

ORIGINAL

**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

In re: Investigation into appropriate methods )  
to compensate carriers for exchange of traffic ) Docket No. 000075-TP  
subject to Section 251 of the Telecommunications )  
Act of 1996. )

**DIRECT TESTIMONY OF  
EDWARD C. BEAUVAIS, PH.D.**

**ON BEHALF OF  
VERIZON FLORIDA INC.**

**DECEMBER 1, 2000**

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1 **DIRECT TESTIMONY**

2 **OF**

3 **EDWARD C. BEAUVAIS, PH.D.**

4 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND**  
5 **OCCUPATION.**

6 **A.** My name is Edward C. Beauvais. My business address is 600 Hidden  
7 Ridge, Irving, Texas, 75038. I am employed by Verizon Services  
8 Group as Director - Economic & Regulatory Policy.

9  
10 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**  
11 **PROFESSIONAL EXPERIENCE.**

12 **A.** I received my undergraduate degree in economics from the Virginia  
13 Polytechnic Institute in 1971. I continued my education, taking  
14 courses in finance, math and computer science at Virginia  
15 Commonwealth University from 1972 to 1973 while I was employed  
16 by the Virginia Electric and Power Company, where I was responsible  
17 for forecasting loads and electricity sales, as well as having pricing  
18 responsibility for natural gas and electricity. I hold both a Masters and  
19 a Doctor of Philosophy in Economics from the Center for the Study of  
20 Public Choice at the Virginia Polytechnic Institute and have taken  
21 postgraduate courses at the Massachusetts Institute of Technology.

22 I have served as a Professor of Economics at the University of  
23 Alabama, the University of Connecticut and the University of Kansas.

24  
25 For the past twenty-four years, I have been with GTE, now Verizon.

1           At GTE/Verizon, I have held numerous positions dealing with costing,  
2           pricing, demand analysis, forecasting and public policy issues. As  
3           part of my job duties, I have provided expert witness testimony before  
4           the Federal Power Commission (now FERC), the Federal  
5           Communications Commission (FCC), and numerous state utilities  
6           commissions, including the following: Alabama, California, Florida,  
7           Georgia, Hawaii, Illinois, Indiana, Iowa, Kentucky, Michigan,  
8           Minnesota, Nevada, New Mexico, North Carolina, Ohio, Oklahoma,  
9           Oregon, Pennsylvania, South Carolina, Texas, Virginia, Washington,  
10          West Virginia and Wisconsin. In addition to testifying before state and  
11          federal regulatory bodies, I have presented legislative testimony  
12          before the Indiana House Commerce Committee, the Illinois Public  
13          Utilities Committee, the Florida House of Representatives and the  
14          Virginia General Assembly.

15

16          Finally, I have written numerous articles for academic and  
17          professional journals in the areas of public finance, public choice and  
18          the economics of the electric and telecommunications industries, as  
19          well as articles and presentations to industry organizations and  
20          publications. A more complete statement of my qualifications is set  
21          forth in my curriculum vitae, a copy of which is attached as Exhibit  
22          ECB-1.

23

24   **Q.   WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
25   **DOCKET?**

1    **A.**    The purpose of my testimony is to provide economic and public policy  
2           analysis regarding the payment of intercompany or reciprocal  
3           compensation, as well as the correct rate structure for such  
4           compensation in a competitive marketplace.    My testimony will  
5           address the following issues identified for resolution in this docket:  
6           (3) What actions should the Commission take, if any, with respect to  
7           establishing an appropriate compensation mechanism for ISP-bound  
8           traffic in light of current decisions and activities of the courts and the  
9           FCC?;  
10          (4) What policy considerations should inform the Commission's  
11          decision in this docket?;  
12          (8) Should ISP-bound traffic be separated from non-ISP-bound traffic  
13          for purposes of assessing any reciprocal compensation payments?  
14          If so, how?;  
15          (9) Should the Commission establish compensation mechanisms for  
16          delivery of ISP-bound traffic to be used in the absence of the parties  
17          reaching an agreement or negotiating a compensation mechanism?  
18          If so, what should be the mechanism?  
19  
20          My economic and policy discussion will also touch on the legal issues  
21          concerning the Commission's authority to adopt a compensation  
22          mechanism for the delivery of ISP-bound traffic.  I am not a lawyer,  
23          however, so the legal issues (*i.e.*, issues 1, 2 and 5) involved in this  
24          docket will be principally addressed in Verizon's post-hearing  
25          statement.

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My colleague, Mr. Howard Lee Jones, will address issues 6 and 7 in his testimony.

**Q. SHOULD THE COMMISSION ESTABLISH A RECIPROCAL COMPENSATION SCHEME IN THIS DOCKET, CONSIDERING FCC ACTIVITIES IN THIS AREA?**

A. No. Verizon will argue in its post-hearing brief that the Commission lacks the authority to establish a generic reciprocal compensation mechanism for the ISP-bound traffic at issue. The FCC has determined that ISP-bound traffic is primarily jurisdictionally interstate, and has purported to allow states to devise inter-carrier compensation mechanisms only until it can complete its pending rulemaking in this area. (*Implementation of the Local Competition Provisions in the Telecomm. Act of 1996; Inter-Carrier Compensation for ISP-Bound Traffic*, Declaratory Ruling in CC Docket No. 96-98 and Notice of Proposed Rulemaking in CC Docket No. 99-68 (Declaratory Ruling) (Feb. 26, 1999).) The agency has been under considerable Congressional pressure to conclude this process, and Chairman Kennard has committed to resolving the reciprocal compensation “dilemma” by the end of this year.

Because it appears the FCC will determine the appropriate intercarrier compensation methodology in just a month or so, the Commission should put this proceeding on hold until the FCC has made its

1 decision. At that time, the Commission could determine what, if  
2 anything there is left for it to consider and could reshape this  
3 proceeding accordingly.

4

5 **Q. ACCORDING TO THE FCC, WHAT IS THE EXTENT OF THE STATE**  
6 **COMMISSIONS' AUTHORITY TO IMPOSE INTER-CARRIER**  
7 **COMPENSATION FOR INTERSTATE, ISP-BOUND TRAFFIC?**

8 **A.** While I am not an attorney, as I read its 1999 Declaratory Ruling, the  
9 FCC purported to grant the state commissions interim authority to  
10 impose intercarrier compensation for ISP-bound traffic *only* when 1)  
11 construing interconnection agreements negotiated pursuant to  
12 Section 251; or 2) arbitrating interconnection agreements pursuant to  
13 Section 252.

14

15 **Q. SHOULD THE COMMISSION ESTABLISH COMPENSATION**  
16 **MECHANISMS FOR DELIVERY OF ISP-BOUND TRAFFIC TO BE**  
17 **USED IN THE ABSENCE OF THE PARTIES REACHING AN**  
18 **AGREEMENT OR NEGOTIATING A COMPENSATION**  
19 **MECHANISM?**

20 **A.** No. As I noted, Verizon does not believe the Commission has the  
21 authority to establish an intercarrier compensation mechanism for  
22 interstate, ISP-bound traffic. Even if it did have some measure of  
23 authority to do so on an interim basis under the FCC's Declaratory  
24 Ruling, this Commission should not undertake this effort when a  
25 decision by the FCC is pending. The FCC's ruling is expected to

1 clarify the procedures to be used when companies cannot agree on  
2 an intercarrier compensation mechanism for ISP-bound traffic.  
3 However, for purposes of this docket, I will assume that this  
4 Commission will move forward with its deliberations. Accordingly, for  
5 discussion purposes, I will examine the economic and public policy  
6 consequences if the Commission believes the ISP-bound traffic to be  
7 local and subject to its jurisdiction.

