is relevant in a particular context may differ from the appropriate definition in another context. Could it be appropriate to group customers with fundamentally different demand characteristics into two separate markets or sub-markets?

A. Yes. In fact, it is common to distinguish between residential and business customers, or to speak of the "residential market" separately from the "business market," just as it is common to distinguish between a "retail market" and a "wholesale market" even where essentially the same products (e.g., automobiles) are being sold in each market.

In the current proceeding, a key issue is whether there are differences between the residential and business markets that might cause CLECs to face differing levels of impairment in considering the potential for using their own switching equipment to serve residential and business customers. While the extent and importance of these differences cannot be known at this early stage of the proceeding, it is readily apparent that the potential exists for various differences in these markets to prove significant, leading to different conclusions concerning the degree of impairment that exists depending upon whether the Commission is focusing on residential customers or business customers. If residential and business customers are lumped into a single market, evidence may be overlooked, or not obtained, which would cause the Commission to reach very different conclusions concerning the degree of impairment, depending upon whether it is focusing on residential or business market data. Just as it would be

inadvisable to lump Cleveland and Miami together when analyzing winter weather conditions, it would not be appropriate to lump residential and business customers together when analyzing impairment conditions in this proceeding.

From a CLEC's perspective, the opportunities and pitfalls in trying to profitably attract and serve residential customers may be entirely different than the corresponding opportunities and pitfalls involved in serving mass market business customers. The revenues generated by a typical customer are greatly different in the residential and business markets. The great majority of residential customers have only a single phone line, the remainder generally have just two. It is much more common for business customers to have three or more lines. As well, revenues tend to vary widely due to differences in rate levels, rate structures, and service quantities (e.g., number of toll minutes). Accordingly, the average revenue received from a typical small business customer is likely to be many times greater than the average revenue received from a typical residential customer. (The discrepancy is even greater when considering low income residential customers and others who don't purchase optional services like Call Waiting and Caller ID). Because of these fundamental differences, a CLEC may conclude that gross profit margins are larger in the business market and, therefore, conclude that it cannot afford the high collocation costs and other burdens of connecting residential customers to its own switch.

While per-customer revenue differences are probably the most important factor to consider, there may be other factors that influence the ability of CLECs to profitably service

residential and small business customers using their own switch. For example, a CLEC may conclude that business customers are more responsive to innovation and quality improvements. As a result, it may decide the added costs of connecting business customers to its own switch can be justified by the ability to market its offerings as providing higher quality or more technically advanced features than what BellSouth offers. In the residential market, in contrast, the CLEC may conclude this type of marketing pitch will not be persuasive, and thus it cannot profitably serve residential customers using its own switching equipment.

Given these many differences, a CLEC may find it is feasible to serve business customers using its own switch, while simultaneously finding it cannot profitably serve residential customers using that same piece of equipment. Stated differently, differences in the underlying market characteristics may justify placing residential and business customers in two separate markets or sub-markets.

Q. While the distinction between residential and business mass market switched services may be a valid one from an economic perspective, there may be some dispute about whether this is a legally viable distinction in this context. Can you provide any insight into this issue from your perspective as an economist?

A. Yes. It appears to me that the FCC has obligated state commissions to more precisely define the mass market within their state, but it did not clearly state what parameters can, or cannot,

be considered in defining the relevant market. The language in the TRO is focused primarily on geography, but the FCC has not explicitly prohibited consideration of other factors. In fact, at various points in the TRO the FCC mentions relevant customer characteristics like the average number of customer lines and average per line or per customer revenues.

Because this proceeding is essentially one of "first impression," which is being held simultaneously with similar proceedings throughout the country, the ambiguities in the TRO have not yet been clarified (e.g., by appellate court decisions). However, it seems clear that the FCC is requiring state commissions to make several interrelated decisions, and these decisions are supposed to be accomplished on a granular basis. The first of these decisions concerns the appropriate definition of a market. The primary thrust of this definition is clearly geographic, but the TRO does not appear to explicitly prohibit state commissions from adopting market definitions that consider both geography and product or demand characteristics (e.g., stratified by average revenue per customer, or stratified between residential and business customers) in this process. State commissions must then decide on an appropriate way to distinguish the mass market from the enterprise market. This process does not entail geographic characteristics, but rather, demographic ones.

Furthermore, the FCC seems to recognize, at least obliquely, that markets can also be stratified or defined with reference to customer characteristics. Consider for instance, this passage:

> As discussed above, the record does not contain sufficient detail concerning which geographic and **customer** markets may in fact allow economic entry. In addition, impairments that exist today in certain markets may be remedied in the future due to the implementation of a batch cut process, as discussed above. Because our standard and the guidance from the *USTA* decision require that the determination of impairment be made on a granular basis, and because the record provides insufficient evidence concerning the characteristics of particular markets, we find it appropriate to ask the states to assess impairment in the mass market on a market-by-market basis. [TRO pp. 493, emphasis added]

Q. Has the FCC recognized that customer characteristics may impact the presence or absence of impairment?

A. Yes. For instance, the FCC recognized that customer-specific factors can influence whether or not impairment exists:

> Mass market customers consist of residential customers and very small business customers. Mass market customers typically purchase ordinary switched voice service (Plain Old Telephone Service or POTS) and a few vertical features. Some customers also purchase additional lines and/or high speed data services. Although the cost of serving each customer is low relative to the other customer classes, the low levels of revenue that customers tend to generate create tight profit margins in serving them. The tight profit margins, and the price sensitivity of these customers, force service providers to keep per customer costs at a minimum. Profits in serving these customers are very sensitive to administrative, marketing, advertising, and customer care costs. These customers usually resist signing term contracts. [Id., ¶ 127]

In this passage, the FCC recognizes that profit margins in serving smaller customers are tighter than those available when serving larger customers, and this clearly has important implications in determining whether or not impairment exists. While the FCC didn't focus specifically on differences in average revenues per line or per customer, the overall thrust of this reasoning is consistent with an approach which draws such a distinction. As the revenue per customer declines, it becomes less and less feasible to profitably serve a customer using a CLECs own switch, because insufficient profit margins exist to overcome the fixed (per-customer) costs of providing service using the CLECs own facilities.

