BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of:

PETITION OF COMPETITIVE CARRIERS FOR COMMISSION ACTION TO SUPPORT LOCAL COMPETITION IN BELLSOUTH TELECOMMUNICATIONS, INC.'S SERVICE TERRITORY. — DOCKET NO. 981834-TP

PETITION OF ACI CORP. d/b/a ACCELERATED CONNECTIONS, INC. FOR GENERIC INVESTIGATION TO ENSURE THAT BELLSOUTH TELECOMMUNICATIONS, INC., SPRINT-FLORIDA, INCORPORATED, AND GTE FLORIDA INCORPORATED COMPLY WITH OBLIGATION TO PROVIDE ALTERNATIVE LOCAL EXCHANGE CARRIERS WITH FLEXIBLE, TIMELY, AND COST-EFFICIENT PHYSICAL COLLOCATION. — DOCKET NO. 990321-TP

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VOLUME 6

Pages 797 through 906

PROCEEDINGS:	HEARING
BEFORE:	CHAIRMAN BRAULIO L. BAEZ COMMISSIONER J. TERRY DEASON COMMISSIONER LILA A. JABER COMMISSIONER RUDOLPH "RUDY" BRADLEY COMMISSIONER CHARLES M. DAVIDSON
DATE:	Thursday, January 29, 2004
TIME:	Commenced at 9:35 a.m. Concluded at 11:46 a.m.

PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	TRICIA DeMARTE, RPR Official FPSC Reporter (850) 413-6736
APPEARANCES:	(As heretofore noted.)

I N D E X

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CHAIRMAN BAEZ: All right. We'll go back on the record. Ms. Keating.

MS. KEATING: Staff calls Mr. Rowland Curry to the stand. And, Mr. Curry, just to be clear for the record you have been sworn; isn't that correct?

MR. CURRY: Yes, I have.

ROWLAND L. CURRY

was called as a witness on behalf of the Staff of the Florida Public Service Commission and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MS. KEATING:

Q If you would go ahead and state your full name for the record.

A My name is Rowland L. Curry.

Q And by whom are you employed and in what capacity?

A I'm the principal of Curry & Associates, a self proprietorship. And we are engaged, along with Dr. Gabel, by the Public Service Commission staff to offer independent analysis in this proceeding.

Q And did you cause to be filed in this matter revised rebuttal testimony consisting of 25 (sic) pages?

A Yes.

Q And do you have any corrections to that testimony?

A No.

Q And if I asked you the same questions, would your answers be the same?

A Yes.

MS. KEATING: Mr. Chairman, I'd ask that the revised rebuttal testimony of Mr. Rowland Curry be entered into the record as though read.

CHAIRMAN BAEZ: The revised rebuttal testimony of Rowland Curry will be so entered into the record as though read.

MS. KEATING: And, Mr. Chairman, just for purposes of clarity, I would like to note that Mr. Curry's testimony is confidential; there are portions of it that are confidential. We actually filed two confidential copies. One that reflected a strike through version with the corrections contained therein and then an unmarked version with the portions removed.

CHAIRMAN BAEZ: Very well.

MS. KEATING: Just for purposes of clarity of the record, I would suggest that only the unmarked version be entered so that you don't have redundant copies and that would be Document Number 06041-03.

CHAIRMAN BAEZ: Let the record so reflect. Thank you, Ms. Keating.

BY MS. KEATING:

Q And, Mr. Curry, did you also cause to be prepared exhibits attached to your testimony, RLC-1 and RLC-2?

A Yes, I did.

Q And do you have any corrections to those exhibits?

A No, I do not.

MS. KEATING: Mr. Chairman, I ask that Mr. Curry's exhibits be marked for identification. And I would suggest that they be given separate numbers because RLC-1 is a confidential exhibit -- I mean, RLC-2, I'm sorry.

CHAIRMAN BAEZ: Exhibit RLC-1 shall be marked as Exhibit 51, and RLC-2 shall be marked as Confidential Exhibit 52.

MS. KEATING: Thank you, Mr. Chairman.

(Exhibits 51 and 52 marked for identification.)

REBUTTAL TESTIMONY OF ROWLAND L. CURRY

Q. Please state your name and business address.

A. My name is Rowland L. Curry. My business address is 1509 Mearns Meadow Blvd., Austin, Texas 78758.

Q. By whom are you employed and in what capacity?

A. I am self-employed as the Principal of Curry & Associates, an independent telecommunications consulting firm. For the purposes of this proceeding, I am working in partnership with Gabel Communications, having been retained by the staff of the Florida Public Service Commission. Dr. Gabel and I are providing expert analysis of the costs of collocation elements filed by BellSouth, Verizon, and Sprint in this proceeding.

Q. Please provide us with information regarding your relevant experience.

A. Prior to beginning my consulting career in 2001, I worked on the staff of the Public Utility Commission of Texas for almost 25 years. In total, I have over 30 years experience in the telecommunications industry, with work activities ranging from technical circuit design to national telecommunications policy. My vita is attached to this testimony as Exhibit RLC-1.

Q. Have you ever participated in proceedings before the Florida Public Service Commission or other regulatory bodies?

A. I have not previously testified before the Florida Public Service Commission. While employed on the staff of the

Texas PUC, I testified in, or was otherwise involved in hundreds of proceedings. In addition, I have been involved as a consultant in proceedings in Nevada, Texas, and Pennsylvania, as shown in my vita.

Q. Which specific issues do you intend to address in this testimony?

A. I have analyzed the cost studies filed by BellSouth Telecommunications, Inc. ("BellSouth"), Verizon Florida Inc. ("Verizon"), and Sprint-Florida, Inc. ("Sprint") in these proceedings, specifically with regard to the provision of DC power elements and related issues.

I will address the calculation and application of recurring and non-recurring power charges by the three applicants in the following sections.

Q. How does BellSouth propose to charge for DC power elements?

A. BellSouth proposes to charge a monthly recurring rate for power; they have computed a cost of $7.28 rate per fused amp.[1] The cost, designated as H.1.8 in the BellSouth study, is designed to recover the investment associated with BellSouth's DC power plant (e.g., batteries and rectifiers) and monthly commercial AC charges.[2] The costs and rates are identical for physical

[1] It should be noted that BellSouth has also developed a cost for DC power per *used* ampere, designated H.1.71.

[2] Direct Testimony of W. Bernard Shell, Exhibit WBS-3, Feb. 4, 2003.

collocation and virtual collocation; there are no discrete DC power costs for adjacent or remote applications. BellSouth does not propose to apply non-recurring charges for recovery of DC power costs.

Q. How has BellSouth calculated the cost per fused amp?

A. BellSouth begins by entering a number of inputs or assumptions into its BellSouth Cost Calculation (BSCC) Model, including the average investment per amp requested, the average monthly cost per kilowatt hour, the rectifier efficiency, and so forth. The BSCC model then establishes a cost for this rate element per ampere per month.

Q. What are your observations regarding the reasonableness of the inputs and calculations?

A. I have concerns regarding the reasonableness of BellSouth's input for "Average Investment per Fused Amp" used in the cost study for H.1.8; which is the most critical of the inputs in the cost calculations. I did not perform an in-depth review of the BSCC model. I have not discovered significant irregularities in other inputs and assumptions that go into the model.

Q. Can you be more specific about your concerns regarding the average investment per fused amp?

A. Yes, I can. BellSouth's work papers contain a Florida-specific "Sample of Power Construction for Collocation" [3]

[3] File name: "H.1.8, H.1.71 & H.2.4.xls"

spreadsheet that shows power plant construction additions, ALEC-dedicated cable costs, and DC amps requested for central offices in which ALECs ordered collocation. On a separate work sheet in the same data file, BellSouth shows "Regional Plant Construction $$$ / Amp", showing a total of $***** per amp. BellSouth's primary inputs are derived from this regional computation, by multiplying the regional construction amount per amp by the "Protection Device Adjustment" of **% for the H.1.8 study, resulting in a construction cost per fused amp of $****. The latter adjustment accounts for the fact that protective devices (fuses and circuit breakers) are normally sized at 150% of the maximum amperage requested.

BellSouth has provided no sound basis for the regional construction cost per ampere for this study. The adjacent, Florida-specific work sheet in the same data file displays the costs for power plant additions resulting from collocations in Florida central offices, along with the additional ampere capacity enabled by the construction. The construction costs vary widely, and must be assumed to reflect the cost of construction additions or augmentation of existing power facilities.

Q. Is there a clear pattern that emerges with regard to the power facility costs?

A. No, there is no clear pattern or trend. Using the BellSouth data, I calculated the construction cost per ampere for

each of the central office entities shown on the worksheet. The results, shown on Exhibit RLC-2, range from zero (no construction cost of power facilities for additional collocation amps) to infinity (construction costs shown, but no collocation amps requested). Discarding those obvious outliers, the costs per ampere for 93 Florida central offices range from $** to $****** per ampere.

Q. What is the reason for the extreme variation?

A. It is impossible to know for certain without examining each of the projects and determining the specific reasons in each case. However, it is intuitive that these construction costs represent augmentation (rather than new placement) of power facilities, and that some of the projects clearly go beyond the isolated requirements for collocation. In one Miami central office, for example, BellSouth reports that they spent more than $******* for power equipment on a request for collocation involving less than ** amperes. For comparative purposes (using Verizon and Sprint data provided in this proceeding[4]), that type of power plant expenditure should produce approximately 1,000 amperes of additional power capacity. In another instance, BellSouth was able to provide a collocation request for *** amperes with no construction expenditures shown. Power plant investments are often characterized as "lumpy" investments, as are buildings and

[4] See Verizon Exhibit BKE-1, sheet "DC Power Fac3-CS", Sprint Exhibit JRD-2, sheet "DC Power Plant Investment WP".

central offices in general. Additions generally exceed the immediate, incremental need and as a result provide for future utilization.

Q. Do you have other concerns regarding this input in the BellSouth studies?

A. Yes, I do. Since BellSouth apparently developed this input based on a sample of regional office power augmentations, there is no singular relationship between specific power needs and the cost of meeting those needs. Costs for collocation elements should be established on TELRIC principles, not a sample of embedded costs. The FCC's interconnection pricing order requires that TELRIC cost estimates be obtained "by dividing the total cost associated with the element by a reasonable projection of the actual total usage of the element."[5] By basing their primary cost input for both of these studies on their augmentation sampling methodology, BellSouth has not established an appropriate TELRIC cost for actual usage.

The additional, obvious concern is that BellSouth used a regional, rather than Florida-specific, average investment per fused amp. Even if one were to accept the methodology of averaging recent power projects, the company provided no back-up data for the derivation of the regional investment.

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[5] *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, Report and Order, CC Docket No. 96-98, 11 FCC Rcd 15499 (1996), ¶682.

Q. What is your recommendation with respect to the BellSouth calculation?

A. The Commission should require BellSouth to recalculate their cost per fused ampere using a more accurate average investment per fused amp. I recommend that BellSouth be instructed to recalculate their average investment using an incremental, building-block-of-capacity approach, using BellSouth-specific investment data and Florida-specific weightings.[6] The result should be provided to the Commission for analysis and approval. That critical input can then be loaded into the BSCC to develop the resultant cost per fused amp.

Q. In your earlier response regarding Issue 6A, you indicated that BellSouth and Sprint should be required to allow their collocating customers the option to purchase power based on the collocator's calculation of equipment power drain. What impact will that have on BellSouth's calculations?

A. BellSouth already performed the calculation of DC power cost per *used* ampere, as shown in cost element H.1.71. The computations are identical to those used for cost element H.1.8, with the exception that the **** multiplier is not used for H.1.71. To the extent that BellSouth provides more suitable support for the investment per ampere as an input to the BSCC model, the revised cost should be easily derived.

[6] It should be noted that Sprint uses an incremental methodology in the development of its power facility cost per amp in this proceeding.

Q. How does Verizon structure its tariff charges for DC power for collocation?

A. Verizon uses a combination of non-recurring charges and monthly recurring charges for the recovery of costs associated with DC power facilities. The non-recurring charges are designed to recover costs of engineering as well as the wire and cable to the battery distribution fuse bay (BDFB). The monthly recurring charge recovers the cost of the installed power plant infrastructure, cabling from the main power board to the BDFB, fuses and panels, and an allocated cost of commercial utility service. As previously discussed, Verizon prices its power for collocation on a per-amp-used basis, for each load amp ordered by the ALEC.

Q. How are Verizon's monthly recurring costs calculated?

A. The recurring cost element, DC Power Facility, includes the cost of materials and installation to provide DC power to the collocator's area. Costs include power cables that deliver power from the power plant to the BDFB, fuse panels, relay racks, distribution bays, and a portion of the existing power plant (batteries, rectifiers, backup generator, main fuse panel, etc.).

In its studies, Verizon used current estimates for power plant equipment investments for central offices of varying sizes. Verizon weights the cost of power plant equipment according to the distribution of exchanges, by line size, within Florida. The

company also develops a cost of providing power cable from the main power distribution board to a battery distribution fuse bay (BDFB) in the collocator's area. Verizon's study is contained in standard spreadsheets, and the process is reasonably easy to follow. Many of the inputs and estimated costs of equipment and labor are provided by Verizon's GTEAMS, a company-wide accounting system.

Q. Have you reviewed Verizon's methodology and calculations for their recurring costs and rates, and have you formed general opinions regarding their study?

A. The company's methodology uses largely embedded investments and data to compute costs. Although the model is "open", in that it can be easily followed on standard spreadsheets, much of the supporting information, inputs, and assumptions are obtained from Verizon's GTEAMS system. As I discuss in this testimony, there are outputs from the GTEAMS system that do not appear reasonable, but a comprehensive examination of GTEAMS has not been possible within the scope of this project.

Q. Have you identified specific issues in Verizon's recurring cost studies that should be addressed?

A. Yes, I would highlight the following specific power cost development elements within Verizon's recurring cost studies that I have identified as being in error or overstated:

- The EF&I cost of power per ampere.
- The installation charge ratios for power cables.
- The annual cost factor for power equipment.

Q. Please discuss your concerns with respect to the EF&I cost of power per ampere.

A. The EF&I (Engineered, Furnished, & Installed) cost of power per ampere appears to be overstated, and Verizon's computations contain a number of unsubstantiated assumptions and inputs. Because of the confidential nature of these studies, I will describe my concerns in general terms, but with enough specificity that the reader may follow the description within the confidential worksheets.

- Referring to Verizon's cost calculations on Sheet DC Power Fac 4-CS, the company uses an installation ratio to calculate the cost of installing power facilities up to an office line size of approximately 20,000 lines. Rather than continue the use of the same installation ratio for larger offices, the calculation inexplicably shifts to a larger multiplier, doubling, and then tripling the installation cost of power facilities for larger offices (see cells D38 and D39). The company provides no support for the larger multiplier, but the effect is to significantly increase the installed cost of power facilities for larger offices, which should benefit from

the economy of scale in providing a larger number of amperes for service to a larger number of customer lines. In addition, since the company's weighted (per line) average cost per ampere is heavily weighted toward the larger central offices, overstated costs in those larger offices will skew the overall company cost upward. Unless the company can provide persuasive arguments for the expanding installation costs, the computations should be recalculated using the same installation ratio as used for medium-sized offices.