8

9 **Q. IF THE COMMISSION MOVES FORWARD, WHAT ARE THE**  
10 **OVERARCHING POLICY THEMES FOR THIS DOCKET?**

11 **A.** The principal issue that must be addressed is that of compensation  
12 between carriers for quantities of usage that have not been previously  
13 observed in the history of telecommunications. As I will show, the  
14 quantity of usage directed to internet service providers (ISPs) is easily  
15 three to ten times greater than has historically been observed in  
16 voice-only traffic. However, the issue of compensation between  
17 carriers is simply a special case of pricing, so it cannot be divorced  
18 from a discussion of efficient pricing of other telecommunications  
19 services.

20

21 **Q. WHAT IS RECIPROCAL COMPENSATION?**

22 **A.** The matter of reciprocal compensation arose when  
23 telecommunications carriers first began to negotiate local  
24 interconnection agreements. Reciprocal compensation is a  
25 mechanism for local exchange companies to compensate one

1 another for terminating each other's local traffic.

2

3 **Q. WHAT IS VERIZON'S POSITION WITH RESPECT TO PAYMENT**  
4 **OF RECIPROCAL COMPENSATION FOR ISP-BOUND TRAFFIC?**

5 **A.** Reciprocal compensation does not apply to ISP-bound traffic because  
6 it is not local traffic. In 1983, the FCC exempted enhanced service  
7 providers (ESPs) from the per-minute access charges that long-  
8 distance companies pay to local telephone companies because the  
9 FCC deemed ESPs to be part of an infant industry. ISPs are one  
10 subset of ESPs. The ESP exemption has continued since then  
11 through various FCC proceedings.

12

13 The fact that the FCC exempted ISPs from the payment of access  
14 charges is consistent with the position that ISP-bound traffic is  
15 interstate—*not local*. If such traffic had not been interstate, then there  
16 would have been no need for the FCC to exempt it from access  
17 charges—which only apply to interstate calls—in the first place.  
18 Further, if the traffic were not interstate in nature, the FCC would have  
19 had no authority to act. Based on the ESP exemption, Verizon has  
20 always considered ISP-bound traffic to be interstate and therefore not  
21 subject to reciprocal compensation under Section 251(b)(5) of the  
22 Federal Telecommunications Act ("FTA"). As noted above, the FCC  
23 confirmed in its Declaratory Ruling last year that ISP-bound traffic is  
24 largely interstate.

25



1 **Q. PLEASE EXPLAIN HOW RECIPROCAL COMPENSATION RATES**  
2 **HAVE HISTORICALLY BEEN DERIVED.**

3 **A.** Historically, the costs for terminating a voice-grade local call was  
4 priced based on a 3-5 minute hold time.

5

6 **Q. DO RECIPROCAL COMPENSATION RATES, AS THEY**  
7 **CURRENTLY EXIST, CONTEMPLATE THE TRANSPORTATION OF**  
8 **ISP-BOUND TRAFFIC?**

9 **A.** No. The call hold times (the length of time that the call lasts) for the  
10 typical internet user appear to range between 25 and 45 minutes per  
11 call, with just under three calls per day from a typical dial-up  
12 connection. If one were to multiply the reciprocal compensation rate  
13 for the exchange of local traffic by only 60 minutes per day, Verizon  
14 would have to pay out 40% to 50% of the price it receives for the  
15 provision of basic local service from its residential end-users to  
16 CLECs serving ISPs. Clearly, the reciprocal compensation prices for  
17 the exchange of "local" traffic relative to the price paid by the end user  
18 for that traffic never envisioned the volumes that would be  
19 engendered by ISP-bound usage.

20

21 **Q. ARE CALLS BETWEEN AN END USER AND AN ISP LOCAL**  
22 **CALLS OR INTERSTATE CALLS?**

23 **A.** As I explained above, the FCC has determined such calls to be  
24 interstate. This regulatory classification comports with our common  
25 sense understanding of the Internet. It is called the World Wide Web

1 for a reason.

2

3 If this Commission considers ISP-bound traffic to be “local,” however,  
4 there must be an effort to bring end user rates charged for the  
5 origination of such local traffic into line with the reciprocal  
6 compensation rate structure and level for transporting such traffic or  
7 vice versa; bring the reciprocal compensation structure and level into  
8 line with existing end user rates. However, because of statutory  
9 constraints requiring a flat-rate pricing option for basic local service  
10 (Fla. Stat. ch. 364.051(2)(c)), the Commission cannot freely adjust  
11 end user rate structures to assure consistency with any reciprocal  
12 compensation scheme. In Verizon’s service areas in Florida, the  
13 overwhelming majority of its residential customers – the customers  
14 making the vast majority of ISP-bound calls on a dial-up basis --  
15 subscribe to local service on a flat-rated basis. Should the  
16 Commission elect to establish a reciprocal compensation mechanism,  
17 it should use a non-traffic sensitive method of intercompany  
18 compensation, consistent with the current flat-rated pricing structure  
19 for local end-user service.

20

21 **Q. IN THE SHORT-RUN, CAN DIAL-UP ISP TRAFFIC BE**  
22 **DISTINGUISHED FROM OTHER TRAFFIC FOR INTERCOMPANY**  
23 **COMPENSATION PURPOSES?**

24 **A.** Certainly this is a policy option that the Commission can pursue.  
25 There are methods by which dial-up traffic can be measured, albeit

1 with less than exact precision. The most obvious method is to  
2 establish separate trunks for the delivery of such dial-up traffic to  
3 ISPs. This, of course, would require the identification of ISP numbers  
4 in some sort of centralized database(s) on a real time basis, and  
5 would likely require the Commission to order all CLECs and ILECs (or  
6 other carriers) to provide a list of ISP names and numbers to a  
7 centralized authority for such purposes.

8  
9 A second option would be to use call holding times to distinguish  
10 voice traffic and ISP-bound traffic. That is, we know that the  
11 traditional voice mean holding times for local calls from residential  
12 customers can be expected to be between three and six minutes.  
13 ISP-bound traffic can be expected to exhibit a substantially greater  
14 mean value – on the order of 25 to 45 minutes to an hour per call with  
15 substantially greater variation than experienced with voice traffic.  
16 Thus, even if voice and ISP-bound traffic travel on a shared trunk  
17 between the CLEC and the ILEC, it is possible to estimate the  
18 proportion of traffic that is voice and the proportion of traffic that is  
19 ISP-bound. I would note, however, that this method does not identify  
20 calls or minutes on an individual basis. It only estimates the  
21 percentage of total “local” traffic which can be classified as “ISP-  
22 bound” and that which can be classified as “traditional voice” traffic.