For this reason, one would anticipate that relatively few CLECs will serve residential customers using their own switches. Rather, CLECs that use their own switches primarily focus on serving larger customers–those generating much higher revenues per customer. As the FCC has recognized:

> ...although serving these customers is more costly than mass market customers, the facts that enterprise customers generate higher revenues, and are more sensitive to the quality of service, generally allow for higher profit margins." [Id., ¶ 128]

Unless these differences in customer characteristics and gross profit margins are adequately considered in defining the market, and there is a great risk of inadvertently reaching conclusions concerning impairment that are only valid for mass market small business

customers–conclusions that are not valid for residential customers, particularly those with low incomes or living on a fixed income.

Q. Do you have any recommendations with regard to the distinction between residential and business (or low and high revenue) customers?

A. Yes. To the extent it is legally permissible, it could be helpful to stratify each geographic market in order to analyze business and residential customer data separately. If this is done, the analysis of whether or not impairment exists could be performed separately with respect to business and residential customers. Thus, for example, even if there is reason to believe a "trigger" has been pulled (due to the presence of multiple CLECs) for the small business market or segment, this wouldn't automatically force the Commission to conclude that the "trigger" has also been pulled for the residential market or segment.

Another option would be to distinguish between the "enterprise" and "mass" market on the basis of revenue per customer, or on the basis of gross profit margin per customer (revenues minus direct costs), rather than purely on the basis of the number of DS0 lines. This could lead to more accurate and homogenous market classifications than a system based purely on the number of lines used by each customer (e.g. four DS0 or 12 DS0 lines).

For instance, rather than placing all customers with four or more lines in the "enterprise" market, the Commission might place all customers generating revenue of less than $100 per

month in the "mass" market. With a classification system of this type, the Commission may find it has greater flexibility in determining the most appropriate "break point" and thus it will have an enhanced ability to ensure that the defined markets are sufficiently homogenous.

Revenue-based market definitions would better enable the Commission to take into account differences in underlying market conditions, including typical rate structures, rate levels, and gross profit margins associated with different types of customers. This is consistent with language in the TRO that requires state commissions to take into account "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." [Id., ¶ 495]

Regardless of what specific approach the Commission ultimately adopts, it should take great care to ensure that its decisions do not prevent competitive local exchange carriers (CLECs) from serving residential customers. CLECs should be allowed to continue using switching UNEs to serve residential customers if it isn't economically feasible for them to serve these customers using their own switch.

Recommendations

Q. Would you please briefly summarize your recommendations for Commission action at this stage in the proceeding?

A. Yes. Due to the wide variations that exist within MSAs, and to a lesser extent UNE rate zones, it would be preferable to follow the type of "start small and build up" approach used by the DOJ and FTC. For instance, the Commission could carry forward with its analysis based upon the tentative conclusion that the area served by each wire center is unique, and therefore evidence needs to be gathered and analyzed for each wire center separately. However, as the evidence accumulates and is analyzed by the parties, they should look to see if certain groups of wire centers are relatively homogenous in their characteristics, and thus should appropriately be grouped together. For instance, wire centers could be grouped according to the likelihood that a CLEC would enter. Since CLECs would typically (as a part of the series of decisions that they make when entering a market) pursue high margin customers during the initial entry period, one could group wire centers in a metropolitan area both geographically and by the number of DS1 and DS3 customers present there.

In this regard, it is logical to assume that facilities-based CLECs will initially be drawn to areas where enterprise customers are abundant, where there are large numbers of customers generating substantial revenues, and where per-line costs are low. Recall that the FCC required

state commissions, in developing a market definition, to consider

> locations of customers actually being served (if any) by competitors, the variation in factors affecting competitors' ability to serve each group of customers, and competitors' ability to target and serve specific markets economically and efficiently using currently available technologies. [TRO, ¶ 495]

These considerations cannot be adequately considered without considering variable geographic and economic factors within an MSA, CEA or UNE rate zone. By defining the relevant market as a small cluster of wire centers (e.g., ones having homogeneous characteristics) the Commission will be embarking on an analytical process that is consistent with the guidelines set forth by the FCC in the TRO. State commissions are required to consider actual customer locations, the CLECs' ability to target specific markets, and geographic differences in CLEC entry patterns. For example, state commissions are supposed to consider variations in the number of high revenue customers and variations in existing UNE and retail rate levels. Each of these factors can only be accurately analyzed at the wire center level. Accordingly, the Commission should not rely solely on CEAs, MSAs and UNE rate zones in defining the relevant market for the purpose of analyzing impairment.

Q. Does this complete your direct testimony that was prefiled on January 7, 2004?

A. Yes, it does.

Qualifications Exhibit

Present Occupation

Q. What is your present occupation?

A. I am a consulting economist and President of Ben Johnson Associates, Inc.®, a firm of economic and analytic consultants specializing in the area of public utility regulation.

Educational Background

Q. What is your educational background?

A. I graduated with honors from the University of South Florida with a Bachelor of Arts degree in Economics in March 1974. I earned a Master of Science degree in Economics at Florida State University in September 1977. The title of my Master's Thesis is a "A Critique of Economic Theory as Applied to the Regulated Firm." Finally, I graduated from Florida State University in April 1982 with the Ph.D. degree in Economics. The title of my doctoral dissertation is "Executive Compensation, Size, Profit, and Cost in the Electric Utility Industry."