- Referring to Verizon's cost calculations on Sheet DC Power Fac 3-CS, the company inserts amperage assumptions into cells B11 through B14 that purport to represent the amount of amperage capacity produced by the power plant investment shown. In order for the calculations to be correct, the amperage capacity must be the *highest* amount that can be produced from the power plant that costs the amount shown. Verizon has provided no information on the source of that data. The data are critical, as they are used to derive the installed cost per ampere of the power plant. By way of comparison, the amperage capacities used by Verizon are not consistent with those used by Sprint in their worksheets, and Verizon's installed cost per ampere of its larger power facilities is approximately 1.7 times the cost

per ampere calculated by Sprint in its studies. The Commission should require Verizon to provide additional support for the maximum amperage capacity of the power facilities for which it has developed plant investment in this study.

Q. Can you describe what is involved in pulling power cable, and how Verizon has calculated the cost of that activity?

A. This activity basically consists of pulling a large power cable (up to approximately 1 inch in diameter) from its shipping reel up into the appropriate cable rack location, and securing it to the cable rack. Power cables are pulled in pairs or quads, as there must be two conductors for the power circuit, and there should be two power feeds for redundancy.

Verizon splits the cost of providing power cable into two components. The cost of cabling from the main power board to the BDFB is included in the recurring monthly rate for DC Power Facilities. The cost of cabling from the BDFB to the collocator's area is included in the non-recurring charge for DC Power - Cable Pull & Termination.

Verizon uses two different methods to calculate the installation labor charges for installing the power cables. For the recurring cost study, Verizon has used an installation charge ratio that is applied to the cable material cost to calculate the cost of installation. For the non-recurring cost study, Verizon

proposes a labor-hour-per-foot method to calculate the cost of installing the same type of cable. As I will discuss below, I believe both methods provide erroneous results.

Q Please discuss your concerns with respect to the installation charge ratios for power cables in this study.

A. The cost of power cables from the main power board to the BDFB is included in Verizon's monthly recurring charges for DC Power Facilities, and their underlying cost studies. While the cost of the cables themselves appears reasonable, the ratios used to calculate the cost of installation are overstated. Using the company's installation ratio of ********, the cost for pulling 20 power cables for a distance of ***** feet would be $********, which - using a $50 loaded labor rate - equates to over ***** hours.

Q. How are the company's installation ratios calculated, and are they based on objective or quantitative information?

A. Verizon relies on estimates provided by subject matter experts (SMEs) who are typically requested to provide an average time estimate associated with a task. As discussed in more depth in Dr. Gabel's testimony, cost estimates by SMEs have been found to be subjective or biased by state regulators and the FCC. In my opinion, the Commission should review SME estimates closely, comparing those estimates to known, objective data sources if available, and to the basic test of reasonableness.

Q. Is there a more reasonable estimate available for the installation charge ratio?

A. By way of comparison, the RS Means database indicates that a three-person crew should be able to install 100 feet of 750 MCM power cable in 5 labor-hours, or 1.66 hours per cable.[7] Thus, to install 20 cables at *** feet in length would require approximately *** labor-hours, according to the Means data, at a cost of approximately half of the installation cost (using Verizon's loaded labor rate) estimated by Verizon.

Q. Please discuss your concerns with respect to the annual cost factor for power equipment in Verizon's cost study

A. The annual cost factor for power equipment appears high, in part as a result of the revised depreciation rates proposed by Verizon witness Mr. Sovereign. The annual cost factors should be adjusted to reflect the current plant life and salvage decisions of the Florida PSC. The annual cost factor should also be revised to reflect other adjustments, such as the cost of capital, which will be addressed in other portions of staff testimony.

Q. What non-recurring rate elements for power facilities are proposed by Verizon, and how are their costs calculated?

A. Verizon proposes three elements for non-recurring costs and rates with respect to DC power: Engineering, Cable Pulls & Terminations, and Ground Wire. According to Verizon witness Ms.

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[7] *Building Construction Cost Data, 61st Annual Edition* (2003), R.S. Means Company, ("Means 2003 Data"), p. 459, 16120-900-0900.

Ellis, the engineering time associated with the provisioning of power is based on Verizon's experience, and includes checking power requirements for available power, drafting a work order, ordering equipment and materials, updating records, and closing the work order once the work activity has been completed.

The second non-recurring cost element, Cable Pulls & Terminations, includes the material and labor involved in pulling the power cable from the Battery Distribution Fuse Bay (BDFB) to the collocator's specific location. It should be noted that the collocator may purchase the power cable from Verizon or provide the cable for Verizon to install. (Separate power cable rates are available if the cable is purchased from Verizon.) The Verizon cost study relies on GTEAMS data and estimates of work activity times by subject matter experts.

In order to terminate the power cable, a connector tap must be placed on each end of the cable. The termination cost includes the cost of the connector tap and the time to place the tap. The placement of the tap is based on the Central Office Equipment Installer's estimated hours per unit (HPUs).

The third non-recurring rate and cost calculation is for the ground wire - *#6* American Wire Gauge (AWG) - that is used in grounding the relay rack or cabinet to the floor ground bar. The source of the cost per linear foot, according to Verizon witness Ms. Ellis, is the GTEAMS database.

Q. Have you reviewed the cost studies for the non-recurring power elements, and if so, what opinions have you formed with respect to those studies?

A. I have briefly reviewed the rates and costs for the engineering and ground wire elements. These charges are relatively low when compared to other Verizon non-recurring charges, and as a result, my review of these elements has been cursory. I found no significant errors in my examination of the cost calculation for these two elements.

Q. Have you reviewed the calculations involved in the third element, Cable Pulls & Terminations, and if so, what are your findings?

A. Yes, I have. In a number of instances, the costs or time estimates appear high, and should be modified. Specifically, I am concerned about the estimated time for pulling the power cables from the BDFB to the collocation area, and the cost of the fittings used to terminate or connect the cables at their ends.

Q. You have previously described cable installations, and the differences in the methodologies proposed by Verizon for calculating their installation cost. What specific concerns do you have regarding the calculation of non-recurring costs?

A. As I mentioned previously, for the purpose of calculating non-recurring costs, Verizon uses an estimate of the time required per foot to install power cable. Verizon's

estimated time for an installer to pull power cable is **** minutes per foot, per cable. The company has determined that the appropriate length of a "typical" cable pull from the BDFB to the collocation area is **** feet for the purpose of calculating non-recurring costs and rates for the activity. For the two cables needed for the typical installation (**** feet) Verizon's estimates would allow the installer ****** hours, which is simply not credible. It is neither plausible nor defensible that even the slowest of workers would be allowed almost a week to pull two cables that distance.

Q. What is a more reasonable estimate of the cost or time required to install this power cable?

A. The estimate should be adjusted downward such that the installation time is 3 minutes per foot per cable. RS Means data indicate, as discussed earlier, that a crew of three installers should be able to install a 750 MCM power cable over a distance of 100 feet in 5 labor-hours. The resulting time requirement per foot is 3 minutes. The use of this lower input value will result in a more reasonable expectation that the placement of two **** foot cables would take ***** labor-hours. For a crew of three persons, then, this task should take a little over ***** hours.

Q. What are your concerns about Verizon's estimate of the cost of connector taps for the power cables?

A. The cost of a 750 MCM connector tap - used as an element to develop cable costs on worksheet DC Power Fac 5-CS - is ********, based on Verizon's GTEAMS data base. The cost of that simple piece part is clearly exaggerated, and should be reduced to a more reasonable amount. For comparative purposes, R. S. Means estimates the cost of a 500 MCM connector tap at $17.40.[8] Verizon should be instructed to obtain price quotes from at least two unaffiliated vendors for this component, and adjust their studies accordingly.

Q. Are there other non-recurring rate and cost elements that are related to the provision of DC power that you have reviewed?

A. Yes, my review of Verizon's other non-recurring cost studies reveals a number of estimates that I do not believe are reasonable. The Commission should instruct Verizon to adjust these elements and recompute the results.

- Verizon's calculation of costs for a cage grounding bar (including the mounting and cabling costs) are extremely high.
    - o As discussed in a previous section, Verizon's time estimates for placing power cable are very high, at **** minutes per foot, which results in an estimate of ******* hours to run the **** foot cable for this

[8] *Means 2003 Data*, p.457, 16120-230-3800.

activity. A more reasonable estimate would be 3 minutes per foot, as calculated previously from the RS Means data, resulting in an estimate of ****** hours to place this cable. It should be noted that Verizon elsewhere states that the R.S. Means cost of pulling ***** feet of ground cable for the floor ground bar is only $***,[9] while the amount proposed by Verizon for this component is $***.

- In another estimate within the same cage grounding bar element, Verizon estimates the time required to mount the ground bar to the cage to be ******* hours. That estimate appears excessive. The company should be required to provide additional documentation in the form of time-and-motion study on this activity; otherwise the time allocated to this operation, for the purpose of cost calculations, should be set to one hour.

Q. Do you have additional issues to address regarding Verizon's power cost calculations?

A. Yes. Because of Verizon's flat-rated non-recurring charge for DC Power-Cable Pull & Termination, the company has made certain assumptions as to the lengths of cable to be used to connect the collocator's equipment to the Verizon power plant.

[9] See worksheet "Floor Ground Bar-CS", Exhibit BKE-1, P 156 of 235.

Verizon has not addressed any separate calculations or rates to be applied in a remote office application. To the extent that Verizon uses the same assumed power cable length, and other factors, for remote office applications, the costs may not be accurate. The Commission should require Verizon to provide substantiation of costs for any rates that may be applicable in a remote office scenario.

Q. How does Sprint structure its tariff charges for DC power for collocation?

A. According to Sprint witness Mr. Davis, the DC Power category includes monthly recurring charges for use of the DC power plant along with the commercial AC power that is converted to DC power. In addition, a monthly recurring charge is assessed for "recurring expenses related to the power cable connection." Further, The DC power category also includes non-recurring charges for DC power cable connections from the main power board or BDFB to the ALEC's collocation space. The rate structure for DC power cable connections of 100 and 200-amps includes a base charge for connections up to a 110 linear feet and a per foot additive cable runs in excess of 110 feet. Power costs and charges apply to both physical and virtual collocation.

Q. How are Sprint's costs developed for the power rate elements?

A. According to Sprint Witness Mr. Davis, the cost of the DC power plant is determined on a TELRIC basis. That is, it is a forward-looking cost, determined using current technology, equipment prices, installation costs and assumes that the power plant is built all at one time. This allows for economies of scale as it relates to labor charges.

Sprint used vendor quotes to establish investment data for six sizes of power facilities. The investment per ampere was then weighted according to Sprint's Florida deployment.

For the purpose of determining the cost for non-recurring cable elements, the study indicates that the components of power cable connection cost were determined based on recent actual work activities and contractor quote data. A miscellaneous materials additive was also determined from a study of recent work activities for power installations. Standard power cable distances from the power source to the collocation arrangement were determined from a study of actual distances from a sample of central offices.

Q. Have you reviewed Sprint's cost methodology and calculations, and have you formed opinions on their study?

A. For the most part, Sprint's costing methodologies and explanations appear reasonable. As with the other carriers' studies, I am concerned primarily with specific assumptions and

inputs that go into the studies. The following elements should be modified within Sprint's studies:

- The cost of company engineering is estimated at a minimum of **** hours, or almost two weeks. This estimate appears high, especially when the actual power plant engineering has already been included as a contract expense. The company should be instructed to provide additional justification for the power engineering estimate.
- Sprint has developed cost estimates for DC power connections of varying capacities. The principal concern I have with respect to all of these studies is the company's material price of power cables. In the table below, I show a comparison of power cable material costs:

Comparison of Power Cable Material Cost, per foot [10]				
Type	Sprint	R.S. Means	Verizon	Southwire
1/0 AWG	****	$0.75	-	$0.78
4/0 AWG	****	$1.43	-	$0.96
250 MCM	****	$1.72	-	$1.84
750 MCM	****	-	$4.35	$5.66

As can be seen from this table, Sprint's material costs appear to range from 60% to over 200% above comparable cable

[10] Sources of comparative data: Sprint, JRD-2, pp84-87; RS Means - *Means 2003 Data*, 16120-900; Verizon, BKE-1, Page 156 of 235, Floor Ground Bar-CS; Southwire Building Wire Products-Price Sheet, www.southwire.com, March 3, 2003.

prices. The Commission should instruct Sprint to obtain fresh material quotes from at least two unaffiliated vendors and recalculate all costs that involve power cabling.

Q. Are there other rate and cost elements that are related to the provision of electrical power that you have reviewed?

A. Yes, Sprint has included the cost of a ground bar in the worksheets for the calculation of floor space. The cost appears excessive at ********, and is not backed up with underlying support, but is presented as an input. The Commission should instruct Sprint to obtain fresh quotes from at least two unaffiliated vendors and recalculate the costs that rely on the ground bar estimate.

Q. Does this conclude your direct testimony in this proceeding?

A. Yes, it does.

BY MS. KEATING:

Q Mr. Curry, did you prepare a brief summary of your testimony?

A Yes, I have.

Q If you would, go ahead and please present that.

A As I indicated earlier, Dr. Gabel and I have been asked to prepare independent testimony for the Commission staff. The portion that I will address or that I was assigned to address is the DC power portion of the proceeding. And I'll go through each of the carriers for which I offered an analysis.

For BellSouth, I expressed concerns over their average investment per fused amp that was discussed yesterday by the BellSouth witness. I do not believe that they have justified the calculation of that input to their cost model for the reasons that I've included in my testimony; among other things, that it is a regional number rather than state-specific and that there is no clear calculation that made up this number. As was discussed yesterday, it's based additions rather than total investment. The denominator that arrives at the average investment per fused amp is based on customer-requested load amps rather than the total load amperage for the entire power plant for the central office, which is something that should have been done in a TELRIC study. And I believe that it overstates the investment per

fused amp.

For Verizon, I had and I continue to have concerns about the GTEAMS' materials system. We did not have an opportunity during this proceeding to dig into the GTEAMS' material database to the extent we would have liked. That would be a massive project on its own. I have reservations about that -- about the numbers that come from that system.

Some of the changes that I had suggested in my testimony have been addressed subsequently by Verizon witnesses. I had expressed concerns over the engineering, furnished, installed cost of power per amp factors, and I believe Verizon has stated that those have been revised. There were installation charge ratios that I believe have been revised. There were several instances of what I believe to be implausible time estimates, and I offered suggestions in my testimony for revising those time estimates downward. And those would be time estimates for pulling power cables into the central office. The amount of time required in some cases just was not credible. And then I had concerns about their costing of the cage grounding bar, which I believe for the most part they have revised that downward in their surrebuttal testimony.

For Sprint, most of their methodologies and explanations appeared reasonable. There were just a few revisions that I would suggest be made. And one had to do with company engineering time on one of the pieces. I thought their

power cable costs were significantly higher than the other two carriers in this case and needed to be reviewed further and should not be approved until additional support was provided. And I believe that they had an excessive cost for their ground bar in the collocation space which I felt like needed to be further supported by them before it was -- it would be approved by the Commission. With that, that would complete the summary of my testimony.

MS. KEATING: Thank you, Mr. Curry. Mr. Chairman, the witness is tendered for cross.

CHAIRMAN BAEZ: Thank you. And we'll just start at the end of the table. Ms. White, no questions?

MS. WHITE: No questions.

CHAIRMAN BAEZ: Ms. Masterton.

MS. MASTERTON: Sprint no questions.

CHAIRMAN BAEZ: Mr. McCuaig.