23

24 **Q. WOULD YOU RECOMMEND THAT THE COMMISSION PURSUE A**  
25 **COMPENSATION SOLUTION REQUIRING SEGREGATION OF**

1           **ISP-BOUND TRAFFIC FROM OTHER TRAFFIC?**

2   **A.**   No, I would not. While it is possible to measure dial-up traffic based  
3           on either of the methods I have identified above, I think the preferable  
4           solution is to bring the relative prices for intercompany compensation  
5           and for end user traffic into alignment. This implies that the traffic  
6           should not be segregated for rate-making purposes, but that the traffic  
7           should be treated the same. Given the overwhelming subscription to  
8           flat-rated local exchange service in Florida, with its marginal price of  
9           zero per minute of use, the intercompany compensation mechanism  
10          for both voice and ISP-bound traffic should also have a marginal price  
11          of zero per minute of use. That is, until the Commission can address  
12          the rebalancing of prices as a result of the traffic generated by ISP-  
13          bound usage, the short-run solution is a bill and keep approach to  
14          reciprocal compensation for all "local" traffic.

15

16   **Q.**   **DR. BEAUVAIS, YOU MENTIONED ABOVE THAT ISP-BOUND**  
17          **TRAFFIC HAS MUCH LONGER HOLDING TIMES THAN DOES**  
18          **VOICE TRAFFIC. IS THERE ANY EVIDENCE AVAILABLE TO**  
19          **SUPPORT THIS OBSERVATION?**

20   **A.**   Yes. It is very well established that typical call duration for ISP-bound  
21          traffic is vastly longer than the typical call duration for local voice  
22          traffic. This disparity has been demonstrated in the publicly available  
23          literature and is consistent with Verizon's own observations with  
24          respect to traffic that travels on its local telephone network.

25

1 To examine voice holding times, it is desirable to go back to before  
2 the commercial introduction of the Internet. By going back to a point  
3 prior to the widespread commercial availability of the Internet, we can  
4 eliminate any bias from the observed holding time by ensuring that no  
5 internet-related holding times are mixed together with the voice traffic  
6 data. Fortunately, such a study is readily available.

7  
8 In a comprehensive study of the relationship between demographics  
9 and usage patterns of the telephone network using Illinois data,  
10 Belinda Brandon examined the distribution of holding times for "local"  
11 calls. (Belinda B. Brandon, The Effect of the Demographics of  
12 Individual Households on Their Telephone Usage, Cambridge,  
13 Massachusetts: Ballinger Publishing Company, 1981.) The results of  
14 that study indicate a 99% confidence interval into which the mean of  
15 the voice traffic can be expected to occur:

16 99% Confidence Interval:  $3.6 \text{ MOU} \leq X \leq 6.2 \text{ MOU}$ .

17 In other words, the typical voice call tends to last for about three to six  
18 MOUs, or minutes of use.

19  
20 This 1981 data is generally consistent with more recent data relating  
21 to Verizon California's residential customers that take measured  
22 service. The average hold time for these customers in 1999 was  
23 approximately 4.8 minutes per call, a figure that falls squarely within  
24 the 99% confidence interval established in the Brandon study.

25

1 It is, of course, possible that this recent figure is not entirely free of  
2 ISP-bound traffic since the customers included can, at least  
3 theoretically, use their service to dial up to the Internet. However,  
4 because ISP-bound calls tend to be much longer in duration (as  
5 demonstrated below), it is reasonable to assume that customers that  
6 intend to use their lines to access the Internet do not generally  
7 subscribe to measured service. Thus, the California data provides at  
8 least some measure of confirmation as to the continued accuracy of  
9 the Brandon study.

10

11 In stark contrast to the mean holding time for traditional voice traffic,  
12 the observed and estimated mean holding time for ISP-bound traffic  
13 is substantially greater. Both published data and Verizon's own  
14 observations demonstrate that the average holding times for ISP-  
15 bound traffic exceed those of voice traffic by up to 10 times.

16

17 In the fourth quarter of 1999, Verizon analyzed data provided by a  
18 CLEC in Michigan named Coast-To-Coast. Since 100% of the traffic  
19 that Verizon customers sent to Coast-to-Coast was ISP-bound  
20 (incidentally, none of Coast-to-Coast customers originated any calls  
21 to any GTE customers during the period reviewed), these data  
22 provide a useful sample of the holding times for ISP-bound traffic that  
23 is unbiased by any voice traffic. Using the Michigan data, it is  
24 possible to construct the following 99% confidence interval for the  
25 mean holding time of ISP-bound traffic:

1                   99% Confidence Interval:  $39.38 \text{ MOU} \leq X \leq 44.62 \text{ MOU}$ .

2                   In other words, the typical ISP-bound calls tend to last from 39 to 44  
3                   minutes. As can readily be seen by comparing the confidence  
4                   intervals from the Illinois voice data and Michigan ISP data, the 99%  
5                   confidence intervals around the mean holding times do not even  
6                   come close to each other. This suggests that the traffic  
7                   characteristics are, indeed, very different and that it is possible to  
8                   distinguish between these calls based upon their duration, as I  
9                   discussed above.

10

11   **Q.    DOES THE MICHIGAN AND ILLINOIS DATA REVEAL ANYTHING**  
12           **ELSE SIGNIFICANT ABOUT THE DIFFERENCE BETWEEN VOICE**  
13           **AND ISP-BOUND TRAFFIC?**

14   **A.**    Yes. The data demonstrate that the ISP-bound usage holding time  
15           distribution displays much greater relative variation than that of  
16           traditional voice traffic. Thus, if one examines the coefficient of  
17           variation for each of the two studies I cited above, the results indicate  
18           that the coefficient of variation is approximately twice as large for the  
19           ISP-bound traffic than for traditional voice traffic:

20                                   Coefficient of Variation - Voice Traffic:           2.39

21                                   Coefficient of Variation - ISP-bound Traffic:       4.37

22

23                   The coefficient of variation is simply the standard deviation of each  
24                   sample divided by that sample's mean. The statistic provides an easy  
25                   way of comparing the variation across samples. In this case, the

1 comparison once again confirms that the usage pattern of ISP-bound  
2 traffic is different from traditional voice traffic.

3  
4 The rather large coefficient of variation for ISP-bound traffic in the  
5 Michigan sample suggests that it would not be surprising to see  
6 variations in the mean holding times for ISP-bound traffic when one  
7 compares anecdotal data across the U.S., or even across companies.

8 The limited data points that Verizon has collected in California, for  
9 example, include hold times for ISP-bound traffic that are generally  
10 between 20 to 30 minutes. In one study performed by Hewlett-  
11 Packard entitled "GTE Internet Service Provider Characterization,"  
12 dated October, 1997, the author found that the average hold time for  
13 ISP-bound calls for a small sample of customers in Malibu, Santa  
14 Monica, Del Rey, and Thousand Oaks on a given day was  
15 approximately 23 minutes. In another small sample of more recent  
16 traffic over three GTE California trunk groups that carry only ISP-  
17 bound traffic, the average minutes of use for certain busy hours  
18 ranged from 22 to 32 minutes.