Clients

Q. What types of clients employ your firm?

A Much of our work is performed on behalf of public agencies at every level of government involved in utility regulation. These agencies include state regulatory commissions, public counsels, attorneys general, and local governments, among others.

We are also employed by various private organizations and firms, both regulated and unregulated. The diversity of our clientele is illustrated below.

Regulatory Commissions

Alabama Public Service Commission—Public Staff for Utility Consumer Protection
Alaska Public Utilities Commission
Arizona Corporation Commission
Arkansas Public Service Commission
Connecticut Department of Public Utility Control
District of Columbia Public Service Commission
Idaho Public Utilities Commission
Idaho State Tax Commission
Iowa Department of Revenue and Finance
Kansas State Corporation Commission
Maine Public Utilities Commission
Minnesota Department of Public Service
Missouri Public Service Commission
National Association of State Utility Consumer Advocates
Nevada Public Service Commission
New Hampshire Public Utilities Commission
North Carolina Utilities Commission—Public Staff
Oklahoma Corporation Commission
Ontario Ministry of Culture and Communications
Staff of the Delaware Public Service Commission
Staff of the Georgia Public Service Commission
Texas Public Utilities Commission
Virginia State Corporation Commission
Washington Utilities and Transportation Commission
West Virginia Public Service Commission—Division of Consumer Advocate

Wisconsin Public Service Commission
Wyoming Public Service Commission

Public Counsels

Arizona Residential Utility Consumers Office
Colorado Office of Consumer Counsel
Colorado Office of Consumer Services
Connecticut Consumer Counsel
District of Columbia Office of People's Counsel
Florida Public Counsel
Georgia Consumers' Utility Counsel
Hawaii Division of Consumer Advocacy
Illinois Small Business Utility Advocate Office
Indiana Office of the Utility Consumer Counselor
Iowa Consumer Advocate
Maryland Office of People's Counsel
Minnesota Office of Consumer Services
Missouri Public Counsel
New Hampshire Consumer Counsel
Ohio Consumer Counsel
Pennsylvania Office of Consumer Advocate
Utah Department of Business Regulation—Committee of Consumer Services

Attorneys General

Arkansas Attorney General
Florida Attorney General—Antitrust Division
Idaho Attorney General
Kentucky Attorney General
Michigan Attorney General

Minnesota Attorney General
Nevada Attorney General's Office of Advocate for Customers of Public Utilities
South Carolina Attorney General
Utah Attorney General
Virginia Attorney General
Washington Attorney General

Local Governments

City of Austin, TX
City of Corpus Christi, TX
City of Dallas, TX
City of El Paso, TX
City of Galveston, TX
City of Norfolk, VA
City of Phoenix, AZ
City of Richmond, VA
City of San Antonio, TX
City of Tucson, AZ
County of Augusta, VA
County of Henrico, VA
County of York, VA
Town of Ashland, VA

Town of Blacksburg, VA
Town of Pecos City, TX

Other Government Agencies

Canada—Department of Communications
Hillsborough County Property Appraiser
Provincial Governments of Canada
Sarasota County Property Appraiser
State of Florida—Department of General Services
United States Department of Justice—Antitrust Division
Utah State Tax Commission

Regulated Firms

Alabama Power Company
Americall LDC, Inc.
BC Rail
CommuniGroup
Florida Association of Concerned Telephone Companies, Inc.
LDDS Communications, Inc.
Louisiana/Mississippi Resellers Association
Madison County Telephone Company
Montana Power Company
Mountain View Telephone Company
Nevada Power Company
Network I, Inc.
North Carolina Long Distance Association
Northern Lights Public Utility
Otter Tail Power Company
Pan-Alberta Gas, Ltd.
Resort Village Utility, Inc.
South Carolina Long Distance Association

Stanton Telephone
Teleconnect Company
Tennessee Resellers' Association
Westel Telecommunications
Yelcot Telephone Company, Inc.

Other Private Organizations

Arizona Center for Law in the Public Interest
Black United Fund of New Jersey
Casco Bank and Trust
Coalition of Boise Water Customers
Colorado Energy Advocacy Office
East Maine Medical Center
Georgia Legal Services Program
Harris Corporation
Helca Mining Company
Idaho Small Timber Companies
Independent Energy Producers of Idaho
Interstate Securities Corporation
J.R. Simplot Company
Merrill Trust Company
MICRON Semiconductor, Inc.
Native American Rights Fund
PenBay Memorial Hospital
Rosebud Enterprises, Inc.
Skokomish Indian Tribe
State Farm Insurance Company
Twin Falls Canal Company
World Center for Birds of Prey

Prior Experience

Q. Before becoming a consultant, what was your employment experience?

A. From August 1975 to September 1977, I held the position of Senior Utility Analyst with Office of Public Counsel in Florida. From September 1974 until August 1975, I held the position of Economic Analyst with the same office. Prior to that time, I was employed by the law firm of Holland and Knight as a corporate legal assistant.

Q. In how many formal utility regulatory proceedings have you been involved?

A. As a result of my experience with the Florida Public Counsel and my work as a consulting economist, I have been actively involved in approximately 400 different formal regulatory proceedings concerning electric, telephone, natural gas, railroad, and water and sewer utilities.

Q. Have you done any independent research and analysis in the field of regulatory economics?

A. Yes, I have undertaken extensive research and analysis of various aspects of utility regulation. Many of the resulting reports were prepared for the internal use of the Florida Public Counsel. Others were prepared for use by the staff of the Florida Legislature and for submission to the Arizona Corporation Commission, the Florida Public Service Commission, the Canadian Department of Communications, and the Provincial Governments of Canada, among others. In addition, as I already mentioned, my Master's thesis concerned the theory of the regulated firm.