MR. McCUAIG: Verizon has no questions.

CHAIRMAN BAEZ: Mr. Kassman.

MR. KASSMAN: FDN has no questions.

CHAIRMAN BAEZ: Mr. Hatch.

MR. HATCH: No questions.

CHAIRMAN BAEZ: Mr. Watkins.

MR. WATKINS: Just a handful.

CROSS EXAMINATION

BY MR. WATKINS:

Q My name is Gene Watkins; I'm with Covad Communications. I don't believe we've met before; is that right?

A No.

Q My understanding of what your criticisms of some of BellSouth's power charges was, you had a problem with the numerator in the division in that you thought that they might -- that you had a state-specific problem that they might have overstated their costs. Is that a generally accurate statement?

A It wasn't that they overstated the costs as much as they only included in -- which is highlighted in the confidential exhibit to my testimony, that they only included the plant additions, power plant augmentation rather than including the entire cost of power plant and then dividing it by the entire load of the power plants, the entire, what it would produce, which I believe is the correct way to do a TELRIC study on power. But instead, they used only the cost of augments and divided it by the number of amperes requested by the carriers.

Q So you believe that both the numerator and the denominator have been developed differently than they were developed?

A Yes.

Q You lack sufficient information to actually put

either one of those numbers in and arrive at a number and determine whether it should be higher or lower?

A I did not have that information at hand.

Q Mr. Turner yesterday testified that, in his opinion, Verizon's numerator, the total costs were 80 percent higher than BellSouth's. Were you here for that testimony?

A I was here for part of it.

Q Do you agree with that?

A I have no way of calculating that.

Q Did you look at what Verizon was submitting as its total construction costs for the numerator portion of the calculation?

A I'm sure I looked at it back in April, yes, but I don't recall what those numbers were.

MR. WATKINS: Okay. That's all I have.

CHAIRMAN BAEZ: Thank you, Mr. Watkins. Commissioners, do you have any questions? Redirect.

MS. KEATING: No redirect.

CHAIRMAN BAEZ: Thank you. Thank you, Mr. Curry. You're excused.

(Witness excused.)

CHAIRMAN BAEZ: Go ahead, Ms. Keating.

MS. KEATING: I was just going to ask to move Exhibits 51 and 52.

CHAIRMAN BAEZ: All right. And without objection,

show Exhibits 51 and Confidential exhibit 52 moved into the record.

(Exhibits 51 and 52 admitted into the record.)

MS. KEATING: And if you're ready, Mr. Chairman, staff calls Dr. David Gabel to the stand.

CHAIRMAN BAEZ: Dr. Gabel, have you been sworn?

MR. GABEL: Yes, sir.

CHAIRMAN BAEZ: Go ahead, Ms. Keating.

DAVID J. GABEL

was called as a witness on behalf of the Staff of the Florida Public Service Commission and, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MS. KEATING:

Q Dr. Gabel, if you would go ahead and state your full name for the record.

A My name is David Gabel.

Q And by whom are you employed and in what capacity?

A At Queens College, I am a professor of economics. I also have a consulting business. And in this docket I had been hired by the staff of the Florida Public Service Commission.

Q And did you cause to be prepared and filed in this matter rebuttal testimony consisting of 53 pages?

A Yes.

Q And do you have any corrections to that testimony?

A One correction. At Page 2, Lines 25 through 28, I now need to add to the list that I have previously testified in the state of Florida in December of 2003 in the access reform proceeding.

Q And with that correction, if I asked you the same questions, would your answers be the same?

A Yes.

MS. KEATING: Mr. Chairman, I'd ask that the rebuttal testimony of Dr. David Gabel be entered into the record as though read.

CHAIRMAN BAEZ: Show the rebuttal testimony of Dr. David Gabel entered into the record as though read --

MS. KEATING: And I would note that portions are confidential.

CHAIRMAN BAEZ: -- and noting that several portions are confidential.

BY MS. KEATING:

Q And, Dr. Gabel, did you also cause to be prepared and filed exhibits attached to your testimony, DJG-1 through 4?

A Yes.

Q Do you have any corrections to those exhibits?

A No.

MS. KEATING: Mr. Chairman, I'd ask that the exhibits attached to Dr. Gabel's testimony be marked for the record. And I would suggest that 1 be numbered separate from 2 through

4 because 2 through 4 are confidential.

CHAIRMAN BAEZ: Show Exhibit DJG-1 marked as Exhibit 53, and Exhibits DJG-2 through 4, Confidential Exhibit 54 and that will be a composite.

(Exhibits 53 and 54 marked for identification.)

PREPARED REBUTTAL TESTIMONY OF DR DAVID GABEL

Q. Please state your name and business address?

A. My name is David Gabel. My business address is 31 Stearns Street, Newton, Massachusetts 02459-2441.

Q. On whose behalf are you appearing?

I am appearing on behalf of the Staff of the Florida Public Service Commission ("FPSC").

Q. Could you please summarize your qualifications and work experience?

A. Since obtaining my PhD in economics from the University of Wisconsin in 1987, I have been a member of the Department of Economics at Queens College. I am also a Visiting Scholar in the Massachusetts Institute of Technology Internet and Telecommunications Convergence Consortium in Cambridge, Massachusetts. Prior to my job at Queens, I was employed in both the public and private sectors.

As an employee of the Massachusetts Department of Public Utilities and the Wisconsin Public Service Commission, I was involved in cost and rate analysis. At the American Telephone and Telegraph Company I was responsible for developing interfaces between engineering simulation models and financial forecasting systems. While an employee of Dean Witter Reynolds, my primary area of responsibility was evaluating the economics of different telecommunications products. As an employee of the Yadkin Valley Telephone Membership Cooperative, I was involved in plant installation.

During the past seven years, I have been an advisor to the Washington, New Mexico, and Maine public utility commissions, as

well as the Federal Communications Commission. I have assisted these Commissions with the resolution of various issues that have arisen due to the passage of the 1996 Telecommunications Act. I have also been a consultant to various foreign governments on telecommunications matters.

Q. What is your area of academic research?

A. I specialize in the field of telecommunications. I have conducted research on a number of topics. My dissertation focused on the evolution of the telephone market in Wisconsin between 1894 and 1917. Beginning with my tenure as a member of the Staff of the Massachusetts Department of Public Utilities, and continuing with subsequent jobs at the Wisconsin Public Service Commission and the American Telephone and Telegraph Company, I have had a strong interest in measuring the cost of providing telecommunication services. After I completed my doctoral dissertation, I conducted further study in this area. This work was partially funded by the National Regulatory Research Institute (NRRI). I continue to spend a large share of my time exploring issues related to the cost function of the telecommunications industry. I am also an instructor at the National Association of Regulatory Commissioners (NARUC) summer training course held at Michigan State University each year

My vita is attached to this testimony as Exhibit DJG-1.

Q. Have you ever testified in a regulatory proceeding before?

A. Yes. I have testified before the Wisconsin, Maine, New York, Indiana, Maryland, Massachusetts, Connecticut, and the Pennsylvania Public Service Commissions, as well as the Canadian Radio and Television Commission. I have previously testified in the state of Florida in December of 2003 in the access reform proceeding.

Q. What is the purpose of your testimony?

A. I have been retained by the FPSC to assist the Commission Staff in developing the evidentiary record in this proceeding with respect to "Issue 9A - For which collocation elements should rates be set for each ILEC"; and "Issue 9B - For those collocation elements for which rates should be set, what is the proper rate and the appropriate application of those rates?"

In doing so I provide an evaluation of the collocation cost studies filed by BellSouth, Sprint, and Verizon in addition to the proposed application of the rate elements each firm supports. Specifically, I address the proposed costs associated with floor space, space preparation, building modifications, collocation applications and engineering fees, security, collocation cages, premise space reports, and cross connects. I also address the reliability of the estimates provided by the ILEC's Subject Matter Experts (SMEs).

Q. Please describe the general methodology you used to analyze the ILEC's cost studies.

A. Rather than address each and every cost and rate element proposed by the ILECs in this proceeding my testimony addresses a smaller sample of elements that I expect to have the greatest influence on the rates ALECs pay for collocation, and thus, the greatest impact on their ability to exist as viable and efficient competitive providers of telecommunications services in Florida.

Q. How did you determine which rate elements were the most significant?

I reviewed the ILEC's responses to Staff's Interrogatories 1 through 4 to determine the nonrecurring and recurring rate elements that

Florida.[1] Furthermore, in a recent collocation proceeding in North Carolina:

> "Sprint maintained that the two biggest costs for a CLP entering a central office for collocation are DC power and floor space. Sprint noted that as its study demonstrated, these two costs alone constitute approximately 50% to 60% of total collocation costs."[2]

The methodology we employed is consistent with Sprint's comments. On Staff's behalf, Mr. Curry addresses power and grounding, while I address floor space and other ancillary collocation elements that a collocator is likely to request.

Q. What steps did you take after identifying which rate elements you would address?

A. I reviewed the cost estimates and supporting documentation provided by each of the companies in addition to further explanations and supporting documents received through the discovery process. Using this information I identified similarities and variances both within and between companies, and used analogous processes, as close as possible, to best estimate the cost of efficiently providing the collocation element in question. (i.e. Firm A's vs. Firm B's work time and total estimated cost of pulling transmission cables a given distance, and Firm A's work time and estimated total cost of pulling transmission cables vs. pulling power cables a given distance).

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[1] These questions asked each of the ILECs to provide an itemized list of the five most recent collocation arrangements completed, by type. (I.e., caged, cageless, virtual, and remote terminal)

[2] State Of North Carolina Utilities Commission Docket No. P-100, Sub 133j, at page 236. Order dated December 28, 2001. ("North Carolina Decision")

Q. Why were such comparisons necessary?

A. ILEC's cost studies generally rely on some combination of employee opinions, embedded data, and vendor quotes. These models and input values tend to be idiosyncratic so it is often difficult, if not impossible, to independently verify many of these numbers. Thus, it is difficult for witnesses, including those sponsored by the ILECs, to unequivocally state that the efficient forward looking time to complete a given work activity is exactly "x" number of minutes. For these reasons I used the aforementioned comparisons as a measuring stick to validate the reasonableness of both inputs and proposed rates.

Q. How are your recommendations presented?

A. Where sufficient information was available to support or challenge a given input value, methodology, or cost estimate, I have provided specific recommendations that I believe the FPSC should implement to promote a fair balance between each ILEC's recovery of efficiently incurred costs and compliance with the FCC's TELRIC pricing methodology. Where the information in my possession at the time this testimony was submitted was not sufficient to support a specific recommendation I have delineated my concerns with the input value or study methodology in question so that the FPSC is aware of potential problems so that it can continue to investigate these issues and/or seek further clarification from the ILEC(s) prior to reaching a decision.

Q. Why would you not have sufficient information to provide specific recommendations in every case?

A. In some instances responses to discovery requests were either never received or were delayed because the questions were objected

to and not answered, delayed by objection, or delayed because the respondent felt that it was prudent to fulfill its obligation to respond at some future "mutually agreeable time and place" rather than within the 20 days contemplated by the procedural order.[3] In other instances ongoing inspection of the ILEC's costs submissions and discovery responses resulted in additional discovery requests, which repeated the process described above and/or materially reduced the time period available to utilize the requested information prior to the submission date of this testimony.

Q. Are the events you describe above extraordinary?

A. No. Such events are fairly common in proceedings of this nature. Although the burden of proof rests squarely upon the ILEC(s) proposing collocation rates, and thus, it is incumbent upon each ILEC to provide sufficient documentation to support its purported costs, the cost models and supporting documents can be both voluminous and complicated, often requiring multiple rounds of discovery requests and responses to flush out the facts. Even after parties have executed the back and forth that is characteristic of the discovery process it is still common for regulatory commissions to issue bench requests seeking additional supporting documentation or clarification prior to publication of a decision.

Q. Are there any outstanding discovery requests that the FPSC would find beneficial to reaching an equitable resolution of the issues presented in this proceeding?

A. Yes. I hope to have received appropriate responses to the outstanding discovery requests prior to the hearings in this proceeding which are scheduled to take place between August 8th and

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[3] See Order No. PSC-02-1513-PCO-TP, issued November 4, 2002, at page 4.

15th, 2003. I anticipate that the information contained within these responses will help to clarify many of the issues I have highlighted for the Commission. For this reason I reserve the right to file supplemental rebuttal testimony at a later date, or address these issues in surrebuttal testimony, should the Commission Staff deem it necessary. Regardless, I hope that the ILECs will address the concerns that I have raised herein in their surrebuttal testimony, which is scheduled to be filed on June 18th, 2003.

Q. You previously stated that you would address the cost of floor space. Would you like to begin this discussion with Verizon?

A. Yes.

Q. Would you please describe how Verizon estimates its floor space investment?

A. Verizon begins with the book investment for each building. The embedded investment is multiplied by a price index in order to obtain the current investment. Verizon then subtracts from this product its estimate of "costs associated with providing HVAC (Heating, Ventilation and Air Conditioning) for the building shell." Verizon witness Ellis explains that these costs are subtracted out from the building investment because "environmental conditioning" costs are recovered through a separate rate element. (BKE-1, pp.23-24 (quote)).

Q. Do you agree that this can be a reasonable methodology for estimating floor space investment?

A. Yes. It is reasonable to approximate the current cost of a building by applying a price index to the book investment.

Q. Do you have any concerns about the Verizon methodology for estimating the cost of floor space?

A. Yes. This methodology is essentially a reproduction cost methodology in which the historical cost of a building is converted to current dollars. This approach is somewhat inconsistent with the FCC's pricing rules that require the use of forward-looking efficient technology. The older central offices were constructed during an era when analog telecommunications equipment, such as step-by-step and crossbar switches, were heavier and larger than today's digital equipment. Due to the evolution in technology it would be sensible to rely on cost estimates from more recently constructed buildings that were designed to house modern digital equipment.

Q. In light of this concern, why do you recommend that the commission employ the Verizon methodology?

A. Among other things, the collocation cost studies determine the cost of running cables. The ILECs have estimated, for example, the distance between the collocation area and the main distribution frame, or power cable feeds. The ILEC's estimates are purportedly based on the current configuration of their buildings. If the space studies were to be based on the cost of a hypothetically newly constructed building, it would also follow that all of the distance measurements would need to be reevaluated. The distance related prices would need to be modified to reflect the likelihood that the layout of equipment in a newly constructed office would be different than in the current buildings.

Q. Why would the layout of equipment in a newly constructed building be different than the layout of equipment in an existing building?

A. There are two reasons. First, the most desirable property in a central office is the space closest to the main distribution frame. It is desirable to place a service's equipment close to the main distribution frame in order to minimize the length of cables or tie pairs that link central office equipment to the distribution frame. Whereas the ILECs were already in the central offices when collocation was mandated, ALECs, as well as the equipment associated with new ILEC services, is often placed in the periphery of a central office. New equipment and the ALECs would typically not be located close to the main distribution frame because that space was already occupied by existing ILEC equipment. If the ILEC and ALECs were to move into a new office, the ILEC and ALECs would have an equal claim for the space located near the main distribution frame. Although I am not a lawyer it is my understanding that the ALEC would have an equal claim because of the non-discriminatory requirement of the Federal Telecommunications Act.