19  
20 These California data are also generally consistent with statistics  
21 produced by the Nielsen//Net Ratings of Average Web Usage for  
22 April, 2000, which show an average ISP-bound holding time of 30.27  
23 minutes. The Nielsen//Net Ratings also indicate an average of 19  
24 Internet sessions per week, or 2.7 calls per day, to the customer's  
25 ISP.



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Although there is, as expected, some variation across the available data points, in all circumstances, the data show hold times that are much longer for ISP-bound traffic than for voice traffic.

**Q. YOU STATED PREVIOUSLY THAT THERE ARE HIGHER VOLUMES OF ISP-BOUND TRAFFIC COMPARED TO TRADITIONAL VOICE TRAFFIC FROM RESIDENTIAL CUSTOMERS. DO YOU HAVE EVIDENCE TO SUPPORT THIS OBSERVATION?**

**A.** Yes. The publicly available data concerning aggregate usage demonstrate that, on a per end-user basis, ISP-bound calls constitute vastly more minutes of use per month (or per day) than do traditional voice calls. Numerous studies from pre-Internet usage periods suggest that the volume of originating local usage demanded on a monthly basis by residential and business one-party customers can be expected to be in the range of 300 to 600 minutes of use per month, or an average of approximately 10 to 20 minutes per day. (See, for example, Edward C. Beauvais, "Metering Costs and Measured Service: An Evaluation of Efficiency Gains from Usage Sensitive Pricing of Telephone Service," Changing Patterns in Regulation, Markets, and Technology: The Effect on Public Utility Pricing, edited by Patrick C. Mann and Harry M. Trebing, Michigan State University, 1984; pp. 223 –267.)

1 With respect to the demand for ISP-bound traffic, there are several  
2 sources that can be used to provide the Commission with estimates.  
3 For example, on June 1, 1999, USA Today reported the results of a  
4 Harris Poll indicating that the typical consumer is on the Internet  
5 approximately 60 minutes per day, or 1800 minutes per month.

6  
7 Likewise Telecom AM reported on November 15, 1999, an estimate  
8 prepared by the investment bankers Veronis, Suhler & Associates  
9 ("VSA") indicating that Internet usage is forecasted to increase to 192  
10 hours per capita per year within three years. Keep in mind that the  
11 VSA estimates are *per capita* and so must be adjusted to account for  
12 the number of individuals in the household. This figure is  
13 approximately three individuals per household, yielding a projection  
14 of ISP-bound traffic of approximately 2,880 minutes of use per month  
15 per residential line, or more than 90 minutes per day.

16  
17 The Georgia Institute of Technology also performs a broad survey of  
18 World Wide Web users on a periodic basis. The most recent survey  
19 results, which are set forth in the October 1998 Gvu 10th WWW  
20 Survey (found at [www.ec.gatech.edu/gvu;user\\_.../survey-1998-10/graphs/use/q02.htm](http://www.ec.gatech.edu/gvu;user_.../survey-1998-10/graphs/use/q02.htm)) indicate a mean web usage of 3,990 minutes  
21 per month or more than 2 hours per day! Consistent with this finding,  
22 the President of a California ISP told the U.S. Congress that the  
23 "average user load" on his company is 53 hours (or 3180 minutes) per  
24 month. (Statement of Peter Engdahl, appended to Testimony of  
25

1 Robert Taylor on H.R. 4445, before the U.S. H.R. Subcomm. on  
2 Telecomm., Trade and Consumer Protection.

3

4 The Nielsen//Net Ratings statistics referenced above yield similar  
5 results. When the average hold time of 30 minutes and 27 seconds  
6 is multiplied by the 2.7 figure for average daily calls, the result is an  
7 average amount of ISP-bound traffic of more than 82 minutes per day  
8 or 2,400 minutes per month.

9

10 To summarize, both the individual call duration and the aggregate  
11 minutes of traffic per customer per month are vastly higher for ISP-  
12 bound traffic than for traditional voice traffic. Even a cursory  
13 examination of the data I've cited clearly demonstrates that the  
14 commercial availability of the internet through dial-up connections has  
15 caused ISP-bound telephone usage, with its volumes of three to ten  
16 times voice call volumes, to dwarf the voice traffic that had been  
17 experienced historically on the public switched network.

18

19 **Q. HOW MANY PEOPLE ARE USING THE INTERNET CURRENTLY?**

20

21 **A.** While I do not have an estimate readily available specifically for  
22 Florida, "current" estimates of the U.S. population using the Internet  
23 are in the range of 25%. (A.C. Nielsen NetWatch (Dec. 22, 1999).)

24 I place the term "current" in quotations, for as we are all aware,  
25 internet usage is growing at astonishing rates, both in terms of

1 customers and in terms of minutes of use. In the VSA study I  
2 referenced earlier, they predict an annual growth rate in excess of  
3 23% for the Internet. What may be approximately a 25% penetration  
4 today in Florida could easily be 50% in three years at such growth  
5 rates. Indeed, some estimates already place the penetration rates in  
6 the 50% range for US households. I would certainly not be surprised  
7 to see the penetration rate of internet-connected customers far higher  
8 in and around Tallahassee, for example, than in other parts of Florida,  
9 given the university and state government presence here.

10

11 **Q. ARE THERE OTHER IMPLICATIONS THAT MIGHT BE DRAWN**  
12 **FROM OBSERVATION OF THE CALLING CHARACTERISTICS**  
13 **YOU HAVE CITED?**

14 **A.** Yes. As I have stated previously to this Commission, while there is  
15 significant competition for ILEC-provided services from new entrants  
16 in some markets (primarily business markets), there is little evidence  
17 that CLECs are signing up large numbers of residential customers in  
18 Florida. CLECs are, however, signing up a relatively large number of  
19 ISP customers, and these customers almost exclusively receive,  
20 rather than originate, traffic. This gives rise to a marked asymmetry  
21 in the costs each carrier might be expected to incur in the provision  
22 of basic local exchange service, if such service also includes ISP-  
23 bound usage. These costs, in relation to the prices currently in effect,  
24 in turn give rise to additional disincentives to enter the local exchange  
25 market for residential customers who might be expected to utilize the

1 Internet on a dial-up basis in Florida.

2

3 The effects of this asymmetry on market entry are confirmed by an  
4 examination of the holding times of the traffic flow between CLECs  
5 and ILECs. Based on data from its experiences in North Carolina,  
6 California, and Michigan, Verizon has observed a holding time of  
7 traffic passed from a CLEC to Verizon of three to six minutes. Such  
8 estimates are consistent with the observation that CLECs are, quite  
9 understandably, concentrating their efforts on obtaining profitable  
10 business customers, as the traffic pattern is consistent with traditional  
11 voice grade traffic. At the same time, Verizon's data shows that the  
12 traffic passing from Verizon to the CLEC exhibits holding times  
13 ranging from 15 to 45 minutes. The 15 minute holding time is largely  
14 traffic to a single so-called "chat line" served by a CLEC and the 45  
15 minute holding time is exclusively ISP-bound traffic. In both cases,  
16 however, the CLEC has signed up customers that largely terminate  
17 traffic. I cite this simply as an observation that economic signals in  
18 terms of prices and costs do matter in making entry and exit decisions  
19 in a market. The current scheme of reciprocal compensation on a per  
20 minute of use basis provides incentives to carriers with the ability to  
21 target parties that terminate a large volume of traffic to do so. At the  
22 same time, there is no incentive to sign up customers likely to  
23 originate large volumes of traffic on a dial-up basis, and thus oblige  
24 the serving carrier to make large reciprocal compensation payments.