Q. Have you testified previously as an expert witness in the area of public utility regulation?

A. Yes. I have provided expert testimony on more than 250 occasions in proceedings before state courts, federal courts, and regulatory commissions throughout the United States and in Canada. I have presented or have pending expert testimony before 35 state commissions, the Interstate Commerce Commission, the Federal Communications Commission, the District of Columbia Public Service Commission, the Alberta, Canada Public Utilities Board, and the Ontario Ministry of Culture and Communication.

Q. What types of companies have you analyzed?

A. My work has involved more than 425 different telephone companies, covering the entire spectrum from AT&T Communications to Stanton Telephone, and more than 55 different electric utilities ranging in size from Texas Utilities Company to Savannah Electric and Power Company. I have also analyzed more than 30 other regulated firms, including water, sewer, natural gas, and railroad companies.

Teaching and Publications

Q. Have you ever lectured on the subject of regulatory economics?

A. Yes, I have lectured to undergraduate classes in economics at Florida State University on various subjects related to public utility regulation and economic theory. I have also addressed conferences and seminars sponsored by such institutions as the National Association of Regulatory Utility Commissioners (NARUC), the Marquette University College of Business Administration, the Utah Division of Public Utilities and the University of Utah, the Competitive Telecommunications Association (COMPTEL), the

International Association of Assessing Officers (IAAO), the Michigan State University Institute of Public Utilities, the National Association of State Utility Consumer Advocates (NASUCA), the Rural Electrification Administration (REA), North Carolina State University, and the National Society of Rate of Return Analysts.

Q. Have you published any articles concerning public utility regulation?

A. Yes, I have authored or co-authored the following articles and comments:

"Attrition: A Problem for Public Utilities—Comment." *Public Utilities Fortnightly*, March 2, 1978, pp. 32-33.

"The Attrition Problem: Underlying Causes and Regulatory Solutions." *Public Utilities Fortnightly*, March 2, 1978, pp. 17-20.

"The Dilemma in Mixing Competition with Regulation." *Public Utilities Fortnightly,* February 15, 1979, pp. 15-19.

"Cost Allocations: Limits, Problems, and Alternatives." *Public Utilities Fortnightly,* December 4, 1980, pp. 33-36.

"AT&T is Wrong." *The New York Times,* February 13, 1982, p. 19.

"Deregulation and Divestiture in a Changing Telecommunications Industry," with Sharon D. Thomas. *Public Utilities Fortnightly*, October 14, 1982, pp. 17-22.

"Is the Debt-Equity Spread Always Positive?" *Public Utilities Fortnightly,* November 25, 1982, pp. 7-8.

"Working Capital: An Evaluation of Alternative Approaches." *Electric Rate-Making,* December 1982/January 1983, pp. 36-39.

"The Staggers Rail Act of 1980: Deregulation Gone Awry," with Sharon D. Thomas. *West Virginia Law Review,* Coal Issue 1983, pp. 725-738.

"Bypassing the FCC: An Alternative Approach to Access Charges." *Public Utilities Fortnightly*, March 7, 1985, pp. 18-23.

"On the Results of the Telephone Network's Demise—Comment," with Sharon D. Thomas. *Public Utilities Fortnightly*, May 1, 1986, pp. 6-7.

"Universal Local Access Service Tariffs: An Alternative Approach to Access Charges." In *Public Utility Regulation in an Environment of Change,* edited by Patrick C. Mann and Harry M. Trebing, pp. 63-75. Proceedings of the Institute of Public Utilities Seventeenth Annual Conference. East Lansing, Michigan: Michigan State University Public Utilities Institute, 1987.

With E. Ray Canterbery. Review of *The Economics of Telecommunications: Theory and Policy* by John T. Wenders. *Southern Economic Journal* 54.2 (October 1987).