Furthermore, if a new building were to be constructed, it might be smaller than today's central offices. Equipment has become progressively smaller over time. For example, all else equal, a digital switching machine requires less room than an analog switching machine. Furthermore, all else equal, more recent vintages of digital switching machines require less room than the earlier digital switching machines. Even in the DSL equipment market, there has been a noticeable shrinkage in footprint requirement in the past few years. Therefore, since the size of a new building might be smaller than the existing buildings, it follows that the cable distances would likely be shorter. Therefore, in order to be internally consistent, if a replacement

building is modeled in a cost study, as has Sprint, then the distance related cable charges should be modified to reflect the assumption of a new building.

Q. Would it be difficult to determine the cable lengths for these hypothetical buildings?

A. It wouldn't be difficult to calculate one of many possible equipment configurations for each of the buildings. The difficulty arises in trying to determine which of the many feasible configurations best reflects the way in which equipment would be placed in a hypothetical office. In order to limit the number of controversies, I recommend that the Commission rely on current lengths at the existing central offices.

Q. You have argued that a new building might be smaller and would therefore require shorter cable runs. Doesn't it follow that the reliance on the existing buildings biases the TELRIC estimates upwards?

A. No. While I do feel that the cable lengths in an existing building are likely longer than they would be in a newly designed building, I do not know if the space estimates would be biased upward. We have very little data on the cost of new central offices and therefore we don't have sufficient information to conclude if using the Verizon reproduction cost methodology results in values that would be higher or lower than the costs that would be incurred if all of the building were replaced.

Q. Do you have any other concerns about how the investment estimate is used to develop rates?

A. Yes. Building investment is recorded in account 2121. According to 47 CFR 32..2121[4] "This account shall include the original cost of buildings, and the cost of all permanent fixtures, machinery, appurtenances and appliances installed as a part thereof. It shall include costs incident to the construction or purchase of a building and to securing possession and title."

Account 2121 includes the capitalized cost of security, the cable vault, overhead lighting and electrical receptacles. Verizon proposed to establish a separate charge for the cable vault. Whereas the cost of the vault will be recovered once in the floor space charge, it would be inappropriate to recover the investment a second time through the proposed rates for cable vault space.

Q. Does Verizon concur that the cable vault investments are capitalized in Account 2121—building investments?

A. Yes. In response to Staff request 44 Verizon stated that it had "determined that the cable vault space rate is not necessary because the cable vault space investment is included in the (account 2121) building investment." Verizon added that Verizon witness "Barbara Ellis will withdraw support for this element at the hearing." I concur that the cable vault rate should be set to zero in light of how Verizon developed its floor space rate.

Q. Does this alleviate all of your concerns regarding the double counting of costs?

A. No. I am also concerned that Verizon's methodology could lead to the double recovery of other costs booked in Account 2121, specifically, the costs associated with Verizon's proposed Building

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[4] http://frwebgate.access.gpo.gov/cgi-bin/get-cfr.cgi?TITLE=47&PART=32&SECTION=2121&YEAR=2002&TYPE=TEXT

Modification charge. Verizon's workpapers show that HVAC investments were backed out of their calculations but I have seen no indication that investments associated with other Account 2121 items were given similar treatment. Furthermore, based on Verizon's response to Staff's Interrogatory No.1, I was unable to determine the circumstances in which an ALEC would be charged the Building Modifications rate.

Again, based on the supporting documentation provided by Verizon at the time this testimony was prepared I was unable to make certain that the costs associated with items booked to Account 2121 were removed from Verizon's building investment costs. I have already, and will continue to request additional information through discovery that I hope will allow me to clarify this argument should the FPSC Staff deem it necessary for me to file supplemental rebuttal or surrebuttal testimony.

Q. What do you recommend the FPSC do if Verizon is unable to prove that these and other costs have not been counted more than once in its cost study?

A. If Verizon is unable to make a showing that these and other costs have been included only once in their costs studies I recommend that the FPSC require Verizon to remove all duplicative appearances of such costs from its study. Should a proposed rate element be wholly or materially the result of a duplicative appearance of a given cost I recommend that the FPSC require Verizon to remove this rate element from consideration just as Verizon has agreed to do with its proposed cable vault space rate.

Q. Would you please summarize BellSouth's proposed rates for physical collocation space?

A. BellSouth has proposed that two monthly recurring rate elements be applied to physical collocation space. The first rate element is for floor space. This rate is intended to recover the cost of the building investment required to provide floor space for collocation. The second rate element is for space preparation.[5] This rate is intended to recover the cost of preparing existing floor space for collocation. I will first address the floor space rate and then the space preparation fee.

Q. Please describe how BellSouth estimated its floor space investment?

A. BellSouth estimated the space investment per square foot by dividing the sum of the cost of eight recent building additions by the sum of the square feet from the eight jobs.[6]

Q. Do you have any concerns about the method used by BellSouth to estimate floor space investments?

A. Yes. I have three fundamental concerns. First, BellSouth used the investment from recent additions. BellSouth makes no claim that the costs of these additions provide an unbiased estimate for the population of Central Offices where collocation occurs. Indeed it can't. Eight observations are too small of a sample for obtaining a statistically valid sample.[7]

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[5] BellSouth's collocation cost study refers to this rate as a "Space Preparation" while its response to Staff Interrogatory #1 identifies this as "CO Modification". I use the terms "Space Preparation" and "CO Modification" interchangeably.

[6] BellSouth February 4, 2003 filing, Documentation\Xappendix\Appendix F\H.1.6.xls.

[7] For a given level of statistical confidence and bound of the error, the sample size is positively correlated with the variance in the underlying population. Gerald Keller and Brian Warrack, Statistics for Management and Economics, (1997), p.320. As illustrated by the cost data provided by BellSouth in Documentation\Xappendix\Appendix F\H.1.41.xls, folder Florida, column L, the standard deviation of cost data can be large. The large standard deviation implies a need for a large sample in order to obtain statistically valid results.

Secondly, BellSouth has not provided adequate documentation regarding the eight projects. The filing merely tells us the capital expenditure and the square footage associated with these additions. BellSouth does not indicate, for example, the degree to which the additions were associated with adding space to an existing central office, or to some other type of building.[8] However, the data provided by BellSouth as part of its collocation cost model suggests significant variation within this small sample of recent CO additions. This high degree of variation makes it even more unlikely that BellSouth has obtained a statistically valid sample.[9]

Third, and most importantly, the space addition data relied used by BellSouth may be appropriate for an incremental cost study but it is certainly not appropriate for a TELRIC cost study. The FCC's pricing order requires that TELRIC cost estimates be obtained "by dividing the total cost associated with the element by a reasonable projection of the actual total usage of the element."[10] Whereas BellSouth used incremental rather than total demand in its space study, even if the eight offices were representative of the population of space additions, its floor space investment estimate would still violate the FCC's pricing rules.

Q. What is the likely impact of using incremental rather than total demand in a collocation space cost study?

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[8] It appears that AT&T asked for additional documentation in its POD No. 11. However, BellSouth's response, dated March 18th 2003, indicates that the information has already been produced as part of BellSouth's collocation cost study and no other responsive documents exist.

[9] I note that the values provided by BellSouth in the file H.1.6.xls appear to include 2 observations (rows 4 and 5) that are not identified as central office additions.

[10] Federal Communications Commission, *First Report and Order*, FCC 96-325, August 1, 1996, ¶682 (quote) 690.

BellSouth's methodology likely overstates the TELRIC of collocation space. The effective cost per square foot of a space addition likely exceeds the average forward-looking, or TELRIC, cost per square foot.[11]

Q. Why do you believe that TELRIC of floor space would be less than the incremental cost?

A. Because there are set-up costs associated with building construction. For example, work equipment must be transported to the job site. The cost per square foot of an addition is generally higher than the square foot cost of a new building because these set-up costs are spread over fewer square feet.

Furthermore, certain environmental problems arise as part of an expansion that do not exist when a structure is first constructed. Consider a situation in which space is added to an existing site, special care must be taken so that no harm comes to the existing structure or the equipment operating within. The need to protect existing structure and equipment increases the per square foot cost of construction relative to the cost incurred when a central office is first built.[12]

Q. Is there any evidence in this proceeding that lends support to your assertion?

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[11] Sprint appears to agree, as indicated by its response to Staff Interrogatory No. 14. "TELRIC pricing rules call for reconstructing the entire central office building based on the scale of total floor space demand...It is much more efficient to build an entire central office based on total demand than it is to build one in smaller increments."

[12] These arguments were supported by Sprint in North Carolina where "Sprint stated that BellSouth's methodology is not reasonable because a building addition inherently costs more per square foot than construction of a new building. Sprint maintained that even though BellSouth uses forward-looking building costs, it adds site preparation fees when, based upon FCC Rule 51.323(f)(3), the cost of construction projects should already have been taken into consideration." North Carolina Decision at page 248.

A. Yes. BellSouth is the only party to advocate an incremental cost methodology for floor space costs in this proceeding. While I have expressed some concern regarding the floor space costs proposed by Verizon (above) and Sprint (below) it is clear that BellSouth's incremental cost methodology has produced investment estimates that are significantly out of line with the estimates supported by either Verizon or Sprint.

Q. Don't you believe that BellSouth should be permitted to recover its building modification costs?

A. BellSouth should be permitted to recover its building modification and environmental conditioning costs when an addition occurs. But its methodology effectively assumes that this cost is incurred at every central office, an assumption that is incorrect and results in an overstatement of its floor space costs. Furthermore, if BellSouth were ordered to adopt the methodology used by Verizon, as I propose below, these costs would be recovered because they would already be included in the capitalized cost of the building.

Q. Do you have any additional concerns about the calculation of BellSouth's floor space investment?

A. No, not at this time. But I reserve the right to address this issue again at a later date after I have received appropriate responses to any outstanding discovery requests. However, I would like to address BellSouth's proposed CO modification, or space preparation charge.

Q. What is a space preparation charge?

A. BellSouth's physical expanded interconnection service tariff states that "The Company shall charge a Space Preparation Charge on

a recurring basis for costs of any renovation or upgrade to Premises space or support mechanisms which is required to accommodate physical collocation, unless otherwise specified in this tariff. For this section, support mechanisms provided by the Company may include, but not be limited to, HVAC equipment, HVAC duct work, cable support structure, fire wall(s), mechanical upgrade, asbestos abatement, or ground plane addition."[13]

Q. Does this charge apply to every physical collocation?

A. It appears it does. Staff asked BellSouth to provide billing information for the five most recent physical collocation projects it completed. In each of the five cases the ALEC was being charged a recurring space preparation charge.[14]

Q. Is it inappropriate for BellSouth to charge a space preparation charge?

A. The concept is reasonable but the proposed charges need to be closely reviewed in order to insure that the price level is both non-discriminatory and reflective of reasonably incurred costs.

Q. Please explain why you contend that the concept of a space preparation charge to be reasonable?

A. The process of conditioning collocation space is analogous to conditioning loops for DSL service. In both situations an ILEC incurs incremental costs in order to provide an unbundled network element to an ALEC. Where an ALEC's placement of an order causes an ILEC to incur costs, it is efficient to recover the appropriately

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[13] E20.2.7.J, First Revised Page 22, Issued October 25, 2000.

[14] BellSouth's Response to Staff's First Set of Interrogatories, Item No. 1. To illustrate why it appears that BellSouth always bills a space preparation charge, it we assume that the five completed jobs are independent of one another, and if the probability of being billed a space preparation charge is 99%, then the probability of all five being billed is $.99^5 = 95\%$, which is less than what we observe in the response, a 100% billing occurrence.

defined costs from the cost causer. In PSC-01-1181-FOF-TP the Commission concluded that it was appropriate to recover appropriately defined loop conditioning costs from the ALECs.[15]

Q. Has BellSouth appropriately defined the costs that should be recovered through a space preparation charge?

A. No. There are a number of problems associated with the development of the rate. The cost associated with space preparation is developed in work paper H.1.41. BellSouth has not adequately demonstrated that the costs reported on work paper H.1.41 are reasonably associated with preparing space for a collocator.[16]

Q. Please elaborate.

A. BellSouth has not shown that the costs reported on H.1.41 are drawn from a random sample that is representative of the locations where the Company incurs space preparation costs. BellSouth should have shown that its sample is representative of the population of offices that house physical collocators.

Q. Are there other problems with BellSouth's proposed space preparation fee?

A. Yes. BellSouth's tariff requires that at the termination of occupancy a collocator "at its expense [must] remove its equipment and other property from the Collocation Space." The tariff further mandates that the collocator "surrender such Collocation Space to the Company in the same condition as when first occupied by the [physical] collocator except for ordinary wear and tear unless otherwise agreed to by the Parties. The [physical] collocator shall

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[15] May 25, 2001, p.459-60.

[16] It appears that AT&T asked for additional documentation in its POD #25. However, BellSouth's response, dated March 18th 2003, indicates that the information has already been produced as part of BellSouth's collocation cost study and no other responsive documents exist.

be responsible for the cost of removing any enclosure, together with all support structures (e.g., racking, conduits), at the termination of occupancy and restoring the grounds to their original condition."[17]

BellSouth appears therefore to be first asking the ALEC to pay for the cost of making the space ready for itself, the ALEC, and then asking the tenant to pay to get the space ready for the next occupant, which may be BellSouth. Such a proposition is unreasonable because BellSouth is asking the ALEC to pay for getting the space ready for itself and the next occupant.

Q. Could this problem be remedied by eliminating the requirement that the exiting ALEC "restor[e] the grounds to their original condition?"

A. No, that is not a sensible solution. The CLEC should have to pay for any damage or clutter, beyond normal wear and tear, that was the result of it occupying the space. It should not have to pay for cleaning up a mess created by someone else. Furthermore, the ALEC would have less of an incentive to be tidy if someone else was responsible for cleaning up its mess.

Q. Well then lets focus on the cost of conditioning the space for the ALEC. Is there an existing pricing process for paying for the cost of removing equipment that has been retired by the ILEC?

A. Yes. The central office houses equipment that is used to terminate loops, and carry out transmission and switching functions. The cost of removing the ILEC's equipment is factored into the Company's cost estimates. The depreciation rates reflect the cost

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[17] E20.2.5.E, First Revised Page 17, Issued October 25, 2000.

of removing the plant.[18] Therefore the cost of removing the ILEC's equipment from the central office has already been reflected in the rates charged by the Company. In light of this accounting and rate-making practice, it is problematic to have the ALECs' pay for the cost of removing equipment that has already been paid for by the customers who benefited from the use of the equipment.

Q. Do you have any other concerns about BellSouth's cost study?

A. Yes. Suppose that there is space available in an office that could house DSLAMs owned by either an ALEC or BellSouth. It is my understanding that when BellSouth does a cost study for its retail services, it does not include in its estimate of its forward-looking costs an explicit space preparation charge.[19] Rather BellSouth would allocate a portion of its historical building investment, converted to current dollars, based on the cost of the DSLAM. Whatever costs have been incurred for refurbishing buildings would be included in the historical building investment.

If an ALEC were to use the same space for its own DSLAM it would likely have to pay a space preparation charge. This is because BellSouth is using a different costing methodology for

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[18] See, for example, BellSouth Documentation, Appendix B, file BCCCXL02FLC.XLS, folder capital cost inputs, column I. The FCC's Accounting Rules state "At the time of retirement of depreciable operating telecommunications plant, this account shall be charged with the original cost of the property retired plus the cost of removal and credited with the salvage value and any insurance proceeds recovered." http://www.fcc.gov/wcb/CFRparts/PART32.PDF, §32.3100(c). The FCC defines the cost of removal as "the cost of demolishing, dismantling, removing, tearing down, or otherwise disposing of telecommunications plant and recovering the salvage, including the cost of transportation and handling incident thereto." Id. §32.9000.