25

1   **Q.    HOW SHOULD THE COMMISSION CONSIDER THE ECONOMIC**  
2       **EFFECTS OF LOCAL COMPETITION IN DETERMINING ANY**  
3       **RECIPROCAL COMPENSATION METHODOLOGY?**

4   **A.**   In general, there are benefits to be derived from the development of  
5       more competitive markets, including local exchange markets in  
6       Florida and elsewhere. It is widely recognized that the production  
7       function, and therefore the cost function, of a modern, efficient  
8       telecommunications network are characterized by the presence of  
9       economies of both scope and scale. These economies can be  
10      defined with respect to both an individual customer and the overall  
11      network. To the extent that new entrants are successful, some of the  
12      economies of scope and scale will be lost to the incumbent firm. In  
13      a more competitive market, society will have to dedicate more  
14      resources to the telecommunications sector than would otherwise be  
15      the case with only a single firm providing service. The result is that  
16      the total cost of providing a given level of service increases. In other  
17      words, there are costs involved in providing customers a diversity of  
18      service providers.

19  
20      There is another implication to be drawn from the presence of  
21      economies of scope and scale--the necessity to depart from strict  
22      incremental cost pricing, even in a competitive market. Under current  
23      pricing arrangements, a disproportionate share of the ILEC's common  
24      and overhead costs is derived from multi-line business customers and  
25      users of toll and advanced services. However, new entrants are

1 targeting these same end-user customers because the spread  
2 between incremental cost and price is the greatest. This is only a  
3 statement of how competitive entry should be anticipated to occur. If  
4 the incumbent LEC is to have an opportunity to recover its costs  
5 (including eliminating a portion of them where feasible), then local  
6 exchange competition requires more rational retail pricing.

7  
8 One of the additional costs brought about by the introduction of local  
9 exchange competition is the payment of reciprocal compensation  
10 between carriers, particularly for calls bound to an internet service  
11 provider. Bill and keep arrangements do not make any contribution  
12 to the common costs of the firm, since the implicit price is zero. This  
13 is one of the principal reasons why I recommend a usage-based  
14 reciprocal compensation plan between carriers, provided that a  
15 usage-sensitive pricing structure is also adopted for end user  
16 customers. Notice, however, that there is a critical caveat  
17 incorporated into that recommendation: *If a flat-rated structure is to be*  
18 *the predominant standard for end users, then a usage-based system*  
19 *for compensation for traffic exchanges among rival local carriers is*  
20 *inefficient in the first order, since it automatically results in prices for*  
21 *local usage set at a level below the incremental cost of providing the*  
22 *end-to-end call.* Accordingly, a usage-based compensation approach  
23 should not be approved and adopted in this docket, given the existing  
24 statutory constraints on the Commission's ability to order widespread  
25 measured-rate pricing for basic service.

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18 **Q. IN THE LONGER TERM, WHAT CONDITIONS SHOULD BE**  
19 **APPLIED TO RECIPROCAL COMPENSATION PAYMENTS**  
20 **BETWEEN CARRIERS?**

21 **A.** The first condition is that the payment of terminating access charges  
22 by an ILEC must be considered a legitimate component of the  
23 incremental costs of completing a call on an ongoing basis. Second,  
24 the ILEC must have a customer to bill for that cost, so that measured  
25 services must be available and in effect for end user customers in a



1 particular area for reciprocal compensation issues to be properly  
2 addressed. This is particularly important where a CLEC has signed  
3 up customers that terminate a disproportionate amount of traffic, as  
4 is most definitely the case with ISPs. In such a situation, the marginal  
5 price to the customer originating a call is zero in a flat-rate structure,  
6 yet the cost of providing that call is composed of the production costs  
7 (both originating and terminating) plus the compensation costs. This  
8 scenario automatically results in prices being set below the  
9 incremental costs. This in turn leads to efficiency losses to the  
10 economy as a whole, to financial losses to the company providing the  
11 originating calls under a flat rate system, and to substantial gaming  
12 opportunities for a company receiving the terminating compensation.  
13 The use of a measured alternative for end users ameliorates these  
14 possibilities.

15  
16 That said, I understand that local measured service is not in place in  
17 Florida today for residential customers on a wide-spread basis, and  
18 that will not likely change in the near term. So I would simply make  
19 the observation again that since the end user service is flat-rated,  
20 then the compensation between carriers should also be flat-rated. In  
21 the short run, this includes the bill and keep option.

22  
23 **Q. YOU PREVIOUSLY INDICATED THAT COMPETITIVE INCENTIVES**  
24 **EXIST OR WOULD BE CREATED BASED ON INTERCOMPANY**  
25 **COMPENSATION PRICES RELATIVE TO OTHER PRICES IN**

1           **EFFECT. WOULD YOU PLEASE EXPLAIN THIS STATEMENT?**

2    **A.**    Certainly. Intercompany compensation costs, whether associated with  
3           ISP-bound traffic or otherwise, are legitimate costs of doing business  
4           in a multi-provider market. These costs, in relation to the prices  
5           currently in effect for end users, give rise to incentives to enter or not  
6           to enter the market for residential customers in Florida. To quantify  
7           these incentives, it is possible to make some simple calculations  
8           based on the estimates I have provided above.

9  
10           For example, assume that a Verizon residential customer makes the  
11           estimated 2.7 mean calls per day to an ISP, and the holding time for  
12           each call is 30 minutes. That daily call rate is toward the lower end  
13           of the estimates I presented earlier and would result in monthly usage  
14           of 2430 minutes for traffic to an ISP. Further assume the ISP serving  
15           the residential customer is connected through a CLEC.

16  
17           To provide the call set-up and to maintain the duration in the switch  
18           serving the customer originating the call, assume that the originating  
19           carrier, Verizon, incurs a cost of approximately \$0.004 per minute of  
20           use. For purposes of this example, I will refer to this cost as the  
21           production cost of the customer's call to the ISP. For that customer's  
22           2430 minutes of use, the production cost amounts to an incremental  
23           \$9.72 per month, representing only the calls to the ISP. Verizon will  
24           incur these originating costs regardless of the presence or absence  
25           of an interconnecting carrier. However, if the compensation costs to

1 be paid to another carrier for use of that carrier's network are set at  
2 a level over and above the production costs, as they quite frequently  
3 are, the compensation costs must also be taken into account in  
4 determining the complete costs of these minutes bound for the ISP.

5  
6 As an example, one of Verizon's interconnection agreements in  
7 Florida calls for an intercompany compensation rate of about \$0.0043  
8 per minute of use. Using that rate in the example above, at 2430  
9 minutes of use, the CLEC serving the ISP that our residential  
10 customer called would be paid \$10.45, just for the ISP-bound traffic.  
11 It is this \$10.45 that I refer to as the compensation cost.