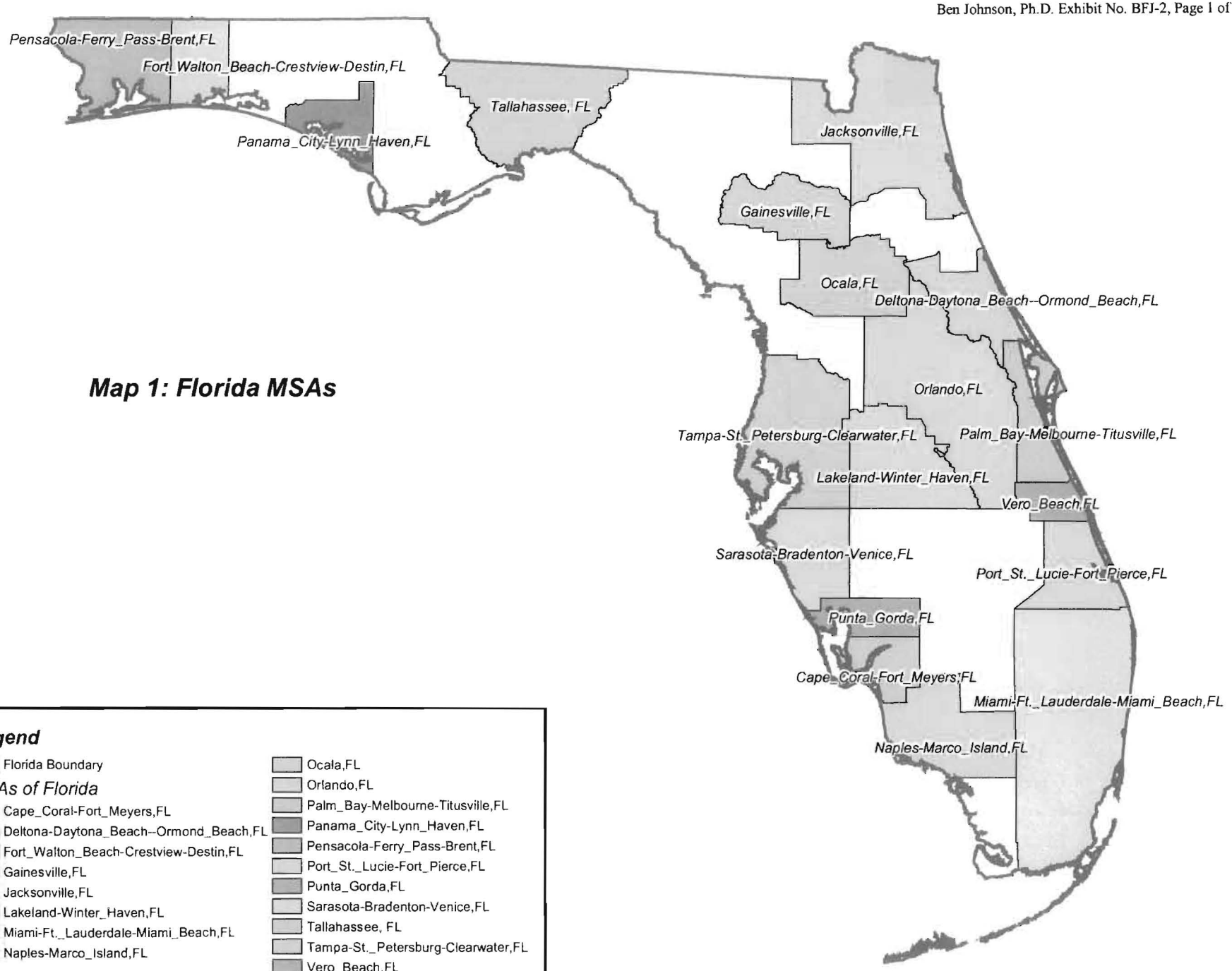
"The Marginal Costs of Subscriber Loops," A Paper Published in the Proceedings of the Symposia on Marginal Cost Techniques for Telephone Services. The National Regulatory Research Institute, July 15-19, 1990 and August 12-16, 1990.

With E. Ray Canterbery and Don Reading. "Cost Savings from Nuclear Regulatory Reform: An Econometric Model." *Southern Economic Journal,* January 1996.