[19] My statement is based on my general understanding of how ILEC's conduct retail incremental cost studies rather than any explicit knowledge of how BellSouth has completed its DSL cost studies. In this proceeding I have reviewed how BellSouth develops its building loading factor and I see no indication that space preparation charges have been backed out from the calculation. See Xappendix\Appendix C\plspaaa02.xls, folder land&bldgs, cell D45.

wholesale and retail services. This difference in methodology has the potential to exclude from the market an efficient firm because the competitor of BellSouth would have to pay for a cost that exceeds the amount that BellSouth's retail service would have to cover.

Q. But wouldn't BellSouth's DSL service be assigned the same effective cost of the CLEC through the building-loading factor that you described above?

A. No. Suppose there is central office that covers 4,000 square feet and that BellSouth spent $40,000 refurbishing one tenth of the space, 400 square feet. BellSouth would allocate $100 per square foot to the collocator ($40,000 /400) and effectively $10 per square foot to its own retail operations ($40,000 /4,000).[20] Therefore the Company's methodology has the potential to exclude any equally efficient firm.

Q. How can this discrimination be eliminated?

A. The Commission should set the space preparation charge at zero and require BellSouth to use Verizon's methodology for estimating space costs. The capitalized space preparation costs would be included in the building investment that is used to determine the space fee. Furthermore, under the Verizon methodology, the space preparation costs are effectively allocated in the same fashion to both wholesale and retail services.

Q. Are you advocating that BellSouth use Verizon's methodology to establish the current cost per square foot of floor space?

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[20] BellSouth would actually allocate the $40,000 investment to all of the central office investment in the building. This is analogous to allocating the $40,000 to the 4,000 square feet of space.

A. Yes. I recommend that BellSouth convert its embedded building investment to a current value using current-to-book ratios. The current investment should then be divided by the associated floor space in order to obtain a current investment per square foot. This quotient would then be the input to BellSouth's model that is used to determine the monthly cost per square foot.

Q. Did you examine the methodology employed by Sprint for estimating floor space investment?

A. Yes. As explained by Sprint witness Davis in JRD-2, Feb. 4, 2003, page 17-19 of 107, Sprint estimated its building investments based on R.S.Means[21] data for telephone exchange buildings. R.S.Means indicates the cost of constructing a new central office.

Q. Were you able to validate Sprint's calculations?

A. Yes.

Q. Did you find any problems with Sprint's methodology of estimating building investment?

A. Yes, there are a number of problems with Sprint's methodology. First, Sprint obtains its floor space estimate by assuming that a new building is constructed to replicate its existing facilities. This presents a problem because, as I explained above, if a new building were to be constructed it could be smaller than today's central offices. It would also be highly unlikely that the layout of the building would be identical to the existing layout so cable lengths and other essential cost model inputs would have to be adjusted accordingly.

Second, it appears that Sprint's building investment calculations already include the cost of permanent fixtures such as

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[21] R.S.Means Building Construction Cost Data, 61st Annual Edition, 2003.

overhead lighting and AC receptacles. Thus, if the FPSC were to approve Sprint's building investment estimates and separate rate elements that included the cost of overhead lights, AC receptacles, or any other item included in the R.S. Means building investment estimates, Sprint would double recover these costs.

Third, Sprint improperly grosses up its floor space investment to account for shared support and growth space in the CO.

Q. Has Sprint proposed separate rate elements for overhead lighting and ac receptacles?

A. Yes. Since it appears that Sprint's calculation of building investment already includes the cost of overhead lighting and AC receptacles, it would be inappropriate to establish separate non-recurring rates for these permanent fixtures. Consistent with my prior testimony I recommend that these rates be set to zero. In the event that the FPSC finds that these costs are not already contemplated in Sprint's building investment estimates I recommend that the FPSC adopt the recommendations of Mr. Curry.

Q. Are there any other rates that you recommend be set to zero?

A. Not at this time. However, to the extent that R.S.Means construction cost estimate for "Telephone Exchanges" already include the costs associated with overhead superstructure, cable racks, and other permanent fixtures including, but not limited to those listed above, such costs should be removed from consideration because they are already included in Sprint's building investment estimates. Thus, in the event the FPSC approves Sprint's R.S.Means derived rate methodology, I recommend that Sprint first be required to provide a detailed explanation of the fixtures and permanent equipment already

included in its construction estimates so that duplicate costs and rate elements can be removed.

Q. What concerns do you have with the way in which Sprint grosses up floor space investments to account for shared support and growth space in a central office?

A. The basis for Sprint's shared support and growth space factor was an analysis of floor plan drawings for five Sprint COs that purportedly represent a cross section of small, medium, and large COs in Florida.[22] From the outset, any estimates derived from this study are highly suspect because Sprint's sample size of five observations is far too small for it to conclude with reasonable certainty that its results are representative of the population of Sprint COs in Florida. In fact, in Sprint's response to Staff POD No.13 the company makes no claim that the 5 COs used to estimate space utilization results in a statistically valid sample. I find this especially problematic for a rate element such as floor space that will be charged to all collocators and is likely to have a significant impact on the total cost of collocation.[23]

Q. If the sample size were larger or could be proven to return statistically significant results would this alleviate your concerns?

A. No. There are other significant flaws in the study itself. For example, Sprint derived its shared support and growth space factor by dividing the assignable transmission space by the total footprint of the CO after subtracting out from the total footprint the floor space associated with offices, vault space, and power

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[22] See Confidential Exh. JRD-2, at page 19 of 107.

[23] Sprint's response to Staff Interrogatory No.1 suggests that floor space fees comprise roughly 20% of an ALEC's monthly recurring costs.

equipment.[24] [I.e. Factor = Transmission / (Total - Office - Vault - Power)] Sprint then weights the results by the relative size of each CO to derive its factor. Because of this methodology Sprint effectively assumes that the costs associated with all common floor space should be assigned to, and thus recovered from, the rate element associated with transmission floor space.

Q. How should sprint have calculated this factor?

At a minimum, Sprint should have allocated what it classified as growth, shared, AC, and egress space proportionally to the remaining floor space classifications, such as office, transmission, vault, and power, and then calculated its floor space factor. This methodology is appropriate because it allocates the common space of a CO to all floor space classifications that cause and/or derive benefit from its existence. When corrected in this fashion the observed floor space factor is estimated to be roughly 81% as opposed to Sprint's original value of 40%. The impact of utilizing these different factors are compared in the following table. The table indicates that Sprint assumes a 150% overhead on assignable transmission space when the more accurate figure is no greater than 23%.[25]

	Floor Space Factor	Space Used	Space Paid For	Calculations
Sprint	40%	100	250	= 100 / 40%
Corrected	81%	100	123	= 100 / 81%

[24] Office space used by Sprint for its own marketing, customer service, and billing were removed for obvious reasons. The floor space associated with the cable vault and power equipment were removed because Sprint has proposed to recover these costs through separate rate elements.

[25] These figures were derived from workpapers attached to this testimony as Confidential Exhibit DJG-2.

Q. You say that your corrected floor space factor is still conservative, please explain.

A. The corrected floor space factor shown above is a conservative estimate (i.e. floor) because it relies on Sprint's original study, which contains a number of other errors and inconsistencies that over allocate common space to the transmission category.

Q. Please explain why even after your corrections there is still an over allocation of common space to the transmission category.

First, it is reasonable to assign more than a proportionate share of egress and shared space to the office category because the amount of such space in a building depends largely upon the number of people expected to occupy the building at any one time. Thus, the existence of call centers and other dedicated Sprint offices in a CO requires that the building have more exits, wider pathways, and larger bathrooms and lounges than a building dedicated to housing only telecommunications equipment and the relatively few employees necessary to maintain it.

Second, Sprint's study was a very simple collection of "back of the envelope" calculations in which dimensions were rounded, and spaces that appear to be dedicated to Sprint and its call center employees were allocated to the shared category without explanation.[26]

Third, Sprint's response to Staff Interrogatory No.13 indicates that this study did not include any observations of Sprint COs that

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[26] For example, in the case of the latter, see Sprint's response to AT&T POD No.10, "Winter Park CO." The lower left hand portion of the Second Floor Plan Record is described as a "Lounge" but assigned to the shared category in Sprint's calculations. Similarly a "Break Room" and "Office" on the First Floor Plan Record are assigned to the shared category.

are listed as "full" on its web site.[27] Since more than one-third of Sprint's COs in Florida are represented on this list, but none in its sample, it is even less likely that Sprint's sample is representative of the population of COs in Florida. Assuming that collocation has occurred in at least some of these COs it would be reasonable to include such observations in this study so that the calculated fill rate is more reflective of actual conditions. Sprint's exclusion of these observations likely understates actual floor space utilization rates because COs at or near exhaustion are likely to have less common space to allocate to other categories, including transmission, as a result of there being little or no unused growth space remaining.

Q. What other observations have you made regarding sprint's calculations?

A. While R.S.Means is not a wholly unreasonable starting point, I am concerned that Sprint is placing too much reliance on this source for such a crucial input to its cost study. R.S.Means and similar construction cost estimators generally caution that the cost estimates you derive from their products, while accurate, are "ball park" figures. For example, the editor of a competing product cautions that:

> "It's an aid in developing an informed opinion of cost. If you are using this book as your sole

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[27] See http://www.sprint.com/sprint/clec_fullsites.xls for the number of COs in Sprint's Florida service territory that are closed to collocation. This file, downloaded March 10, 2003, indicates that 49 of Sprint's 134 COs (roughly 37%) are at or near capacity. I note that the probability of randomly selecting 5 offices with no space limitations is roughly 9.8%.
[(85/134)*(84/133)*(83/132)*(82/131)*(81/130)] ≈ 0.098.

cost authority for contract bids, you're reading more into these pages than the editors intend"[28]

Furthermore, R.S.Means cautions that while its estimates are useful "when no details are available" and "should present a fairly accurate base figure" adjustments must be made based on the estimator's experience, local economic conditions, and local building codes.[29] These adjustments would already be considered, and thus unnecessary, if Sprint followed Verizon's building investment methodology.

Q. Are you advocating that Sprint use Verizon's methodology to establish the current cost per square foot of floor space?

A. Yes. Consistent with my previous testimony I recommend that Sprint convert its embedded building investment to a current value using current-to-book ratios. The current investment should then be divided by the associated floor space in order to obtain a current investment per square foot. This quotient would then be the input to Sprint's model that is used to determine the monthly cost per square foot.

Q. Do you have any final recommendations regarding the calculation of building investment?

A. Yes. When estimating building investment the FPSC may want to consider ordering the ILECs to only convert booked building investments to current values for Central Offices where collocation has occurred. Excluding COs where no collocation has taken place from these investment calculations should return results that are

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[28] See 2000 National Construction Cost Estimator, at page 5. This argument appears to have been supported by BellSouth at page 240 of the North Carolina Decision.

[29] See R.S.Means at page 483.

more representative of the cost of floor space actually used to provide ALEC's with collocation space.

Q. Have you been able to independently validate the building investment or floor space costs of the ILECs?

A. As I noted earlier independent validation of specific input or output values is quite difficult. However, based on BellSouth's response to Staff Interrogatory No. 26 it appears that it is possible to lease space to house central office equipment for approximately ********* per square-foot, per month. Similarly, in a recent collocation proceeding the North Carolina Utilities Commission found "…evidence in the record that the ILECs lease central office space for $0.20 to $0.80 per square foot per month."[30] To be sure, I am not advocating that the FPSC establish collocation floor space rates based on these values, but I do believe that these values can be used to test the reasonableness of the floor space rates proposed in this proceeding. In as much as the rates proposed by the ILECs in this proceeding are anywhere from 1.7 to 4.2 times the rate at which CO space is available for lease, this indicates an overstatement of costs.

Q. Please summarize your recommendations for estimating the cost of collocation floor space.

A. I recommend that the FPSC find Verizon's method of estimating building investments is an acceptable starting point for estimating the floor space costs of each firm. Thus, I recommend that the FPSC require BellSouth and Sprint to conduct a study, similar to that used by Verizon, where the investments booked in Account 2121 are made current based on accepted current to booked ratios.

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[30] North Carolina Decision at page 250.

Based on the information at hand I do not know the outcome of applying this methodology to either Bellsouth or Sprint. However, this methodology is clearly superior to what has been proffered by either BellSouth or Sprint. Furthermore, not only does this methodology provide the FPSC with a verifiable source of input data it also eliminates the need for certain ancillary rate elements proposed by the ILECs in this proceeding because the cost for items like vault space (Verizon), overhead lights and AC receptacles (Sprint), and building modifications (BellSouth) are already booked in Account 2121 and are reasonable to recover in the floor space rates.

Q. Earlier you recommended that the FPSC require Verizon to remove any duplicative appearance of costs from its study. Do you recommend that this also be required of BellSouth and Sprint?

A. Yes, where applicable.

Q. Please explain some of your concerns regarding the reliance on subject matter experts (SMEs) for developing cost model inputs.

A. My concerns regarding SMEs are similar to those previously expressed by the Commission on this issue. There is often inadequate, or non-existent, support for SME proposed inputs.[31] Furthermore, as has been previously noted by the Commission, a change in SME can result in a dramatically altered cost study.[32]

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[31] See for example, Before The Florida Public Service Commission, *In Re: Investigation Into Pricing Of Unbundled Network Elements*, DOCKET NO. 990649-TP, ORDER NO. PSC-01-1181-FOF-TP, ISSUED: May 25, 2001 at 392-395.

[32] *Id.* At 393-394, where the Commission noted: "On August 16, 2000, approximately one month prior to the September 19, 2000 hearing, BellSouth filed its revised cost study. One of the changes to the SL1 loop nonrecurring cost study was an increase in the field dispatch rate from 20 percent to 38 percent - an almost 100 percent increase…. The 20 percent rate was asserted to have been an estimate, but the 38 percent dispatch rate was based on a regional BellSouth report on service orders and dispatches. The reason this report came to light was that a new SME knew of the report and used it."

It is also worth noting that labor constitutes a significant share of the costs associated with many rate elements. Since loaded labor rates are often calculated using time estimates provided by SMEs it is easy to see how even a relatively small overstatement of a work time by an SME can snowball into a significantly overstated cost estimate.

Thus, the problems I have identified point to the need of a higher standard for cost study input development then what appears to be achievable through reliance on SME testimony alone.[33]

Q. Who bears the ultimate responsibility of ensuring that proposed cost study inputs are properly supported?

A. The FCC, which has expressed frustration with unsubstantiated SMEs opinions,[34] has clearly stated that this obligation falls on the ILECs. Because "…incumbent LECs have greater access to the cost information necessary to calculate the incremental cost of the unbundled elements of the network. Given this asymmetric access to cost data, we find that incumbent LECs must prove to the state commission the nature and magnitude of any forward-looking cost that it seeks to recover in the prices of interconnection and unbundled network elements."[35] In a later Order the FCC concluded that when ILECs had not provided specific information on the "data, assumptions, and methodology" used in developing their cost study

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[33] This point was also recognized by the Commission at p. 393 of the Order cited at footnote 31.

