Exhibit No.:

Issues: Right of Way Issues 1-5, Pricing Issue 8, and Collocation Issue 1
Witness: James F. Henson
Sponsoring Party: AT&T Communications of the Southwest, Inc., TCG Kansas City, Inc., and TCG St., Louis, Inc.
Type of Exhibit: Direct Testimony
Case No.: TO-2005-0336

AT&T COMMUNICATIONS OF THE SOUTHWEST, INC., TCG KANSAS CITY INC., AND TCG ST. LOUIS, INC.

DIRECT TESTIMONY

OF

JAMES F. HENSON

TO-2005-0336

May 9, 2005

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESSES.

A. My name is James F. Henson. My business address is 222 West Adams Street, Suite 1500, Chicago, Illinois 60606.

Q. PLEASE DESCRIBE YOUR EDUCATION AND EMPLOYMENT HISTORY.

A. I am employed by AT&T Corp. as Division Manager – Law & Government Affairs. In that capacity, my current responsibilities include policy implementation and advocacy for AT&T Corp.'s regulatory initiatives related to its intrastate telecommunications services. My current responsibilities focus on economic policy and interconnection agreement matters between AT&T and other telecommunications providers.

I graduated from Pennsylvania State University with a Bachelor of Science Degree in Electrical Engineering. I also received a Master's Degree in Business Administration from Pennsylvania State University. I am a licensed Professional Engineer in the State of Michigan. Since graduating from college, I have been employed by AT&T Corp., Bell Communications Research ("Bellcore") and SBC Michigan (known at the time as Michigan Bell Telephone Company).

I held a number of positions at Michigan Bell. My assignments included work in engineering, costing, pricing and support services (building and vehicle maintenance). After these assignments, I moved to Bellcore, where I was the Division Manager responsible for interexchange carrier and local exchange carrier relations as well as access charge matters. I then returned to Michigan Bell, where I began a series of assignments in interexchange carrier marketing (where I served as the Director of the Michigan Bell organization serving the entirety of that market segment), costing and government affairs. In 1995, I joined the AT&T Corp. Law & Government Affairs organization.

I have appeared or filed testimony in cases before a number of regulatory commissions as well as the FCC and federal court. Exhibit JFH-01 provides a listing of that testimony.

II. PURPOSE OF TESTIMONY

Q. PLEASE STATE THE PURPOSE OF YOUR TESTIMONY.

A. The purpose of my testimony is to discuss a number of issues where the parties have not been able to reach agreement. For each issue, I will explain the AT&T position and why I am recommending it. These issues are identified on three "Master List of Issues" documents as follows:

Right of Way Issue 1 - (Definitions of "periodic" and "spot" inspections)
Right of Way Issue 2 - (Work inspection and cost recovery)
Right of Way Issue 3 - (Cost recovery for determining SBC pole ownership)
Right of Way Issue 4 - ("Periodic" inspections and cost recovery)
Right of Way Issue 5 - ("Post-construction" inspections and cost recovery)

Pricing Issue 8 - (AT&T's rates for the use of AT&T space and multiplexing)

Physical Collocation Issue 1 - (Power Metering)

III. RIGHT OF WAY ISSUES

Issue 1: Should the Agreement include definitions for periodic and spot inspections to differentiate these types of inspections?

Q. IS RIGHT OF WAY ISSUE 1 RELATED TO ANY OF THE OTHER RIGHT OF WAY ISSUES?

A. Yes. Right of way issue 1 is interrelated to right of way issues 2, 4 and 5. Issues 2, 4 and 5 will be discussed below. As a preliminary matter, issues 1, 2, 4 and 5 all relate to the ability of SBC Missouri to inspect and charge AT&T for work that AT&T or its authorized contractors perform on SBC Missouri's structure (poles, conduits and rights of way). I will discuss each issue individually, although many of the same arguments apply to the other related issues. Essentially, by way of issues 1, 2, 4 and 5, SBC Missouri proposes to introduce a variety of new, differently-named inspection processes – all of which SBC Missouri proposes to charge to AT&T in an open-ended fashion.