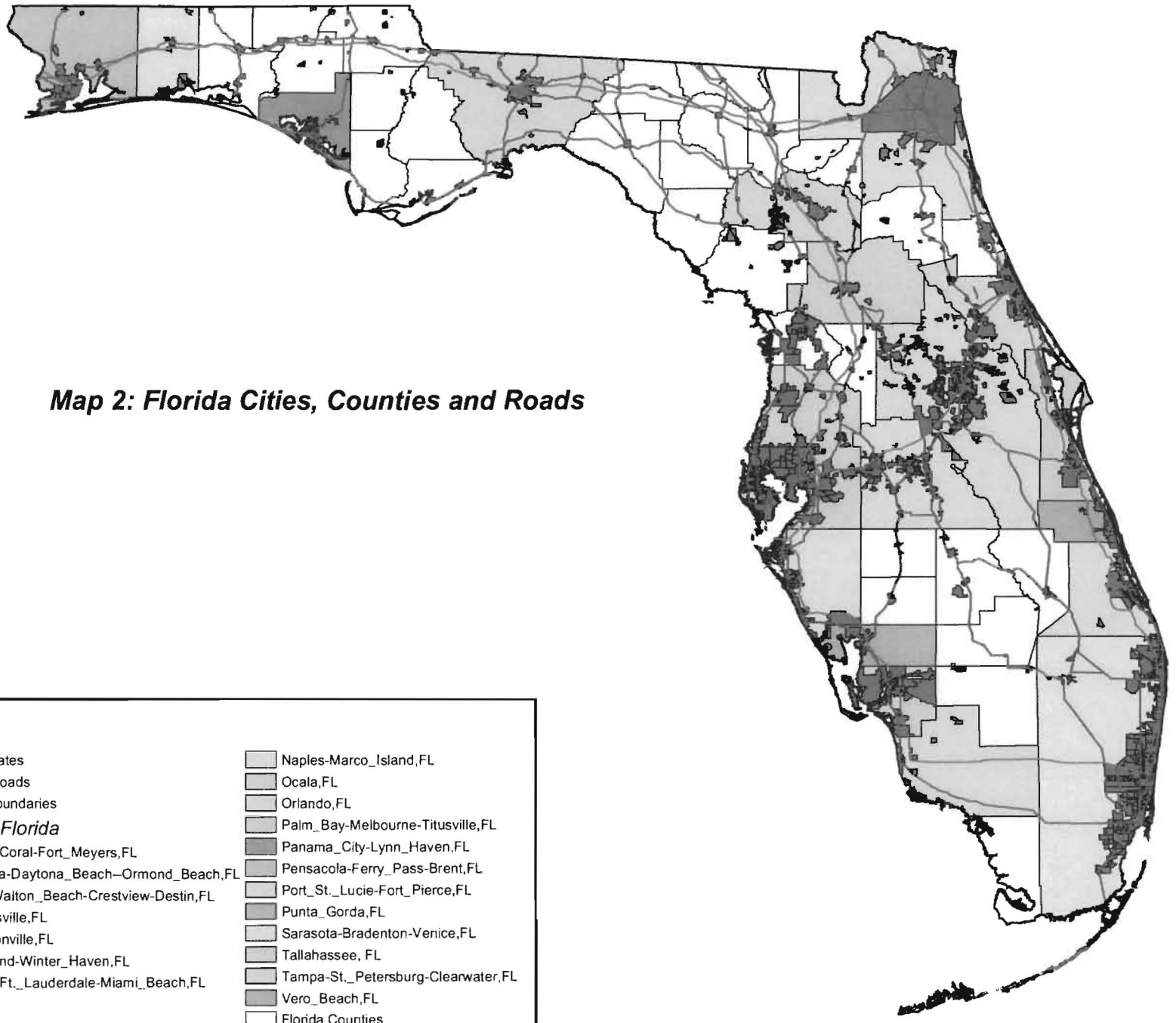
Professional Memberships

Q. Do you belong to any professional societies?

A. Yes. I am a member of the American Economic Association.

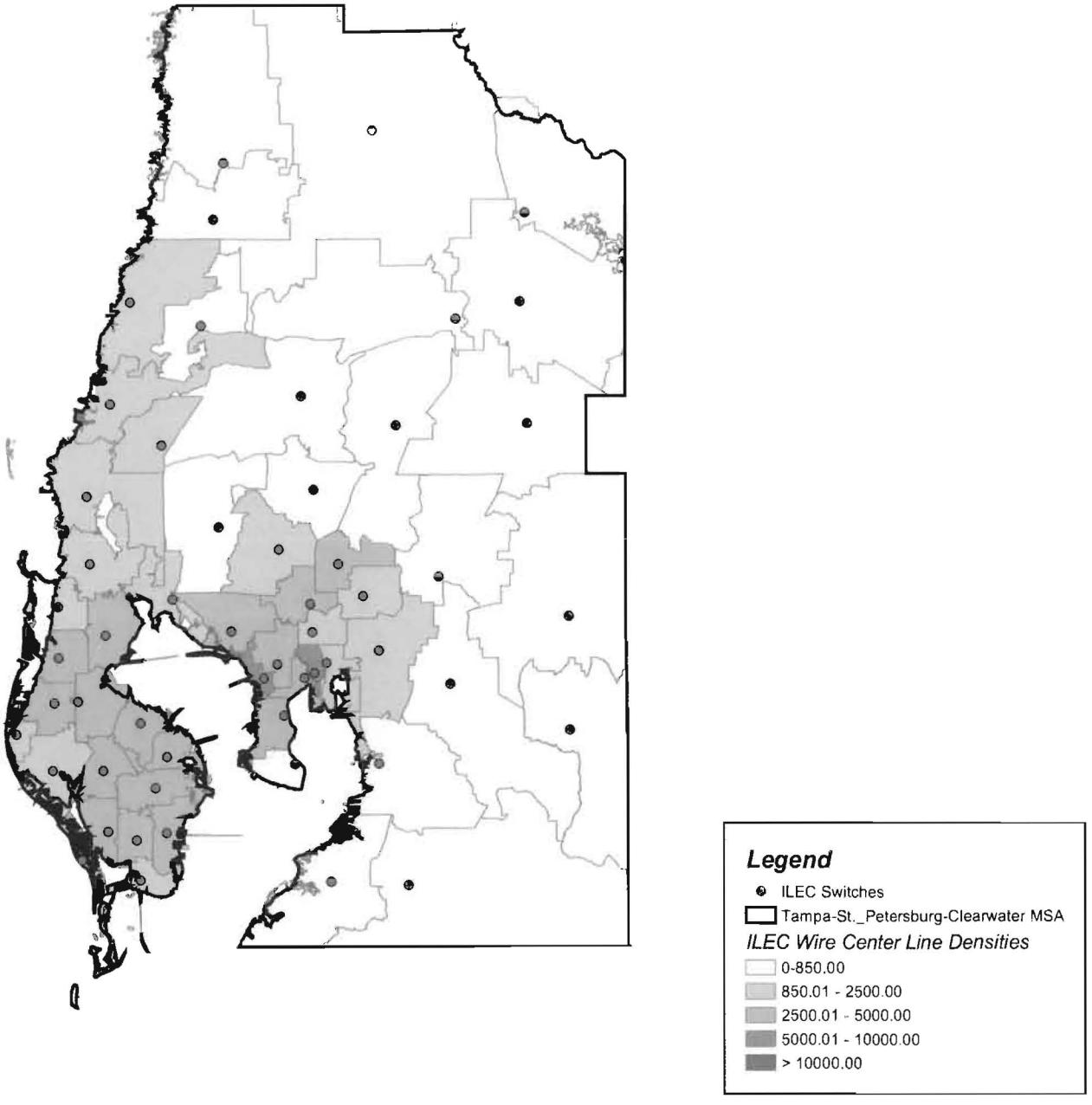