[34] See, for example, Before the Federal Communications Commission, *In the Matter of Local Exchange Carriers' Rates, Terms, and Conditions for Expanded Interconnection Through Physical Collocation for Special Access and Switched Transport*, FCC 97-208, June 13, 1997, par. 205-6, 222.

[35] Before the Federal Communications Commission, *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98 and *Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, CC Docket No. 95-185, First Report And Order, FCC 96-325, Adopted: August 1, 1996, Released: August 8, 1996 at ¶680.

inputs, it was the obligation of the FCC to establish interim rates that were in the public interest.[36] Consistent with these arguments, it is also the responsibility of the FPSC to set rates that are in the public interest.

Q. Are there any criteria the FPSC can employ to test the validity of subject matter expert proposed study inputs?

A. Yes there are. Although I am not a lawyer it is my understanding that the relevant legal standard for evaluating SME testimony is derived from *Daubert v. Merrell Dow Pharmaceuticals, Inc.*(*Daubert*), 509 U.S. 579, 113 S.Ct. 2786 (1993). In *Daubert* the Supreme Court explained that a trial judge, when faced with a proffer of expert testimony, must perform a preliminary Federal Rule of Evidence 104 analysis. This involves first making an assessment as to whether the reasoning or methodology underlying the testimony is valid, and then determining whether that reasoning or methodology can be applied to the particular facts at issue. While noting that "many factors will bear on the inquiry, and we do not presume to set out a definitive checklist or test" [37] the Court nevertheless went on to outline four factors that it felt were worth considering when making a reliability/validity assessment of expert testimony: (a) Whether the expert's theory or technique is falsifiable and has been tested, (b) the reliability of a procedure and its potential rate of error, (c) whether the theory or technique has been subjected to peer review and whether the results have been published, and (d)

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[36] Before the Federal Communications Commission, *In the Matter of Local Exchange Carriers' Rates, Terms, and Conditions for Expanded Interconnection Through Physical Collocation for Special Access and Switched Transport*, FCC 97-208, June 13, 1997, par. 407-410.

[37] *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. at 593.

whether the expert's methods and reasoning enjoy general acceptance in a relevant scientific community.[38]

The Supreme Court later expanded upon *Daubert* by finding that *Daubert's* specific factors and analysis may also be appropriately applied in determining the "admissibility of an engineering expert's testimony."[39] And through its finding that: "Conclusions and methodology are not entirely distinct from one another. Trained experts commonly extrapolate from existing data. But nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence ... connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered."[40]

Taken together I understand these decisions to suggest that for SME testimony to be considered valid it must sufficiently past muster according to some form of *Daubert* type analysis[41] and it must be supported by whatever studies on which it is purported to rely and these have to be specific to the immediate issue under consideration. That is to say, it is not enough that the principles employed by an expert be consistent with the applicable standards of the field in which they are an expert; they must also have been employed in a manner that provides specific, verifiable facts that assist in determining the issue at hand rather than being used to support educated opinions as to what those facts ought to be. The

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[38] *Id.* 509 U.S. at 590-594.
[39] *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 150
[40] *General Electric Co. v. Joiner*, 522 U.S. at 146.
[41] For example, in *Kumho Tire Co. v. Carmichael*, 119 S.Ct. at 1179, the Supreme Court noted: "Though, as the Court makes clear today, the *Daubert* factors are not holy writ, in a particular case the failure to apply one or another of them may be unreasonable, and hence an abuse of discretion."

expert must expect to support each proposition with both the factual basis as established in the record and the pure science that leads to the applied science of his or her field.

Q. How have the cost inputs proposed by the ILECs in this docket been supported?

A. BellSouth has stated, in response to Staff Request for Production of Documents No. 8, that it has not relied on any time and motion studies to assist in the development of the work times utilized in its cost study. In its response to Staff's second set of interrogatories, at Response to Item 19, BellSouth goes on to say that these estimates, which are regional values, were developed by an SME "…knowledgeable about and representing a specific work center for collocation activities provided the work time inputs. BellSouth has no specific written guidelines." In this same response, BellSouth stated that "[t]here were no studies performed to validate for reasonableness" the SME recommendations.

In response to Staff's second set of interrogatories, at interrogatory No. 12, Sprint states that it relied on SME data to support cost inputs only when actual work time data was not available. Just as with BellSouth's response to similar questions Sprint states: "…[T]he subject matter experts used in Sprint's collocation cost study are highly experienced and qualified. Sprint's SME's currently work with collocation and/or have experience in other general operational areas related to collocation." On the other hand, Sprint did provide documentation as to how information was gathered from SMEs[42] and stated that there was process for validating SME provided data. While this process

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[42] See, for example, Sprint's response to Staffs POD No. 12.

was predominantly based on the opinions of other Sprint employees Sprint did on at least one occasion take actual measurements of existing facilities to ensure that its "inputs were accurate and reasonable."[43]

Verizon stated that a "team of Verizon cost personnel collaborated with a variety of Subject Matter Experts (SME) within Verizon to develop this study."[44] In response to Staff Interrogatory No.60, Verizon indicated that the recommendations provided by SMEs were validated by "knowledgeable and experienced individuals in the upper management of Verizon West's Service Costs, Regulatory, Product Management, and Engineering Groups [who] reviewed the cost estimates for reasonableness."[45]

Q. Did you obtain from the ILECs any documents that were given to subject matter experts that explained how they should construct their estimates?

A. Yes, but only from Sprint. In its response to Staff POD No.12, it provided the "form" [emphasis added] that was sent to Sprint SMEs in which application and project management work times were solicited. BellSouth and Verizon indicated that they did not distribute similar documents to their SMEs.

Q. Do you have any concerns about the survey form Sprint distributed?

A. Yes. It appears that when the cost analyst distributed the survey form to the SMEs, he included recommendations regarding the hours associated with the activities and the probability of events. I base this tentative conclusion on the fact that the survey

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[43] See Sprint Response to Staff Interrogatory 12(h) and 12(i).
[44] See Exhibit BKE-1, page 4.
[45] See Verizon Response to Staff Interrogatory 60(h).

instrument provided by Sprint is populated with time estimates and probabilities. If I am interpreting the survey form correctly, the responses are biased because the SME's recommendations would be influenced by the cost analyst's recommendations.

Q. In your opinion, has the SME data provided met the criteria outlined above and if not, what would you recommend?

A. No it has not. It seems that the long-term solution to this issue would be for the Commission to mandate that the ILECs, or an independent third party, conduct time and motion studies. Given the impracticality of this requirement at this juncture, the methodology I followed in my analysis was to evaluate the reasonableness of the inputs based on their internal consistency both within and between the different studies that have been provided. That is, I believe that the Commission would be best served by comparing the proposed inputs and results across models.

As discussed in more detail below, I found significant problems with many of the SME supported costs provided by Sprint and BellSouth. For example, I observed significant variation in both the number of work activities and the estimated work times for processing collocation applications that each ILEC assumed necessary to complete a given task when compared with Verizon. The magnitude of these variations indicate that SMEs for BellSouth and Sprint expect their respective companies to be far less efficient than Verizon when completing this identical task. TELRIC calls for costs to be based on those incurred by an efficient firm.[46] There is nothing in the record indicating why BellSouth and Sprint could not

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[46] In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 CC Docket No. 96-98 and Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers CC Docket No. 95-185. First Report and Order, released August 8, 1996, ¶690. ("LCO")

achieve the same efficiencies in processing collocation applications as have apparently been achieved by Verizon. For this reason, and because of the lack of supporting data, a sensible solution to the conflicting SME opinions put forward would be for the Commission to adopt Verizon's proposed inputs for such items as I address below.

Q. Do all of Sprint's proposed rates rely on the opinions of subject matter experts?

A. No. Sprint indicated in its response to Staff Interrogatory No.15 that the majority of its proposed rates are "substantially supported by actual costs or turnkey quotes." However, this does not sufficiently address why it takes Sprint so much more time to carry out certain tasks as compared to Verizon.

Q. Do you recommend that time and motion studies be conducted to support all work activities?

A. No. Where there is not a significant amount of activity to complete a given task or there are few work activity observations to record I do not recommend that work activity studies be performed because the small size and variance of the population will make it difficult to generate a statistically valid sample. In these extraordinary circumstances the burden of preparing time and motion studies may far outweigh any resulting benefits.

Q. What criteria do you recommend that be used to determine when time and motion studies should be conducted to support a work time estimate?

A. There must be a sufficiently large sample size. The sample size necessary to achieve a statistically valid sample depends on the probability distribution of the activity, the desired level of confidence, and the variance of the activity.

Q. You previously mentioned processing collocation applications. Would you like to move on to this topic now?

A. Yes.

Q. What observations did you make when reviewing the ILEC's nonrecurring cost studies regarding the processing of collocation applications?

A. When reviewing the activities and work time estimates proffered by each firm for processing collocation applications I observed significant variation in both the number of work activities and the estimated work times each ILEC assumed necessary to complete the task at hand.

Q. Are these variations a cause of concern?

A. Yes. While it may be reasonable to observe some variation in the number of tasks and/or work times necessary to process a collocation application you would expect to observe considerable similarities across companies given that all three firms are required by TELRIC to estimate the cost incurred by an efficient provider to complete this task. The magnitude of the variations observed indicates that BellSouth and Sprint expect to be far less efficient than Verizon when completing this task. Confidential Exhibit DJG-3 suggests that both BellSouth and Sprint have included too many tasks in their project descriptions and/or grossly overstated the time necessary to accept an ALEC's application and determine if it technically feasible at the location requested.

Q. How do you suggest that the FPSC remedy the problems you just identified?

A. I recommend that the FPSC approve for all three firms the activities and work times proposed by Verizon as shown in Confidential Exhibit DJG-3.

Q. Are there any other recommendations you have for the FPSC regarding collocation applications?

A. Yes. I recommend that the FPSC establish rate elements that mirror the way in which Verizon calculated its proposed costs. [See Exh. BKE-1, p 93 of 235.][47] That is, ALECs submitting collocation applications should first be charged a "Pre-Acceptance Fee", or "Application Fee" based on the data in Confidential Exhibit DJG-3. This fee would be designed to allow the ILEC to recover the cost it incurs determining:

> -the ILEC's future needs for the office in question;
> -if sufficient space is available, and if so, where the type of collocation requested would be most efficiently located;
> -if building modifications are necessary to provide the requested collocation;
> -if sufficient DC power facilities exist in the central office to accommodate the collocation request.

Only after the ALEC has made a binding decision to follow through with its application would it be charged a "Post Acceptance Fee" or "Firm Order Commitment Fee" designed to allow the ILEC to recover the cost it incurs to engineer the ALEC's collocation arrangement.

Q. Why is it appropriate to recover the ILEC's application and engineering costs in the manner described above?

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[47] See also See BKE-1 9-10 of 235 "Initial Site Audit"

A. This methodology is appropriate because it recovers costs in the way in which they are incurred. For example, consider a situation in which an ALEC submits a collocation application but then decides not to consummate its request with physical or virtual collocation. By bundling together the application processing costs with the costs incurred actually engineering the collocation request before collocation is ordered it is possible for the ILECs to recover costs that it never actually incurs.

Q. What observations did you make when reviewing the ILEC's collocation related engineering costs?

A. Just as with the Application Processing proposals there appears to be significant variation in both the number of work activities and the estimated work times each ILEC assumed necessary to complete the task at hand. Once again, the magnitude of the variations observed is an area of concern because it appears that BellSouth and Sprint expect to be far less efficient than Verizon when completing identical tasks. Confidential Exhibit DJG-4 suggests that both BellSouth and Sprint have included too many tasks in their project descriptions and/or grossly overstated the time necessary to engineer an ALEC's collocation arrangement.

Q. What do you suggest that the FPSC do to remedy the problems you just identified?

A. Unlike my previous recommendation where it was easy to compare BellSouth's and Sprint's work time estimates to Verizon's "Internal Site Audit" work time estimates I am less certain that Confidential Exhibit DJG-4 represents one-to-one comparisons of analogous "Post Acceptance" engineering and project management activities. The project explanations and supporting documentation provided by the

ILECs were not descriptive enough for me to be more confident about my comparison. In any event, I hope that the ILECs' will address this issue with detailed explanations of the work activities and work times they assume necessary to engineer common collocation arrangements such as those cited in response to Staff Interrogatories 1 through 4. With such information the FPSC could establish rates based on the expectations of an efficient provider.

Q. Do you have any comments regarding security investments?

A. Yes. I would like to begin this discussion with BellSouth.

Q. Were you able to determine how BellSouth calculates its security investment?

A. Yes. BellSouth divided the cost of a two card-reader security access system by the average assignable square footage of a CO.

Q. Do you agree with BellSouth's calculations?

A. Yes, I agree with BellSouth's methodology, and, while I have not yet independently validated the cost of the security system modeled, or the average assignable square footage of a CO, the resulting costs per square foot appear to be reasonable.

Q. Would you please describe how Verizon calculates its security investment?

A. Verizon estimated its security investment based on cost of security additions that occurred in Texas and California.

Q. Do you have any concerns regarding how Verizon proposes to recover these costs?

Yes, I have a few concerns. First, it is possible that these costs have already been included in Verizon's building investment calculations used to develop floor space rates. Unless Verizon is

able to prove otherwise it should not be permitted to recover these costs in a separate rate element.

Second, Verizon has proposed to recover these costs as part of its Building Modification charge. But as I explained above, I was unable to determine the circumstances in which an ALEC would be charged this fee. I hope that Verizon will address and clarify this matter in its surrebuttal testimony.

Third, Verizon has proposed to recover these costs based on the number of parties it expects to "share" this element. Verizon expects that the cost of CO security will be shared between itself and ******** collocators. This occupancy rate is allegedly based on the average number of collocators in a Verizon CO. However, while Verizon's response to AT&T POD No. 5(d) indicates that this occupancy value is roughly equal to the national average number of collocators in Verizon COs it is clearly not representative of Verizon's experience in Florida.[48]

Fourth, and most significantly, Verizon's recovery proposal conflicts with a previous decision of the FPSC regarding cost sharing of modifications or enhancements that benefit multiple collocators as well as the ILEC.

Q. Where can this decision be found?

A. At page 86 of Order No. PSC-00-0941-FOF-TP, Issued May 11, 2000 it states:

> "...we shall require that when multiple collocators and the ILEC benefit from modifications or enhancements, the cost of such benefits or enhancements shall be allocated based on the

[48] This confidential response indicates that the national average CO fill is ******** but ******** for Florida.

amount of square feet used by the collocator or the ILEC, relative to the total useable square footage in the central office."

Thus, at a minimum, Verizon should be required to spread its security investment over the total floor space of the CO rather than the number of collocators it expects, plus itself.

Q. Would you please describe how sprint calculates its security investment?

A. Sprint calculates security investment based on a sample of recent security additions in COs throughout the country.

Q. Did you find any problems with the methodology sprint used to calculate security investment?

A. Yes. First, of the 48 observations in this sample only 2 are from COs in Florida. Second, Sprint makes no claim that its sample of security additions is representative of the population of COs in Florida. Third, there are significant variations in the per square foot cost Sprint derives from this study. These estimates range from as little as ********** to over ******* per square foot. These factors, along with the proposed rate which I address below, combine to cast doubt on the reasonableness of Sprint's proposal.