Q. AS A FUNDAMENTAL MATTER DOES AT&T HAVE ANY OBJECTION TO SBC INSPECTING WORK PERFORMED BY AT&T?

A. No. Although AT&T has already agreed that its personnel working within SBC Missouri structures will be certified based on industry standards to perform installation, maintenance and similar routine work, AT&T has no objection to SBC inspecting AT&T's work. Specifically, AT&T has already agreed that SBC Missouri may, "make inspections *at any time* … for the purpose of determining whether facilities attached to SBC Missouri's poles or placed in SBC Missouri's

conduit system are in compliance with the terms of this Appendix and licenses hereunder." Emphasis supplied. This agreed-upon language is contained in Section 16.01 of the Agreement. Accordingly, AT&T has no dispute with the concept of SBC Missouri being able to inspect its structure *at any time*.

Q. IS IT NECESSARY TO SEPARATELY DEFINE "PERIODIC" AND "SPOT INSPECTIONS"?

A. No, it is not. The right to inspect *at any time* is broader than the right to conduct "periodic," "spot" or "post construction" inspections as well as inspections performed during the course of AT&T installation work – all of which are identified in the combination of right of way issues 1, 2, 4 and 5. This proliferation of inspection types by SBC Missouri appears designed to help justify the imposition of a collection of fees upon AT&T – fees over which AT&T will have no control and which will drive up AT&T's costs unnecessarily.

The issue of charging for inspections will be addressed separately as part of the discussion of other right of way issues. However, right of way issue 1 is very straightforward. AT&T's language affirms the right of SBC Missouri to inspect *at any time.* This approach is broader and provides SBC Missouri more flexibility than SBC Missouri's proposed collection of differently-named inspection types. As a result, AT&T's language on this issue should be adopted.

Issue 2: ***Should the cost of a single SBC Missouri employee who will review AT&T's maintenance work be shared by the parties or paid for by AT&T?***

Q. ARE THE AT&T PERSONNEL AT ISSUE QUALIFIED TO WORK WITHIN SBC'S CONDUIT SYSTEMS?

A. Yes. AT&T personnel working within SBC structure are certified based on industry standards to perform installation, maintenance and similar routine work. Furthermore, AT&T "authorized contractors" are selected from a list that is mutually approved by SBC Missouri and AT&T to perform specific tasks. (See, e.g., Appendix Poles, Conduits, and Rights-of-Way-MO, Article 3, Paragraph 3.05 defining "Authorized Contractor").

Q. WHICH PARTY SHOULD INCUR THE COST OF ADDITIONAL PERSONNEL THAT SBC DEEMS NECESSARY TO BE PRESENT TO REVIEW WORK PERFORMED BY QUALIFIED AT&T PERSONNEL?

A. If SBC, at its own option and for its own reassurance, sends one or more of its employees to review the work performed by properly certified AT&T personnel, then SBC should, at a minimum, *share* in the costs associated with such employee or contractor review. SBC's proposed language (assessing 100% of this cost to AT&T) has the potential effect of driving up AT&T's costs when SBC has not claimed or established that AT&T does not use good workmanship when performing work in manholes or elsewhere. If SBC unilaterally chooses to send personnel to observe AT&T's work, it should at least *share* the cost – as SBC agreed to do in the current ICA. Consistent with the existing Agreement, AT&T

has offered to pay half of a cost that AT&T does not even believe is necessary in the first place.

Q. OF WHAT RELEVANCE IS THE CURRENT ICA LANGUAGE RELATING TO THIS ISSUE?

A. AT&T's proposal related to this issue is entirely consistent with the existing ICA language. The current ICA between the parties provides that:

> SWBT may, at its option, send one or more employees to review such work. CLEC and SWBT shall ***share the cost*** of a single SWBT employee reviewing the work during emergency and non-emergency situations. ***SWBT will not be compensated*** by CLEC for any additional employees reviewing the work. … If the work at SWBT sites is performed by a contractor agreed upon by CLEC and SWBT, ***SWBT shall be responsible for the costs*** of its employees sent to inspect the contractor's work. (*See* Appendix Poles, Conduits, and Rights-of-Way-MO (M2A), Article 6.11 (e)). Emphasis supplied.

AT&T does not see any need to disturb this existing, Commission-approved arrangement. SBC Missouri has the burden of demonstrating why the approach embodied in the existing language should be changed. SBC has provided no compelling reason to justify why *all* the costs associated with its own verification of AT&T's work should be borne solely by AT&T in all instances. As a result, AT&T's language should be approved on this issue.