Map 1: Florida MSAs

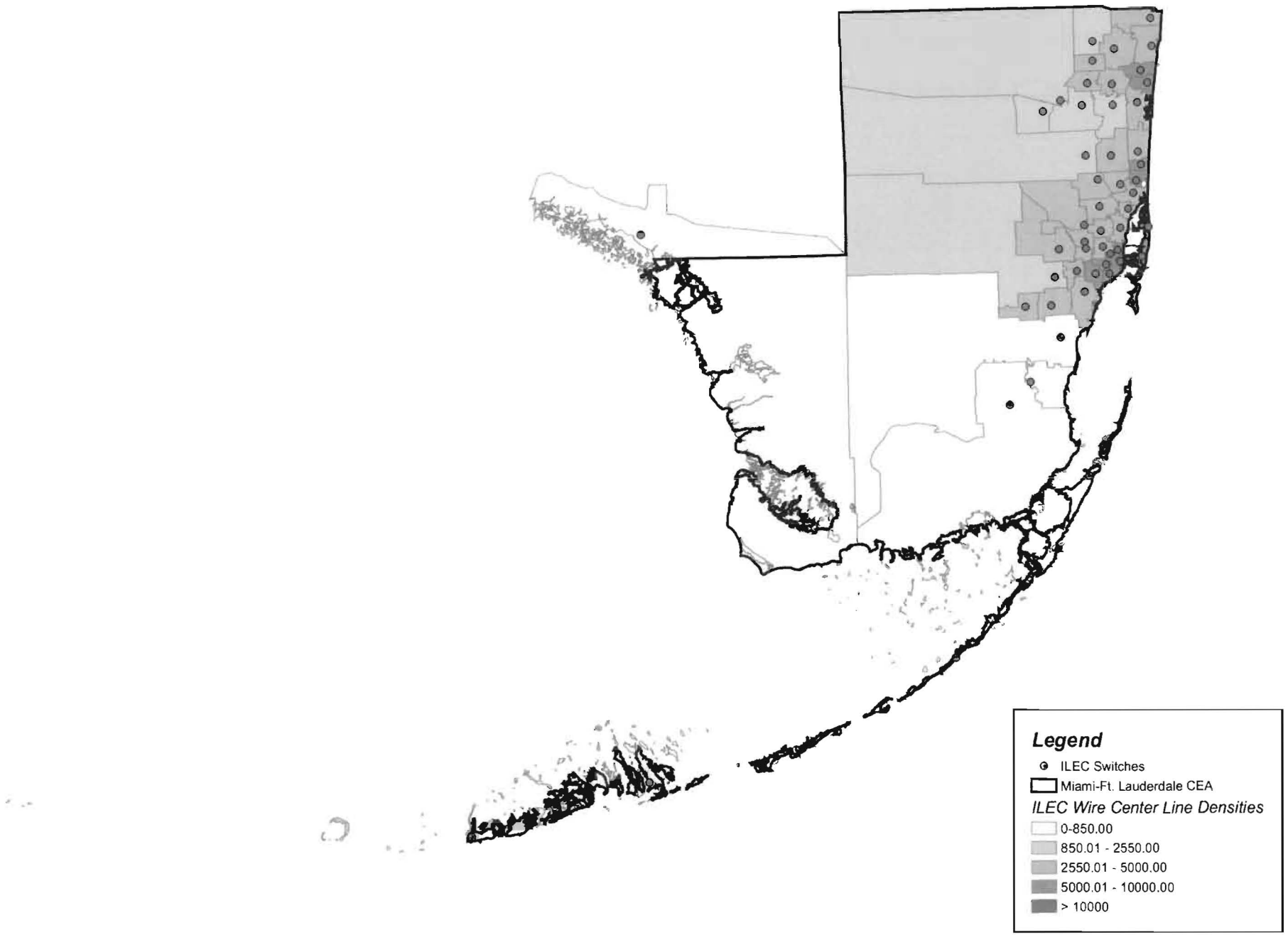


Map 2: Florida Cities, Counties and Roads

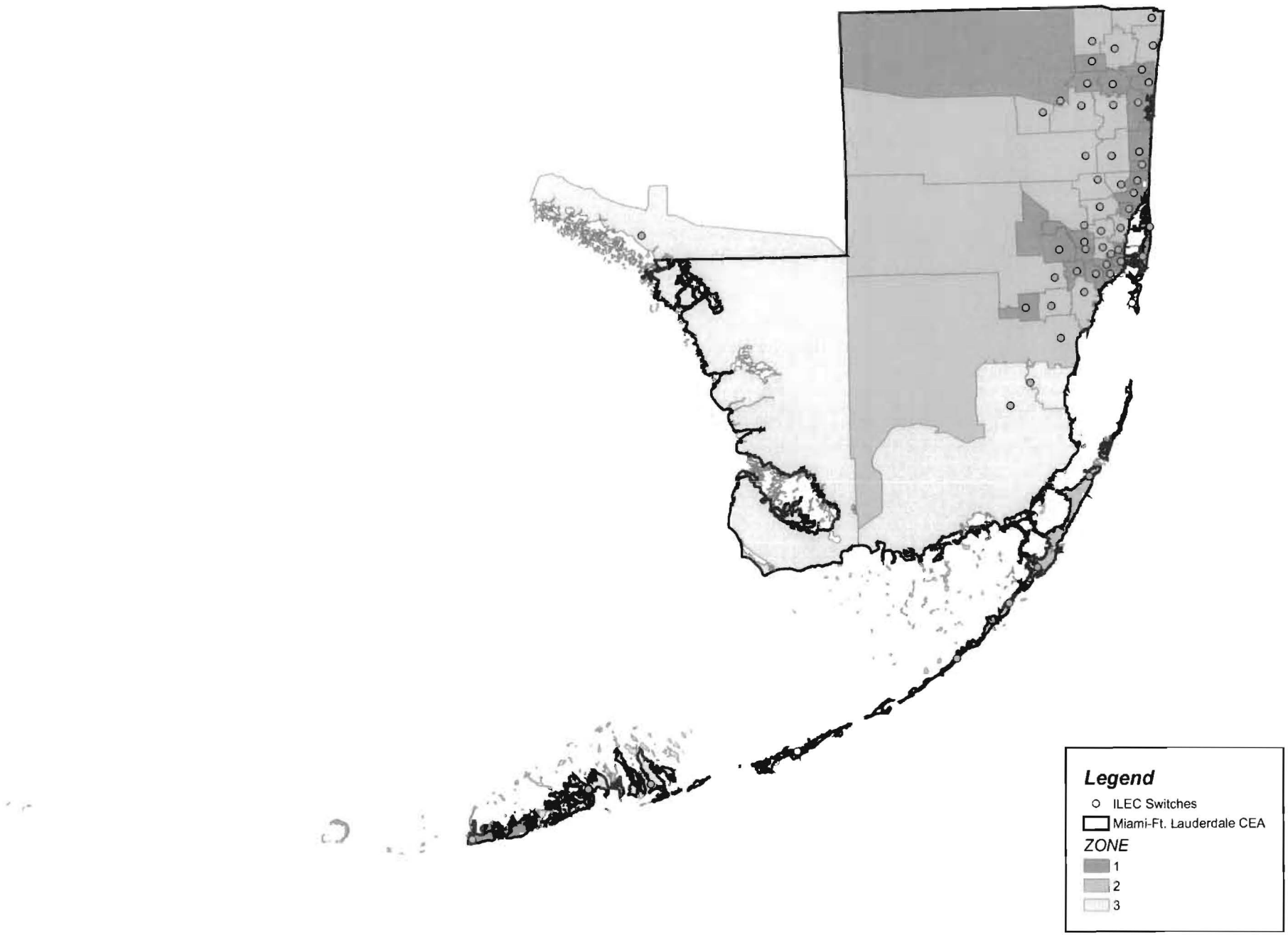
Map 3: ILEC Switches in the Tampa - St. Petersburg - Clearwater MSA