Q. Do you have any additional concerns regarding Sprint's proposal?

A. Yes. I agree with Sprint inasmuch as it has proposed to recover security costs as part of the recurring rate for floor space. However, when compared to BellSouth's proposed per square foot security costs Sprint's costs are unreasonable. Sprint proposes to charge a monthly recurring rate for security of roughly

********* per square foot[49] while BellSouth's expects to provide this for ********** per square foot.

Q. Please summarize your recommendation regarding security costs.

A. I recommend that the FPSC require the ILECs to recover security costs in the rates charged for floor space. This is consistent with both the prior decision of the Commission and the manner in which parties derive the benefit of this element. Should the Commission agree with my recommendations regarding the calculation of building investment for the ILECs the costs associated with security investments should already be reflected in the floor space rates so no additional charges are appropriate. Should the Commission choose another method for estimating building investment, or should a party prove that security investments are not already considered in the floor space rate calculations ultimately approved by the FPSC, I recommend that the BellSouth's methodology be adopted for all parties. That is, the cost of efficiently providing an appropriate security system should be distributed evenly across the total footprint of the CO.

Q. Is there another rate element you would like to discuss?

A. Yes, I would like to discuss collocation cages beginning with Sprint.

Q. Please explain how Sprint estimated the cost of providing a collocation cage.

A. Sprint used a sample of recent work activities to estimate the cost per linear foot of constructing a basic collocation cage.

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[49] This rate is equal to Sprint's security additive per square foot (Exhibit JRD-2 WP4 line3) times the building ACF 0.2431 (Exhibit JRD2-Inputs line 4).

Sprint avers that a collocation cage typically consists of an 8-foot tall chain link fence with a roll gate.[50]

Q. Did you examine Sprint's work activity study for collocation cages?

A. Yes. This study and associated paper were provided by Sprint in response to AT&T Interrogatory Nos. 6, 7, and 8. The documents examine the costs associated with cage construction, grounding, engineering, AC receptacles, and lighting.

Q. Do you have any concerns with sprints study or proposed costs?

A. Yes, any estimates derived from these studies are suspect because Sprint's sample size of approximately nine observations is too small for it to conclude with reasonable certainty that its results are statistically significant especially given the high variance of both work times for like activities, and material costs across observations.[51]

I found this to be especially true with respect to engineering times. This appears to be a problem because engineering accounts for a significant portion of the cost of a cage.

Q. What did you observe with respect to engineering collocation cages that concerned you?

A. There appears to be little if any relationship between the engineering times applied to these projects and the scope and/or scale of the project. For example, Sprint claims to have provided ***** hours of time to engineer a single 10' x 10' collocation cage with a gate, one AC receptacle, one overhead light, and grounding

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[50] JRD-2 at page 15 of 107.

[51] The sample size varies by activity studied. For example there were nine cage installations considered but only eight engineering observations.

for the cage.[52] However, for another project it only required just ***** hours to engineer three 10' x 10' cages with gates, one AC receptacle in each cage, and grounding for the cages. This work order also included changing the gate on an existing collocation arrangement.[53] Sprint fails to explain why this second observation, which is obviously more complicated than the first, required so much less time to engineer.

Sprint's calculation of the average engineering time also appears to be flawed as it spreads ****** total hours over 8 observations for an average of ********** hours per job. Sprint then arbitrarily allocates its average as follows; ***** hours to cage construction, and ******* hours to each AC receptacles and lighting. Not only does Sprint fail to provide support for these allocations it also fails to explain why its engineering was not necessary for all projects.

I am also concerned about the way in which Sprint estimated its grounding costs. These estimates are based on only 3 observations and Sprint fails to explain why grounding costs should be included in the per linear foot rate for all cages when it appears that not all cages in its study required or received grounding.[54]

Q. What recommendation do you have for the FPSC concerning Sprint's collocation cage proposal?

A. Although not without flaws I believe Sprint's proposal to be the most reasonable based on its per linear foot rate proposal.

Q. Do you have any concerns about Verizon's proposed rates for collocation cages?

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[52] See Sprint response to AT&T POD No. 6, line 25.
[53] See Sprint response to AT&T POD No. 6, line 13.
[54] I note that Mr. Curry addresses Sprint's proposed grounding costs in his testimony.

A. Yes, when compared to Sprint, Verizon's proposed rates for a collocation cage are unreasonable. Verizon's cost estimate for a cage surrounding a 10' x 10' collocation arrangement are more than twice Sprint's. I hope Verizon will address this cost differential in their surrebuttal testimony.

Q. Do you have any additional testimony regarding this issue?

A. No. I am prepared to discuss space reports.

Q. Please provide a brief description of the methodology employed by each ILEC to produce a space report.

A. Each of the ILECs relies on the work time estimates of SMEs to support its proposed costs. Both BellSouth and Sprint assume that the costs associated with producing a space report are the result of one-time events for each CO report requested. On the other hand Verizon assumes that each space report is a combination of two processes, a one time comprehensive examination of the CO, and annual evaluations to update any information that has changed since the initial examination of conditions within the CO. To calculate its proposed rate Verizon applies equal weights to the cost of the comprehensive and annual evaluations and then a fill factor is applied based on Verizon's demand forecast for each CO report.

Q. What observations did you make when reviewing the ILECs' cost studies regarding space reports?

A. I observed significant variation in the estimated work time each party assumed necessary to complete the task at hand, especially with respect to Verizon. BellSouth and Sprint expect to produce a space report with approximately ****** and ****** hours of labor, respectively. However, Verizon assumes that it will take

****** hours for the initial comprehensive examination and another ****** hours annually to update its information.

Q. Are these variations a cause of concern?

A. Yes. While it may be reasonable to observe some variation in the number of tasks and/or work times necessary to produce a space report you would expect to observe considerable similarities across companies given that all three firms are required by TELRIC to estimate the cost incurred by an efficient provider to complete this task. The magnitude of the variations observed indicates that Verizon expects to be far less efficient than BellSouth and even Sprint when producing these reports.

Q. It appears that Verizon's work time estimates are grossly overstated, but given that the difference in work time between Sprint and BellSouth is only a few hours do you believe that sprint's rate should be approved as filed?

A. No. While Verizon's work time estimates are clearly overstated the relatively more efficient time estimates proffered by Sprint also suggest an overstatement of costs. The description provided by Sprint indicates that it produces space reports based on an analysis of CO drawings. It is reasonable to assume that these drawings are kept up to date as additional ILEC equipment and/or collocation arrangements are placed in a CO. Thus, determining existing conditions and calculating the square footage and distances to essential facilities should take little time to complete. Similarly, the remaining items on Sprint's report should also take little time to gather because they should be readily available from billing records or data maintained by Sprint employees.

Q. How do you propose the FPSC resolve this issue?

A. I recommend that the FPSC require both Sprint and Verizon to recalculate their space report costs assuming that this activity requires no more than 10 hours to complete. I find this amount of work time to be more reasonable than either Sprint or Verizon's original proposals as it reflects greater efficiency and a more intimate knowledge of the operating conditions of their COs.

Q. Do you have any addition comments on this subject?

A. Not at this time.

Q. Did you have any concerns with the ILECs' cost studies regarding DSO cross connects? Please explain.

A. Yes. Based on a comparison of the amount of time assumed by Verizon to provision copper cables for cross connects it appears that Sprint's work time estimates and resulting rates are unreasonable.

Sprint proposes to charge for DS0 cross connects running from the MDF to the collocation cage in 100 pair increments. Sprint assumes that it takes ******** hours to complete this task; ******* hours for the pull, and another ******** hours to terminate the side on the MDF. The ALEC is assumed to be terminating the side at its collocation arrangement. However, for provisioning the same cable Verizon expects to need only ******** hours to pull, and ******* hours to terminate each side.[55]

Q. What is your recommendation regarding this issue?

A. As the previous discussion illustrates Sprint's work time estimates are unreasonable when compared to Verizon's. Thus, I

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[55] Verizon pull estimate is based on ********* hours per foot (Vz Collo cost Study…xls tab Cable Run Labor-CS cell E9) and Sprint's cable length of ***** **feet. (Exh JRD-2 WP 7.1)

recommend that the FPSC require Sprint to recalculate its costs based on the work time estimates proposed by Verizon.

Q. Do you have any recommendations with respect to BellSouth?

A. No. Based on my review of BellSouth's study its proposed rates for this element appear to be reasonable.

Q. Do you have any further recommendations?

A. Yes. To the extent that the FPSC finds my previous recommendation reasonable it should implement similar changes to Sprint's cost study with respect to fiber cables, as necessary.

Q. Would you like to move on to discuss collocation cable records?

A. Yes.

Q. What is a "collocation cable records" element?

A. According to BellSouth, "The Collocation Cable Records element consists of nonrecurring costs for establishing the cable records in BellSouth's systems. The records contain the local exchange carrier's (ALEC) cables terminating on BellSouth's frame and are needed for cable facility assignments. BellSouth assigns and pre-wires interconnection facilities from within its network to the collocation demarcation point."[56]

Q. Do you agree with the rates that BellSouth proposed for these elements?

A. It is hard to say much about the proposed rates because BellSouth has done a poor job of explaining the nature of the activities associated with the rate elements and the basis for the time estimates.[57]

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[56] See Exhibit WBS 1, Section 5, page 14.

[57] BellSouth Exhbit WBS 1, Section 5, page 14, and FlcollCR.xls. For example, in file FlcollCR.xls, the BellSouth has provided its estimate for the circuit capacity management (folder inputs_nonrecurring, cell H13). BellSouth has not

As previously noted, when reviewing the cost filings in this proceeding I have found it useful to compare the three ILEC's cost estimates for similar rate elements. With respect to this item, neither Verizon nor Sprint has proposed similar rate elements and therefore it is not feasible to make a comparison between companies for the collocation cable records element.

Q. What is your recommendation regarding the collocation cable records element?

A. I recommend that BellSouth provide in their surrebuttal testimony a detailed explanation of the functions associated with these rate elements, the basis for its time estimates, and address the degree to which Sprint and Verizon seek cost recovery for similar activities. Until such time as BellSouth has provided sufficient support for the Commission and interested parties to review I recommend that the price for this rate be set to zero.

Q. Are there any additional rate elements that you still need to address?

A. Not at this time.

Q. For some rate elements you have raised a concern but have not made a rate recommendation. Do you intend to file additional testimony on these topics?

A. Perhaps. In my testimony I have raised a number of concerns about the ILECs studies. For some of these items, I have stated that the Commission should review the particular issue but I have not made an affirmative pricing recommendation. It is my hope that the ILECs' and ALECs' responsive testimony will help clarify these

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explained why what appears to be a rather simple task, requires the number of hours proffered by its subject matter experts and cost analysts.

matters. Based upon my reading of their responsive testimony, I may submit final recommendations on these topics in supplemental rebuttal or surrebuttal testimony.

Q. Do you have any recommendations for the rate elements that neither you nor Mr. Curry directly addressed?

A. While there are two obvious options I endorse neither course at this time. The Commission could either accept any unchallenged rates as filed or reduce unchallenged rate elements by a percentage reflective of the adjustments determined necessary by the Commission for any disputed rate elements.

Q. What justification would there be for adjusting the costs associated with unchallenged rate elements?

A. While a given cost or rate element may not be singled out or specifically challenged by any of the parties the Commission may still find that there has been a systematic overstatement of costs or general methodological flaw that resulted in an overstatement of costs that is applicable to an ILEC's entire cost submission. The Commission could also conclude that the evidence supporting uncontested rate elements was no more sufficient than the evidence supporting rates that were challenged by parties and subsequently adjusted by the Commission so a generic or blanked adjustment is in order.

Q. What justification would there be for not adjusting the costs associated with unchallenged rate elements?

A. There are a number of rates that I reviewed and I found to be reasonable. I believe it would be inappropriate to lower these rates because it would establish rates that are below the cost of service.

Q. Why have you declined to take a firm stance on this issue at this time?

A. I believe that it is premature to make a specific recommendation on this topic until I have had, at a minimum, the opportunity to review the ILEC's rebuttal testimony.

Q. Do you have a list of rates that you have reviewed and for which you find to be acceptable?

A. Regrettably I did not maintain such a list during my review of the ILEC's studies.

Q. Does this conclude your rebuttal testimony?

A. Yes.

BY MS. KEATING:

Q And, Dr. Gabel, have you prepared a brief summary of your testimony?

A Yes, I have.

Q If you would, please go ahead and present that.

A Okay. Thank you. Good morning, Commissioners. This is a proceeding to establish prices for collocation. Collocation is an obligation asked that the ILECs fulfill by Section 251 of the Telecommunications Act. Collocation is different than unbundled network elements, something that I know this Commission has worked on extensively in the sense that there's a distinction made in the Act between unbundled network elements and collocation. Nevertheless, the FCC has established pricing rules for both unbundled network elements and collocation rules which are identical. Those pricing rules are that collocation and unbundled network elements should be priced at TELRIC, total element long-run incremental costs. That's the cost that an efficient firm would incur in providing either an unbundled network element or collocation.

In this proceeding, you've been presented with three cost studies by the incumbent local exchange companies where they identify what's the cost of collocation. Just at the outset as we begin to -- as I begin to summarize my review of the cost studies, let's just make sure I convey to you my understanding of what's involved in collocation.

Collocation involves a CLEC asking for some space in an ILEC central office where it either has a dedicated area, maybe 100 square foot area, or it wants to use one bay in an aisle in the transmission portion of a central office. What's done in a collocation cost study is the ILEC has to identify what's the cost of, first, receiving and processing the application for collocation, ensuring that there's space available, and then after the application is reviewed and a finding is made, the space is available for the CLEC, the ILEC has to then provision the space which will then be used by the CLEC. So the costs that are involved here are, first, labor intensive. There's not a lot of equipment involved with the exception of the building and the racks which are used to run cable. So when the application comes in, the ILEC has to process it. This is a labor intensive area. And so one of the two areas which I focus in my testimony is, well, how much time should it take to process the application or other labor intensive activities?

The ILECs identify how much time is involved in doing different activities, such as initially receiving the application. The ILECs identify the time associated with processing the application by consulting their subject matter experts, people who are either involved in actually processing the application or supervising the individuals who do process the application. So these are known as SME estimates, subject

matter expert estimates.

What the Commission is responsible for doing in this proceeding is reviewing these estimates. Are they reasonable or not? It's difficult to -- as I argue in my testimony, it's difficult for, I believe, an expert like myself, a cost analyst or the Commission to validate the reasonableness of a SME estimate because it's an opinion. And if I offer an opinion what is typically required of an expert is, well, can that number be validated as being a reasonable assumption? And the approach that I took in my testimony is that there's no standard publicly available data on what constitutes the right amount of time to process an application. So what we need to do is draw comparisons across the incumbent local exchange companies and see if there is some consistency in the time estimates or are there some substantial variations. And so in my testimony where I observe important cost drivers that make a big difference in how much a CLEC is paid, I have recommended that the Commission adopt the time estimate of the ILEC who has proposed the lowest time estimate.

So my proposal is not that the rate be identical across company but just the important input of how much time it takes to do something, like process an application, be consistent across companies. And in my view, that's consistent with the TELRIC objective that the cost should reflect the operations of an efficient firm.