As a point of reference, the Administrative Law Judge in the Oklahoma Corporation Commission's proceedings on a successor ICA found in favor of AT&T on this same issue. (See Oklahoma Corporation Commission Docket No. PUD 2004-493, ALJ's annotated Master List of Issues, Attachment 13, Issue 1, April 13, 2005). Similarly, the Texas PUC recently adopted the language

proposed by AT&T on this issue as part of the Texas proceedings on a successor ICA between the parties. The Texas PUC was not persuaded that the existing arrangement whereby SBC Texas and AT&T share this cost should be changed. (*See* Texas PUC Docket No. 28821, *Arbitration Award – Track 1 Issues*, ROW Issue 3, February 22, 2005).

Issue 3: ***If AT&T cannot determine whether a pole is owned or controlled by SBC Missouri, and therefore is unable to identify all pole ownership in its application, should AT&T pay SBC Missouri to perform this function?***

Q. WHAT IS THE PURPOSE OF THIS SECTION OF THE INTERCONNECTION AGREEMENT?

A. SBC Missouri may be required at times to rearrange its facilities or perform make-ready work on non-SBC Missouri poles to accommodate AT&T's request for pole access. The AT&T-proposed language recognizes that SBC Missouri is in the best position to determine which poles it owns and controls and which poles it does not own or control.

Q. SHOULD AT&T HAVE TO PAY SBC MISSOURI TO DETERMINE WHICH POLES IT OWNS OR CONTROLS?

A. No. SBC Missouri should be readily able to identify ownership and control of poles it does not own or control. SBC Missouri is surely in a better position than AT&T to know or determine who owns the poles on which SBC Missouri has placed facilities.

Q. WHAT IS THE CURRENT ICA LANGUAGE BETWEEN SBC MISSOURI AND AT&T ON THIS ISSUE?

A. AT&T's proposed language is virtually identical to the language contained in the existing ICA between AT&T and SBC Missouri. It can be found in the existing ICA Appendix Poles, Conduits, and Rights-of-Way-MO (M2A), Article 9.02 (f). This language was, of course, approved by the Missouri Commission. The language has been in place for several years. SBC Missouri, however, is now proposing that this arrangement be changed so that it can charge AT&T for determining whether SBC Missouri owns or controls the poles at issue.

SBC has not demonstrated that there are any significant costs associated with providing information about its own facilities nor has it provided any evidence that AT&T has unreasonably or excessively relied upon SBC Missouri to perform this function. Furthermore, SBC Missouri has not provided a compelling reason why AT&T should bear the costs of SBC accessing its own or other readily available information. SBC's proposed modification to the language under which it has been operating for several years should be rejected.

Furthermore, the Administrative Law Judge in the Kansas Corporation Commission's successor ICA proceedings issued findings in favor of AT&T's position for this issue. (See *Arbitrator's Determination of Issues*, KCC Docket No. 05-AT&T-366-ARB, ¶277, February 16, 2005).

Issue 4: ***How should CLECs be required to compensate SBC Missouri for the costs associated with the Periodic Inspection when they are found in non-compliance?***

Q. PLEASE PROVIDE AN OVERVIEW OF THIS ISSUE.

A. Under the terms of the existing Agreement, AT&T acknowledges SBC Missouri's right to make periodic or spot inspections to confirm compliance with the terms of the Agreement. SBC Missouri may charge AT&T for the inspection expenses if "substantial noncompliance" is found. (See Appendix Poles, Conduits, and Rights-of-Way-MO (M2A), Article 16.01).

SBC Missouri now proposes to implement a new 2% test under which the attaching party must pay for the inspection if 2% or greater of its attachments are deemed to be in violation. SBC Missouri's proposed algorithm continues by identifying the violation percentages of every other CLEC and then developing, for each CLEC, the ratio of its violations to total violations for purposes of cost apportionment.

The impracticality of this cumbersome concept is obvious. The approach is unnecessarily complex. By using a *percentage* to trigger cost assessment, the procedure invites the anomalous result that a CLEC with a small number of total attachments would very easily trip the 2% trigger with a single violation. Another CLEC with a much higher absolute number of violations, and many more total attachments, could remain below the 2% trigger. SBC Missouri's proposed method raises the question of how violations are counted and how the violations of others have entered into the ultimate calculation and cost assessment. SBC

Missouri's proposal also seems to imply that SBC Missouri retains sole discretion to unilaterally deem conditions to be non-compliant.