12  
13 While the ILEC may benefit from some long-run cost savings by virtue  
14 of the CLEC performing some of the switching functions,  
15 fundamentally the ILEC will incur the incremental cost of production  
16 plus the incremental compensation costs to provide this service to the  
17 residential customer. In our example, the incremental cost of the ISP-  
18 bound traffic alone is approximately \$20.17 per month. To be a bit  
19 more conservative, assume further that the long run avoided costs  
20 can be approximated by the trunk-to-trunk type of high volume  
21 switching as described by Mr. Jones in his testimony. That is, if the  
22 ILEC were to configure its switches to accommodate the type of  
23 customers which the CLECs are signing up, it would realize a much  
24 lower cost per minute of use, since the traffic would largely be  
25 handled over a trunk-to-trunk arrangement. The best estimate of this

1 type of switching cost which Verizon currently has available is the  
2 tandem switching cost of \$0.0009 per minute of use. This would  
3 reduce the incremental cost of handling the 2430 incremental minutes  
4 of ISP-bound traffic by \$2.19 per month, resulting in a total  
5 incremental cost of \$17.98 per month taking into account the best  
6 estimate available of anticipated cost savings in the long run.

7  
8 To examine the consequences on the incentives to enter the  
9 marketplace for residential customers, one must simultaneously  
10 consider the retail prices those customers are seeing in the  
11 marketplace. The majority of Verizon's residential customers in  
12 Florida take service on a flat-rate basis. That rate in Florida is  
13 between \$13.86 and \$16.16 per month after taking into account the  
14 federal SLC. However, even considering the SLC as part of the  
15 incremental price received by Verizon, going back to our example, the  
16 incremental cost of providing that customer with the ISP usage  
17 demanded is greater than the incremental revenue received by as  
18 much as \$ 4.12 per line per month or as small as \$1.82 per line per  
19 month! Accordingly, if there is an expectation on the part of any  
20 entrant that a potential residential customer will be an Internet user on  
21 a dial-up basis and that customer is likely to take ISP service from the  
22 third party, then there is an absolute economic disincentive to sign up  
23 that customer, everything else equal. While a bill and keep  
24 arrangement can not eliminate all of this upward pressure on costs,  
25 it can relieve a substantial portion of the disincentive to serve such

1 customers.

2

3 **Q. WHAT DO YOU RECOMMEND THAT THE COMMISSION DO AT**  
4 **THIS TIME FOR THE EXCHANGE OF TRAFFIC?**

5 **A.** Assuming (contrary to Verizon's view) that the Commission finds it has  
6 the authority to adopt an intercarrier compensation mechanism for  
7 ISP-bound calls, then in the short run, I recommend that the  
8 Commission adopt an approach to intercompany compensation that  
9 follows the price structure in place for end users for that type of call.

10 That is, if the Commission is to treat the call to the ISP as local, then  
11 so long as the end users are billed on a flat-rate basis for their local  
12 service, then the intercompany exchange of traffic should also be  
13 billed on a non-traffic sensitive basis. A bill-and-keep approach meets  
14 this criterion, and will avoid the potentially serious economic  
15 distortions in the price of local service that would result from end user  
16 prices being set below the level of incremental costs, including  
17 compensation costs.

18

19 **Q. DR. BEAUVAIS, CAN YOU BRIEFLY SUMMARIZE YOUR**  
20 **TESTIMONY?**

21 **A.** The briefest summary I can provide to the Commission in terms of  
22 public policy guidance is quite simple: if the Commission is  
23 determined to establish an intercompany compensation structure,  
24 then that structure should match the rate structure faced by the end  
25 user customers. The optimal long run solution would be an

1           originating responsibility plan; a sound short-run plan, given  
2           circumstances in Florida, is a bill and keep plan.

3

4   **Q.    DOES THIS COMPLETE YOUR TESTIMONY?**

5   **A.    Yes.**

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**RESUME**  
**May, 2000**

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**EDUCATION:**

**B.A.** in Economics from Virginia Polytechnic Institute and State University (June, 1971)  
Graduate study in Business and Finance - Virginia Commonwealth University  
(July, 1971 - June, 1973)

**M.A.** in Economics from Virginia Polytechnic Institute and State University (May, 1975)

**Ph.D.** in Economics from Center for the Study of Public Choice, Virginia Polytechnic Institute and State University (May, 1977)

**FIELDS:**

Microeconomic Theory, Economics of Regulation,  
Industrial Organization, Public Choice

**CURRENT POSITION:**

Director - Economic Policy  
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(October, 1997 to Present)

**CURRENT POSITION:**

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(June, 1992 to June 1999)

**PREVIOUS POSITION:**

Chief Economist  
Regulatory & Governmental Affairs  
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(October, 1992 to June, 1997)

**PREVIOUS POSITION:**

Director - Federal Regulatory Matters  
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**PREVIOUS POSITION:**

Director - Pricing Policy  
Product Management Department  
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(June, 1988 to January, 1992)

**PREVIOUS POSITION:**

Adjunct Professor  
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(June, 1982 to Jan. 1989)

**PREVIOUS POSITION:**

Pricing & Economic Policy Manager  
Regulatory Affairs Department  
GTE Service Corporation  
Stamford, CT. 06904  
(June, 1981 - June, 1988)

**PREVIOUS POSITION:**

Senior Economic Analyst  
Regulatory Economic Research  
GTE Service Corporation  
Stamford, CT. 06904  
(January, 1978 - June, 1981)

**PREVIOUS POSITION:**

Senior Technical Analyst  
Management Sciences Section  
GTE Data Services, Inc.  
Tampa, FL. 33601  
(July, 1976 - January, 1978)

**PREVIOUS POSITION:**

Rate Economist  
Dept. of Rates and Contracts  
Virginia Electric & Power Co.  
Richmond, VA. 23219  
(June, 1971 - September, 1973)

**CURRENT RESEARCH:**

*Pricing and costing of evolving telecommunication networks and evaluation of welfare, allocative, and distributive effects of alternative pricing systems; Evaluation of alternative regulatory regimes for public utility services; Demand and cost analysis of telecommunications services; Experimental design of peak load pricing experiments; Evaluation of competition in telecommunications markets.*

**CONSULTING & TESTIMONY PREPARATION:**

Virginia State Corporation Commission: design and development of forecasting methodologies for use by Commission in evaluating capital budgets of electric utilities in Virginia; (August, 1975 - June, 1976)

**Testimony/Exhibits/Comments Prepared and Filed before:**

Federal Power Commission (now FERC)  
Federal Communications Commission  
Virginia State Corporation Commission  
North Carolina Utilities Commission  
West Virginia Public Service Commission  
Public Service Commission of Wisconsin  
Public Utility Commission of Ohio  
Hawaii Public Utilities Commission  
Illinois Commerce Commission  
California Public Utilities Commission  
Kentucky Public Service Commission  
South Carolina Public Service Commission  
Georgia Public Service Commission  
Florida Public Service Commission  
Corporation Commission of Oklahoma  
Indiana Utility Regulatory Commission  
Michigan Public Service Commission  
Iowa Utilities Board  
Pennsylvania Public Utility Commission  
Public Utility Commission of Texas  
Public Utility Commission of Oregon  
Washington Utilities and Transportation Commission