The second area where -- I address in my testimony is, well, after the application is processed, space needs to be prepared. And after the space is made available to the CLEC, the CLEC then has to pay rent for using the facility. Three different methods have been proposed in this proceeding. BellSouth, Verizon, and Sprint all have a different method for estimating their space cost. I recommend that you adopt the methodology that was proposed by Verizon. What Verizon does is it looks at, well, what did it pay to have a building built? It then converts that embedded number to a current cost using something that's called the current-to-book ratio and then divides that by the applicable level of space. I like that approach because it's going to reflect local conditions throughout Florida for the more -- by using the cost associated with the actual buildings, it also provides some consistency between the cost of the building and what's the distances within the buildings.

And so my recommendation in this second area where I testify is that you adopt the Verizon methodology for estimating the cost of land and buildings. And then the final important area for the cost of providing collocation is power, and Mr. Curry has submitted testimony on that topic. And that completes my summary.

MS. KEATING: Thank you, Dr. Gabel. Mr. Chairman, the witness is tendered.

CHAIRMAN BAEZ: Thank you, Ms. Keating. Mr. Carver.

MR. CARVER: No questions.

CHAIRMAN BAEZ: Ms. Masterton.

CROSS EXAMINATION

BY MS. MASTERTON:

Q Good morning, Dr. Gabel. I'm Susan Masterton representing Sprint. I wanted to refer you to Page 23 of your rebuttal testimony. And on Lines 14 to 17 of that testimony, you recognize that to the extent that certain costs may not be included in Sprint's building investment, then Sprint is entitled to otherwise recover those costs; is that correct?

A Yes.

Q Okay. And then you've also stated that you're recommending the Verizon methodology for calculating building investment for the floor space charge; is that correct?

A Yes.

Q Are you familiar with Sprint Witness Jimmy Davis's surrebuttal testimony?

A I have read that.

Q Have you read that?

A I've read it but not the missing pages towards the end.

Q Okay. Well, this is not there.

A Okay.

Q Do you recall that he lists -- it's on Page 24 of his

testimony, but he lists several elements that are currently included in Sprint's floor space rate but are not recovered -- but are recovered by Verizon through separate charges?

A I do not have that testimony before me, but I did read it and I do recall that testimony.

Q Okay. So if the Commission should adopt Verizon's floor space methodology and rate structure, as you've suggested, then do you agree that Sprint should be able to recover those rates through separate charges as Verizon does?

A Yes. I saw nothing objectionable in Mr. Davis's argument.

MS. MASTERTON: Okay. Thank you. I have no further questions.

CHAIRMAN BAEZ: Thank you, Ms. Masterton. Mr. McCuaig.

MR. McCUAIG: Very briefly.

CROSS EXAMINATION

BY MR. McCUAIG:

Q Good morning, Dr. Gabel. My name is Dan McCuaig.

A Good morning.

Q You have reviewed Verizon's cost model in this proceeding; correct?

A Yes, I have.

Q Did you find that cost model difficult to use or understand?

A No. I found it extremely easy to use. One thing that they had in their spreadsheet, which I had not seen in other spreadsheets, is there's a hyperlink between different parts of the cost model. And I found it a very easy model to work with.

MR. McCUAIG: Thank you. I have nothing further.

CHAIRMAN BAEZ: Mr. Kassman.

MR. KASSMAN: I have no questions.

CHAIRMAN BAEZ: Mr. Hatch.

MR. HATCH: One quick one.

CROSS EXAMINATION

BY MR. HATCH:

Q Dr. Gabel, earlier in your summary you recounted as how you supported Verizon's methodology for developing floor space costs. And as I understand the way you described it, they take land and buildings in terms of their book investment and then inflate that up to current values; is --

A Actually, they only convert the buildings to a current cost. I don't think they do the land to a current cost.

Q With respect to buildings, if you take an embedded cost for a building and inflate it up, does that rest on the premise that the original building constructed in terms of its investment would be the same type building that would be built today?

A Yes.

Q And that the type of building would be suitable or would not have changed over time; is that correct?

A Yes.

Q In your experience, of the type of buildings required for embedded central offices, say, pre-'96 and the Telecom Act, would the construction of those buildings change today for a competitive TELRIC forward-looking environment?

A Well, I have not been in a central office that has been constructed subsequent to 1996, so my answer has that caveat associated with it. But what has changed since 1996 are two fundamental things. One is the footprint of equipment is smaller as digitalization has affected the size of switching machines and transmission equipment, but concurrently, there's been an explosion of the amount of transmission equipment. So the size has gone down, but the quantity has increased.

The second change is that now there's collocation to a degree that did not exist prior to 1996. The degree to which that would radically affect the way in which a new building is designed, I do not know the answer to that.

Q In your experience in terms of historic construction of central office buildings, would it be fair to characterize them as built like a bunker?

A Yes.

Q Are you familiar with the term "collocation hotels"?

A Yes.

Q What are those?

A Collocation hotels are buildings constructed so that multiple CLECs or data intensive firms can place their equipment in a building which has the -- which is also built like a bunker. It's a strong building. It's built differently than a normal commercial property, and furthermore, it has the advantage to the clients that if you are a data intensive corporation, that you're going to be collocated with telecommunications firms, and this is going to reduce your transmission costs.

Q Would the constructions costs of a current collocation hotel, as you understand the term, be more reflective of a forward-looking TELRIC environment even for an ILEC?

A To some extent for transmission equipment, but the kind of cables that come into the hotel are different than the kinds of cables that come into a central office because you don't have the copper loops coming into the hotel the way that you do in a hotel. So a hotel is going to have just fiber. The central office is going to have a lot of copper, and that could affect the design of the two buildings.

Q In terms of the actual construction --

CHAIRMAN BAEZ: Mr. Hatch, I'm sorry to interrupt. Could you get a little closer to the mike? We can't hear you.

MR. HATCH: My apologies.

BY MR. HATCH:

Q In terms of the actual construction of the collocation hotel, you've got -- agreed there would be a lot more fiber versus copper coming into it. Would that affect in any significant way the actual construction of the building? Because what I understand you're really only talking about is how the cables themselves enter the building.

A I think it also affects how much room you need for a main destruction frame. It occupies a lot of space in a central office building. There wouldn't be a need for anything equivalent to that in a hotel. The kind of racking that you need would also be different because the fiber cables would be lighter and not as abundant as the copper cables.

MR. HATCH: No further questions.

CHAIRMAN BAEZ: Mr. Watkins.

MR. WATKINS: Covad has no cross-examination.

CHAIRMAN BAEZ: Commissioners, no questions?

COMMISSIONER DEASON: I have one.

CHAIRMAN BAEZ: Oh, sorry, Commissioner Deason.

COMMISSIONER DEASON: Dr. Gabel, I'm looking at Page 6 of your testimony, the middle of the page there, and you recognize that the burden of proof rests squarely upon the ILECs. And then you go on to describe the cost models, and you do indicate that they can be both voluminous and complicated

and that they require multiple rounds of discovery. Do you recall that testimony?

THE WITNESS: Yes.

COMMISSIONER DEASON: Given that that's your testimony concerning the cost studies, do you have any position on the AT&T proposal that there should be one unified cost model?

THE WITNESS: Yes. And I'm going to respond to two different levels. The first is Mr. Turner has recommended that if you were to select one model as the standard model, that you select the BellSouth model. I spent a significant number of hours reviewing all three models, and I found the BellSouth model the most difficult to work with. So I would put it at the bottom of the list, not at the top of the list, if you were to make a selection. I found it much easier to work with both the Verizon and Sprint models. But that begs the question, should you adopt the single model?

In my testimony what I tried to do is compare inputs across companies. And I found it extremely difficult to do it because the information systems in the different companies are different and consequently -- and also the building elements are different, and consequently, it's difficult to make comparisons across companies. And I wasn't surprised to find that because I'm cognizant of efforts made by the FCC and many state commissions to adopt a uniform cost model. And in all

cases for which I have knowledge of, a major stumbling block is how do you get information from one company to fit into the cost model that was developed by some other party? And that's always been a major impediment. So even though conceptually I think Mr. Turner is right that it would be wonderful if we had one model which all parties can agree, my experience in reviewing the three models is that it's a big challenge to figure out how to get the inputs from one company to fit into the cost model of another company. And based upon what I have seen in reviewing the three models here in Florida, that's a big challenge.

And I guess my concluding statement on this issue is that these cost models are not complicated. They are essentially taking a time estimate, multiplying it by a labor rate, and then converting that through different loadings to a monthly or nonrecurring rate. I find it as a cost analyst that it would be easier just to review the spreadsheets, which as I mentioned in response to Verizon's testimony and I've now said is also the case with Sprint, it's easy to see how data flows through those spreadsheets. And I don't think time would be well spent in this instance in Florida with the three models that you have before you to compel the companies to use the same model.

COMMISSIONER DEASON: Okay. Thank you.

CHAIRMAN BAEZ: Commissioner Bradley.

COMMISSIONER BRADLEY: Yes. I think the last question there that you answered for Mr. Hatch was related to copper and fiberoptic; is that correct?

THE WITNESS: Uh-huh.

COMMISSIONER BRADLEY: And the prevalence of copper and fiberoptic. Did I understand you to say that copper is more prevalent or more readily available than fiberoptic at this stage?

THE WITNESS: I was comparing what takes place at a CLEC hotel versus what happens at an ILEC wire center. So the ILEC has a lot of copper cable running out to end users. The type of hotel that I was discussing with Mr. Hatch isn't there to serve ordinary residential customers or small business customers. It's only there to serve interexchange carriers or CLECs or large data intensive users. Those kind of users are only relying on fiberoptics for their transmission; they're not using copper. There's a difference because it's different markets.

COMMISSIONER BRADLEY: Is it more expensive to make available copper or fiberoptic to a CLEC or an ALEC who makes that request?

THE WITNESS: It just depends upon the level of demand that the CLEC has established. You know, is the CLEC asking for an unbundled loop to an end user? In that situation, copper may be less expensive or fiber may be less

expensive. It depends upon where the customer is located and the density. So it's how far is the end user who needs the unbundled loop, how far is that customer from the central office? But when it comes to transmitting high volumes of voice communications or data, at that point fiber is less expensive.

COMMISSIONER BRADLEY: And more efficient?

THE WITNESS: Yes. It is less expensive, fiber is less expensive, more efficient.

CHAIRMAN BAEZ: Thank you, Commissioner Bradley. Any redirect?

MS. KEATING: No redirect.

CHAIRMAN BAEZ: All right. Thank you, Dr. Gabel.

THE WITNESS: Thank you.

(Witness excused.)

CHAIRMAN BAEZ: You want to move exhibits?

MS. KEATING: Staff moves Exhibits 53 and 54.

CHAIRMAN BAEZ: Show Exhibit 53 and Confidential Exhibit 54 moved into the record.

(Exhibits 53 and 54 admitted into the record.)

CHAIRMAN BAEZ: All right. Where does that leave us?

MR. TEITZMAN: I believe we are finished.

CHAIRMAN BAEZ: We're done. Great. I want to thank the parties and the witnesses for their cooperation.

Mr. Carver, I'm sorry.

MR. CARVER: One other small matter.

CHAIRMAN BAEZ: Yes.

MR. CARVER: I just want to request official recognition of two Georgia orders. These were the ones that were referred to yesterday --

CHAIRMAN BAEZ: You had mentioned that.

MR. CARVER: -- and I have copies for the parties. Just if I can read the cites briefly into the record. The first one was entered in Docket Number 7061-U. It's entitled, "Order Establishing Cost-Based Rates," and it was issued December 16th, 1997. The second was entered in Docket Number 14631-U. It's entitled simply, "Order," and it was entered June 24th, 2003. And we will provide copies of those to the parties.

CHAIRMAN BAEZ: Thank you, Mr. Carver. And we shall take official recognition. I see this Georgia Commission order has Stan Wise as the Chairman. I'm not sure we should do this, frankly, but so it goes.

Ms. Keating -- I'm sorry, Mr. Teitzman, can you take us through the next steps?

MR. TEITZMAN: Yes, Chairman. I assume you mean as far as transcripts and briefs.

CHAIRMAN BAEZ: Transcripts and briefs, please.

MR. TEITZMAN: The transcripts are due on February 10th, 2004, and the parties' briefs are due on

March 1st of 2004.

CHAIRMAN BAEZ: All right. Is there anything else from the parties? Seeing nothing, thank you all.

Ms. White, yes.

MS. WHITE: I'm sorry. Yes.

CHAIRMAN BAEZ: You got in just under the wire.

MS. WHITE: Can't let it go. Because the transcripts aren't out until the middle of February and the brief is due March and I think the staff rec is not due until July?

MR. TEITZMAN: That is correct.

MS. WHITE: I was going to ask if we could delay the briefs until, like, April 1st. That would still give the staff three months before the --

CHAIRMAN BAEZ: How much time exactly are you asking? I don't have a calendar in front on me.

Thanks, Commissioner Deason.

MS. WHITE: That would be an additional four weeks.

CHAIRMAN BAEZ: Hold on. Mr. Teitzman, can you go through the dates first that you have real quick? The transcripts are out when?

MR. TEITZMAN: Yes. Transcripts are due on February 10th. The briefs are due on March 1st. The staff recommendation is set for July 22nd. And this is currently scheduled for the August 3rd agenda.

COMMISSIONER JABER: Mr. Chairman, I have the

opposite question of Ms. White's. I wonder if we could move up the staff --

CHAIRMAN BAEZ: The recommendation back a little.

MR. TEITZMAN: Chairman, if I may.

CHAIRMAN BAEZ: Yes.

MR. TEITZMAN: There is an explanation for the length of time. As you may be aware, the FCC Triennial Review Order has been issued, and we're currently in that proceeding. And that requires that we have an order in nine months, and basically what we did was we set the collocation order to come after that so we could address the TRO proceedings. There's two dockets so there's going to be two orders.

CHAIRMAN BAEZ: I'm sure Commissioner Jaber is satisfied with that answer.

MS. WHITE: And the only reason I was asking was because of the length of time between the March 1st date for the brief and the staff rec. If we could have a little more time.

CHAIRMAN BAEZ: And, Mr. Hatch, I'm not sensing objection on --

MR. HATCH: If it makes any difference, AT&T would certainly support that.

MR. WATKINS: Covad would as well.

CHAIRMAN BAEZ: Staff, do you have a problem with the extra 30 days?

MR. TEITZMAN: No problem. We are fine with that.

CHAIRMAN BAEZ: Okay. Then let the record show --

COMMISSIONER DEASON: Mr. Chairman, you know, if they would just stipulate the issues, they wouldn't have to file briefs at all.

CHAIRMAN BAEZ: Let me tell you, from the length of time the last two witnesses were on the stand, I'm surprised we didn't have a longer list of stipulated witnesses, but then again, that's just an editorial comment on my part.

In any case, unless the Commissioners have any objections, I'm going to grant the request, and we'll move that briefing date out to April 1st.

MR. TEITZMAN: We will revise the CASR.

CHAIRMAN BAEZ: And April 1st is not a joke, people. April 1st it is.

MS. WHITE: Thank you, Chairman.

CHAIRMAN BAEZ: All right. Is there any other business, any other matters we need to take up? Thank you all for getting in undertime and underbudget. And thanks to the staff.

MR. TEITZMAN: Thank you, Chairman.

CHAIRMAN BAEZ: We are adjourned.

(Hearing concluded at 11:46 a.m.)

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

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

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

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

DATED THIS 9th DAY OF FEBRUARY, 2004.

Tricia DeMarte

TRICIA DeMARTE
FPSC Official Commission Reporter
(850) 413-6736