This misguided SBC Missouri proposal also leaves it solely to SBC Missouri to establish the frequency, elaborateness and resultant cost of such inspections. This creates a very real risk that SBC Missouri could drive up AT&T's costs in an inappropriate and unwarranted manner.

Furthermore, SBC Missouri has not presented any evidence that it has experienced widespread noncompliance or related, out-of-control SBC Missouri inspection costs. For all these reasons, SBC Missouri's 2% cost assessment test should not be adopted.

Issue 5: Should the ICA include post construction inspection language requiring AT&T to pay for SBC Missouri's expenses associated with such activity?

Q. IS IT NECESSARY FOR SBC MISSOURI TO ADD ANOTHER INSPECTION AND IMPOSE A FEE ON AT&T FOR SUCH INSPECTIONS?

A. No. There is no rationale to support SBC's proposed new language to add another inspection and impose another fee on AT&T for this additional inspection. As discussed earlier in this testimony, the parties have agreed to language that already provides SBC assurances that AT&T's attachments to SBC's structure conform to necessary standards. AT&T's employees and authorized contractors are certified based on industry standards to perform installation, maintenance and similar routine work.

AT&T's willingness (discussed in the context of right of way issue 1) to share the cost of an inspection conducted by a single SBC Missouri employee contemporaneously with the performance of the work obviates the need for a separate, redundant post-construction inspection. SBC Missouri has not claimed or established that AT&T does not use good workmanship or otherwise causes problems related to SBC Missouri structure. About all SBC Missouri's proposal would accomplish is the unnecessary driving up of AT&T's costs. SBC's proposal requires a CLEC to pay for unlimited, unfettered SBC inspections without demonstration of a useful benefit.

Furthermore, the Administrative Law Judge in the Kansas Corporation Commission's successor ICA proceedings issued findings in favor of AT&T's position for this same issue. The Arbitrator essentially reasoned that "yet another inspection charge is not reasonable" in light of charges related to work inspection conducted contemporaneously with performance of the work. (*See* KCC Docket No. 05-AT&T-366-ARB*, Arbitrator's Determination of Issues*, ¶286, February 16, 2005).

Similarly, the Administrative Law Judge in the Oklahoma Corporation Commission's proceedings on a successor ICA found in favor of AT&T on this same issue reasoning, like the Kansas Arbitrator, that this proposed charge would be redundant with charges related to work inspection conducted contemporaneously with the performance of the work. (*See* Oklahoma

Corporation Commission PUD Docket No. 2004-493, ALJ's annotated Master List of Issues, Attachment 13, Issue 6, April 13, 2005).

Also, the Texas PUC recently adopted the language proposed by AT&T on this issue as part of the Texas proceedings on a successor ICA between the parties. With respect to AT&T's proposed language in section 16.03, the Texas Commission stated:

> The [Texas] Commission adopts AT&T's position regarding this issue. The Commission agrees with AT&T that the SBC Texas' proposal unnecessarily drives up costs. It has submitted no evidence that such inspections are standard or necessary. SBC's proposal allows unlimited, unfettered inspections with potentially no useful benefit. There is no credible evidence that inspections of AT&T's post-construction work are necessary to protect "public safety." Nevertheless, AT&T has agreed to language that provides SBC assurances that its attachment to SBC's structure conforms to necessary standards.

Texas PUC Docket No. 28821, *Arbitration Award – Track 1 Issues*, ROW Issue 11, February 22, 2005).

AT&T's proposed language defining and permitting post-construction inspections is identical to SBC Missouri's language. The only difference is SBC Missouri's desire to insert the words "at AT&T's expense" into the language. For all the reasons discussed herein, those three SBC Missouri-proposed words should not be included in the successor ICA.

IV. AT&T SPACE LICENSE RATES – PRICING ISSUE # 8

Issue 8: What rates should apply to SBC for its use of AT&T's space?

Q. WHAT IS THE NATURE OF THE DISPUTE ON THIS ISSUE?

A. AT&T and SBC Missouri are unable to reach agreement on several rates payable by SBC to AT&T under the Pricing Schedule for DS1 port terminations and DS3 to DS1 multiplexing.

Q. WHEN ARE THESE RATES APPLICABLE?

A. The rates for space license port terminations and multiplexing are charged by AT&T to SBC Missouri when SBC Missouri terminates facilities in space owned or leased by AT&T.