**CONSULTING & TESTIMONY PREPARATION (continued):**

Alabama Public Service Commission  
New Mexico State Corporation Commission  
Minnesota Public Service Commission  
Public Utilities Commission of Nevada

**Other Regulatory Appearances:**

NARUC Technical Education Conference for Commissioners  
New England Council of Public Utility Commissioners

Alabama Public Service Commission Telecommunications Conference  
Virginia State Corporation Commission Annual Conference  
Instructor - NARUC Annual Regulatory Studies Program; Michigan State University  
South Carolina Public Service Commission Annual Conference  
Current Policy Issues Forum for Commissioners, NARUC

**Legislative Testimony:**

Before the Indiana House Commerce Committee  
Before the Illinois Senate Public Utilities Committee  
Before the Florida House of Representatives  
Before the Texas Senate Finance Committee  
Before the Illinois House of Representatives  
Before the Texas House Ways and Means Committee  
Before the Virginia General Assembly

**PRESENTATIONS and PUBLICATIONS:**

"Econometric Estimation of Peak Electricity Demands", Journal of Econometrics, January, 1979 (with R.M. Spann);

"An Interventionist Theory of Public Utility Regulation", Paper presented to the Virginia Economic Association, March, 1976, Richmond, VA;

"Alternative Bidding Arrangements: A Study of Risk and Uncertainty in the Domestic Oil Industry", Paper presented to the Western Economic Association, June, 1976, San Francisco, CA. (with S. Millsaps);

"The Demand for Residential Telephone Services Under Non-Metered Tariffs: Implications for Alternative Pricing Policies", Paper presented to the Western Economic Association, June, 1977, Anaheim, CA;

"The Financial Effects of Local Measured Service on the Operating Telephone Company", Paper presented to the Telecommunication Industry Workshop, March, 1979, Kansas City, MO;

"Forecasting Peak Electricity Demands", Paper presented to the Electric Power Research Institute, April, 1977, Aspen, CO;

"The Supply of Private, Semi-Public, and Public Goods: Budget Size in a Democracy Revisited", The Southern Economic Journal, October, 1978, (with J.M. Fesmire)

**PRESENTATIONS and PUBLICATIONS (continued):**

"Econometric Estimation of Peak electricity Demands", Paper presented to the Southern Economic Association, November, 1977, New Orleans, LA. (with R.M. Spann); also appearing in Forecasting and Modeling Time-of-Day and Seasonal Electricity Demands, Electric Power Research Institute, December, 1977.

"The Demand for Electricity in Virginia", The Review of Economics and Statistics, November, 1978, (with R.M. Spann, M. Murray, and L. Pulley);

"An Evaluation of Potential Welfare Gains from Usage Pricing of Local Telephone Service", Paper presented to the Western Economic Association, June, 1978; Honolulu, HI.

"Review of Modern Political Economy", The Southern Economic Journal, January, 1980.

"The Financial Effects of Local Measured Service", in Perspectives on Local Measured Service, TIW, October, 1979;

"Usage Sensitive Pricing", Proceedings of the 5th Annual Symposium on Rate making Problems of Regulated Industries, May, 1979, (with G. Cohen);

"The Demand for Local Exchange Service: Some Implications for Planning", Proceedings of the 3rd International Conference on Analysis, Forecasting, and Planning for Public Utilities, June, 1980, Paris, France; (with G. Cohen);

"Local Loops as Barriers to Entry?", in Challenges for Public Utility Regulation in the 1980s; Michigan State University: December, 1980; also appearing in Proceedings of Workshop on Telecommunication Issues; Bureau of Utility Research, University of Connecticut: January, 1984; (with J. Alleman);

Universal Measured Service Policy Statement, GTE Service Corporation, March, 1980.

"No Main Is An Island", Paper presented to the Western Economic Association, July, 1981, San Francisco, CA. (with J. Alleman).

"Review of Peak Load Pricing: European Lessons for US Energy Policy", The Southern Economic Journal, July, 1981.

"Predicting Local Telephone Usage Under Measured Service", Public Utilities Fortnightly, August 5, 1982; (with G. Cohen and L. Garfinkel);

"The Economic Impact of Access Charges: Does Anyone's Ox Need to be Gored?", in Adjusting to Regulatory, Pricing, and Marketing Realities; Michigan State University, December, 1983, (with L. Cole);

"Metering Costs and Measured Service: An Evaluation of Efficiency Gains from Usage Sensitive Pricing of Telephone Service", Paper presented to the Institute of Public Utilities, December, 1983, Williamsburg, VA. Also in Changing Patterns in Regulation, Markets, and Technology: The Impact on Public Utility Pricing; Michigan State University, December, 1984.

**PRESENTATIONS and PUBLICATIONS (continued):**

"A Cost-Benefit Analysis of Alternative Local Service Pricing: Estimates From a US Telephone Company", in **Local Telephone Pricing: Is There a Better Way?**: Canadian Radio-Television & Telecommunications Commission and The Centre for the Study of Regulated Industries, McGill University, Third Quarter, 1984.

"An Overview of the Economic Impacts of Local Measured Service", Paper presented to the Kentucky Telephone Association, May, 1985, Lexington, KY;

"Exchange and Interexchange Rate Design", Presented to the NARUC Annual Regulatory Studies Program; Michigan State University, June, 1985.

"Cost Trends in Telecommunications", Presented to the Electronic Funds Transfer Association, June, 1985, New Orleans, LA;

**Rational Pricing in a Competitive/Regulated Environment: Conceptual Statement of Rate Design and Public Policy.** GTE Service Corporation, August, 1985.

**Rational Pricing in a Competitive/Regulated Environment: Strategy Implementation Guidelines.** GTE Service Corporation, December, 1985.

"Alternatives for Traffic Sensitive Cost Recovery", Paper presented to Bellcore Seminar on TS Costs; March, 1986, Seattle, WA;

"Implications of Cost Characteristics of New Technologies for the Pricing of Telecommunications Services", Presented to the University of Georgia Public Utilities Conference, September, 1986, Atlanta, GA;

"La tarification des telecommunications", in **Le Bulletin de l'Idate**, April, 1986; Geneva; (with J. Alleman, L. Cole, and N. Stolleman);

"The Competitive Pricing of Telecommunications Services: Does LMS Still Have a Place?", Paper presented to Conference on Local Measured Service, May, 1987, Washington, D.C.

"Rational Pricing of Telephone Services in the New Environment", Presented to the Georgia Telephone Association, June, 1987, Jekyll Island, GA.

"Funding Tomorrow's Electronic Highways; Who Should Pay the User Fees?: Trucks? - Nissans? - Ferraris?," Presented to Tennessee Tomorrow, Belmont College: Nashville, Tennessee, September 30, 1987; Tennessee Public Service Commission, Tennessee Telephone Association, Tennessee Department of Economic and Community Development, Tennessee Technology Foundation, Tennessee Valley Aerospace Board. Abstract published in **Tennessee Tomorrow: Building Electronic Highways for Economic Growth.**

"Of Taxis and Telecommunications," Invited paper presented to the First Annual Telecommunications Conference, August 16-17, 1988. Sponsored by the Alabama Public Service Commission, Birmingham, Alabama.