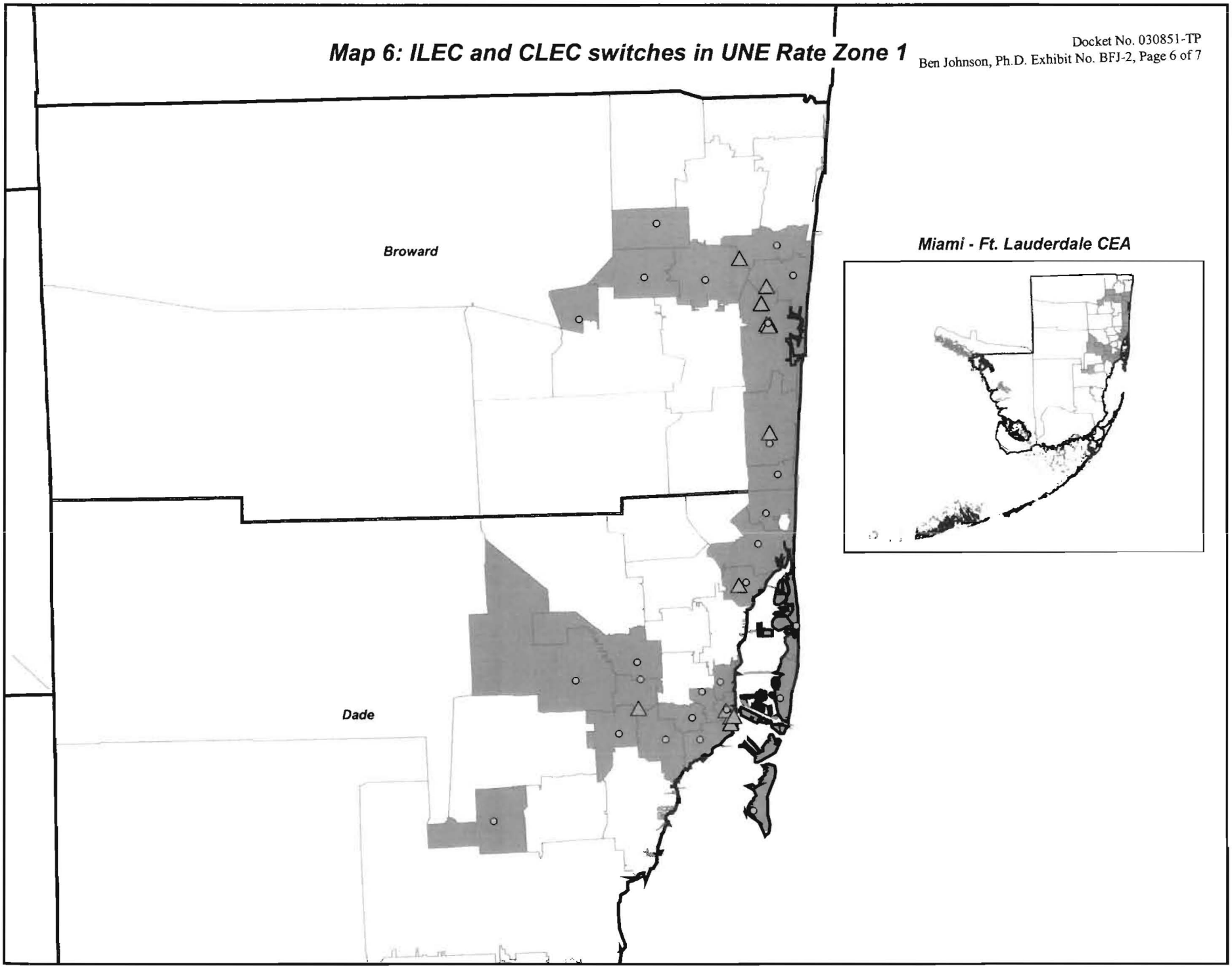
Map 4: ILEC Switches in the Miami - Ft. Lauderdale CEAs



Map 5: ILEC Wire Centers in the Miami - Ft. Lauderdale CEAs by UNE Rate Zone



Map 6: ILEC and CLEC switches in UNE Rate Zone 1



Map 7: ILEC and CLEC switches in UNE Rate Zone 2