Q. WHAT ARE THE SPECIFIC RATES IN DISPUTE?

A. AT&T proposes the following rates:

DS1 Port Termination:

Rate Element	Recurring	Nonrecurring
Per Port (first 28)	$36.00	$267
Per Port (29-56)	$33.00	$267
Per Port (57-84)	$26.00	$267
Per Port (85-112)	$21.00	$267
Per Port (113-140)	$17.00	$267
Per Port (141-168)	$13.00	$267
Per Port (169-300)	$12.00	$175
Per Port (301-500)	$12.00	$125
Per Port (501-750)	$12.00	$75
Per Port (751-1000)	$12.00	$50
Per Port (1001 & Above)	$12.00	$25

DS3 to DS1 Multiplexing:[1]

Recurring	Nonrecurring
$437.11	$201.77 (Installation, 1st)
	$156.50 (Installation, Additional)
	$44.51 (Disconnect, 1st)
	$32.12 (Disconnect, Additional)

SBC, on the other hand, proposes a DS1 port termination recurring rate of $2.59 and a nonrecurring rate of $105 – regardless of the number of ports ordered. SBC's proposed multiplexing charge is not known to AT&T at this time but is shown in the pricing schedule as "TBD" which stands for "To Be Determined."

Q. WHAT IS AT&T'S RATIONALE FOR THESE PROPOSED RATES?

A. AT&T proposes to use the DS1 port termination rates found in its Missouri tariff for access service. Specifically, the rates above are found in P.S.C. Mo. No 20, AT&T Communications of the Southwest, Inc., Access Service Tariff, Price List, Original Sheets 10 and 11 (December 26, 2002). The port termination rates in AT&T's tariff, which have been agreed to by SBC in a number of other states, including all five former Ameritech states, are generally comparable to SBC's charges for the same capability. In the case of multiplexing charges, AT&T proposes to use the same rates that SBC Missouri charges AT&T. Because, for multiplexing, there is an identical SBC Missouri rate element, AT&T proposes to simply use SBC Missouri's rates. AT&T's proposed multiplexing rates are taken directly from lines 243-244 of the pricing schedule. These proposed multiplexing

[1] The multiplexing rates shown here are different from those currently listed on lines 424-437 of the pricing schedule (where AT&T's space license rates are shown). This testimony updates and supersedes AT&T's pricing recommendation for space license multiplexing. This modification has previously been communicated to SBC Missouri.

rates are lower than the multiplexing rates contained in AT&T's Missouri tariff for access services.

Q. WHAT ARE AT&T'S OBLIGATIONS WITH RESPECT TO PROVIDING THIS SPACE LICENSE CAPABILITY?

A. AT&T has no obligation to make this type of collocation arrangement in AT&T's switching centers available to SBC. In an order in the Virginia Arbitration, the FCC's Wireline Competition Bureau explicitly determined that non-incumbents do not have collocation obligations and characterized any such arrangements as "voluntary offer[s]."[2] As a result, no particular pricing standard applies in this instance. Nevertheless, as I explained above, AT&T proposes to use rates comparable to those charged by SBC for the same functionality.

Q. HAS ANY OTHER COMMISSION RECENTLY CONSIDERED THIS ISSUE?

A. Yes. The Administrative Law Judge in the Oklahoma Corporation Commission's proceedings on a successor ICA found in favor of AT&T on this same issue adopting AT&T's proposed rates without change. The DS1 port termination rates AT&T proposed in Oklahoma are the same as those being proposed here. The multiplexing rates AT&T proposed in Oklahoma are higher than those being proposed here. (*See* ALJ's annotated Master List of Issues, Network Architecture Part G Space License, Docket No. 2004-493, Issue 2, April 13, 2005).

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[2] The Wireline Competition Bureau of the FCC preempted the jurisdiction of the Virginia State Corporation Commission to arbitrate disputes between Verizon Virginia, Inc. and WorldCom, Inc., Cox Virginia Telecom, Inc., and AT&T Communications of Virginia, Inc. in a consolidated docket. *Petition of WorldCom, et al.*, *Memorandum Opinion and Order*, CC Docket Nos. 00-218, 00-249, 00-251, DA 02-1731 (rel. Jul. 17, 2002) ("*Virginia Arbitration Order*"), ¶¶ 75-76.

Q. WHAT SHOULD THE COMMISSION DO WITH RESPECT TO THIS ISSUE?

A. The Commission should adopt the AT&T rates as proposed. Notwithstanding the fact that no particular obligation applies to AT&T with respect to either the availability or pricing of this capability, AT&T has established charges that compare favorably with SBC's charges for the same functionality.