"Costing Strategies in a More Competitive Environment," Invited paper presented to the GTE North Regulatory & Legal Conference; August 23-24, 1988, Lake Geneva, Wisconsin.

**PRESENTATIONS and PUBLICATIONS (continued):**

"Regulatory Reform: A Vision of the Future From the Perspective of a Local Exchange Company," Presented to the Tennessee Telephone Association Annual Conference, September 9, 1988; Chattanooga, TN.

"Private Transmission Networks: The Evils of Bypass or Fulfilling Unsatisfied Customer Needs," Paper presented to the 4th Annual Conference on Telecommunications Regulation, January 22, 1989, University of Utah, Salt Lake City.

"LMS for ESPs Under ONA BY FCC with PUCs," Paper presented to the Southeastern Regional Public Utilities Conference, the University of Georgia, August 30, 1989, Atlanta, GA.

"The Parable of the Taxi," OPASTCO Roundtable, Fall, 1989 (with D. Johnson, and R. Calkins).

"Local Exchange Competition: Where Is Competition Taking Us? or Bottleneck? What Bottleneck," Paper presented to the Institute of Public Utilities, Michigan State University, December 11, 1991, Williamsburg, Virginia. Appearing in Regulatory Responses to Continuously Changing Industry Structures, Michigan State University. Also presented to the OPASTCO Annual Winter Convention & Workshops, January 21, 1992, Orlando, Florida.

"Local Transport Competition: Interconnection and Price Reform - Expanding the Scope," paper presented to the Center for Public Utilities, College of Business Administration and Economics, New Mexico State University, March 11, 1992, Santa Fe, New Mexico.

"Expanded Interconnection and Access Competition: A Holistic Approach to Products and Prices," paper presented to the 18th Annual Rate and Regulatory Symposium, The Changing Environment: Competition, Regulation and Incentives, April 27, 1992, St. Louis, Missouri.

"Regulation and Competition: Sweet Siblings or Evil Twins?," paper presented to the University of Kansas 1992 Fall Stakeholders Symposium on Telecommunications, November 17, 1992, Lawrence, Kansas.

"Some Preliminary Thoughts On Public Policy Implications of Personal Communication Services: Impacts On Support Mechanisms, Price Levels, and Rate Structures," appearing in Washington Telecom Week, December 4, 1992 (Volume 1, No. 36).

"On the Road to Divestiture II: New Organizational & Regulatory Structures for GTE," paper presented to GTE South Area Key Management Meeting: Challenging Times ... Challenging Issues, March 17, 1993, Tampa, Florida.

"Local Exchange Service: What Bottleneck?," Teletimes (Spring, 1993) pp 2 - 5, 17.

"The Good, The Bad, and The Ugly: Regulation and Competition," paper presented to the University of Kansas 1993 Advanced Tele-Management Program, May 26, 1993, Lawrence, Kansas.

"Public Policy for a Multiproduct Firm: Tearing Down the Berlin Wall in Telecommunications," Utilities Policy (November, 1993), (with Virginia Sheffield)

"Fiber To The Cow?? Fiber's Role In The Competitive Marketplace," paper presented to the 16th Annual Newport Conference on Fiberoptics Markets, October 19, 1993, Newport, Rhode Island.

**PRESENTATIONS and PUBLICATIONS (continued):**

"Regulation and Competition: Bet You Can't Have Just One," paper presented to the University of Kansas 1993 Fall Stakeholders Symposium on Telecommunications, November 18, 1993, Lawrence, Kansas.

"Competition and Rivalry in Telecommunications Markets: Definitional Issues," invited paper presented to NARUC Winter Meetings, February 24, 1994; Washington, D.C.

"Telecommunications Regulation Between Technological Dynamics and Public Policy Goals," paper presented to Current Policy Issues Forum - 19 West, Michigan State University, July 25, 1994, San Diego, California.

"On Market Share & Market Power in Telecom Markets," New Telecom Quarterly (Fourth Quarter, 1994) Volume 2, Number 4, pp. 48 - 52.

"Pricing for Competition: Markets, Politics, Economics & Public Policy," paper presented to TeleStrategies Conference, June 2, 1995, Washington, D.C.

"The Texas Telecommunications Three-Step," paper presented to the Texas Telephone Association Foundation Industry Symposium, April 30, 1996, San Antonio, Texas.

"Organizational Implications of the FCC Interconnection Order," paper presented to the Fourteenth Annual AUM Business Economics Forum, The New Competition in Telecommunications, November 7, 1996, Auburn University, Montgomery, AL.

"Preliminary Implications of the FCC Interconnection Order," The Southern Business & Economic Journal, April, 1997, Volume 20, Number 3, pp.156-175.

"Scale Economies in Cellular Telephony: Size Matters," Journal of Regulatory Economics, February, 1999, (with R. Dean Foreman).

**COURSES TAUGHT**

Principles of Economics  
Introduction to Econometrics  
Public Policies Toward Business  
Introduction to Public Choice Theory

Industrial Organization  
Managerial Economics  
Intermediate Microeconomic Theory  
Public Finance

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Public Choice Society  
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December 1, 2000

Ms. Blanca S. Bayo, Director  
Division of Records & Reporting  
Florida Public Service Commission  
2540 Shumard Oak Boulevard  
Tallahassee, FL 32399-0850

RECEIVED-FPSC  
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Re: Docket No. 000075-TP  
Investigation into appropriate methods to compensate carriers for exchange of  
traffic subject to Section 251 of the Telecommunications Act of 1996

Dear Ms. Bayo:

Please find enclosed for filing in the above matter an original and 15 copies of the  
Direct Testimonies of Edward C. Beauvais and Howard Lee Jones on behalf of  
Verizon Florida Inc. Service has been made as indicated on the Certificate of Service.  
If there are any questions regarding this matter, please contact me at 813-483-2617.

Sincerely,

*Kimberly Caswell*  
Kimberly Caswell

KC:tas  
Enclosures

- APP \_\_\_\_\_
- CAF \_\_\_\_\_
- CMP *Marsh*
- COM *Storg*
- CTR \_\_\_\_\_
- ECR \_\_\_\_\_
- LEG \_\_\_\_\_
- OPC \_\_\_\_\_
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- RGO \_\_\_\_\_
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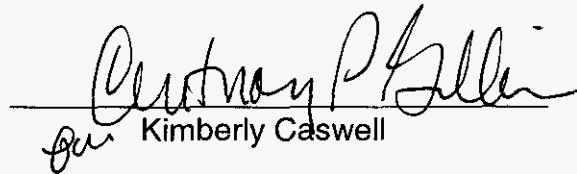
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**CERTIFICATE OF SERVICE**

I HEREBY CERTIFY that copies of the Direct Testimonies of Edward C. Beauvais and Howard Lee Jones on behalf of Verizon Florida Inc. in Docket No. 000075-TP were sent via U.S. mail on December 1, 2000 to the parties on the attached list.

  
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