V. POWER METERING – PHYSICAL COLLOCATION ISSUE # 1

Issue 1: Should AT&T, at its option, be allowed to implement power metering in its collocation space in SBC Missouri's locations?

Q. WHAT IS PHYSICAL COLLOCATION ISSUE #1?

A. Physical collocation Issue Number 1 involves whether the electrical power that AT&T receives from SBC Missouri in SBC Missouri's collocation spaces should be metered or not. AT&T believes that power must be metered or SBC Missouri will be over-compensated for the costs that it incurs to provide power.

Q. WHY DOES AT&T BELIEVE THAT THE METERING OF COLLOCATION ELECTRICAL POWER IS APPROPRIATE?

A. The use of electrical power in a collocation cage is similar to the relationship that exists between the power company and a typical residential customer. A person's home has fuses and wiring that is capable of handling a considerable amount of electrical power. Yet power is never consumed to this "fused" degree in a home, particularly at night or when people are on vacation. Moreover, the power company does not charge their customers on a fused basis – it commonly uses a

meter to measure the exact amount of power that the consumer is using. AT&T is seeking essentially the same arrangement for its collocation sites.

SBC Missouri, however, charges CLECs for electrical power on the basis of the size of the fuses and wiring placed to a collocation cage, and not based on the power that a CLEC actually consumes. I will explain how SBC Missouri engineers its power facilities and demonstrate that a usage-based method of charging aligns properly with the costs that SBC Missouri incurs.

Q. CAN ELECTRICAL POWER BE MEASURED IN A COLLOCATION SPACE?

A. Yes. There are several ways to measure electrical power in a collocation space including: (1) split-core transducers, (2) hand-held meters and (3) shunts that work in conjunction with ammeters. Alternatively, although less precise than actual metering, another method of estimating usage is to review the manufacturers' equipment "drain" specifications for the equipment placed in the collocation space. This information is routinely reported to SBC Missouri on the form AT&T and other CLECs use to order collocation space. It is updated when additional equipment is placed into an existing collocation space. The main objective is to have the electrical power in SBC Missouri's collocation spaces measured; the actual measurement can be accomplished by any practical method. I will explain later in this testimony how such an arrangement has been working in Illinois for some time.

Q. IS AT&T SEEKING TO IMPOSE UPON SBC MISSOURI THE COSTS OF MEASURING THE POWER DELIVERED TO AT&T'S COLLOCATION CAGES?

A. No. AT&T is not looking for SBC Missouri to absorb any costs associated with measuring power – AT&T is willing to pay what it costs to install and read the meters, as it does in Illinois.

Q. WHY IS IT IMPORTANT TO DISCUSS HOW SBC MISSOURI'S DC POWER INFRASTRUCTURE IS ENGINEERED AND USED?

A. It is important to review how DC power infrastructure is engineered to properly understand the basis for how DC power should be charged. Based on the method used by SBC Missouri to engineer its power infrastructure, it will be evident that a usage-based charging mechanism aligns best with the costs actually caused by AT&T.

Q. WHAT ARE THE MAIN ELEMENTS OF DC POWER?

A. The ability to provide DC Power within a central office is essentially comprised of three main elements: DC Power Delivery, the DC Power Plant, and the AC Power that is passed through that plant that is ultimately converted into DC Power. *DC Power Delivery* is power infrastructure that provides for the DC power cabling that is extended from SBC Missouri's battery distribution fuse bay to the collocation arrangements. This function is referred to as "Power Cable and Infrastructure" in SBC Missouri's collocation rate summary. This DC power cabling consists of pairs of copper cables in protective sheaths that complete a

power circuit from SBC Missouri's battery distribution fuse bay to the CLEC's (e.g., AT&T's) collocation arrangement. One part of each pair represents the "battery" or delivery of power and the other part of each pair represents the "ground" or return of the power. Moreover, each pair normally comes in matching pairs for redundancy, with one pair referred to as the "A-side" power feed and the redundant pair referred to as the "B-side" power feed. In this way, if one side fails, power will not be completely cut off to the telecommunications equipment.

Finally, the battery distribution fuse bay is simply a large fuse bay or junction point where a large feed of DC power coming from the power plant via large power cables is broken down into smaller increments of power. This piece of equipment is necessary because it allows the numerous cables from the battery distribution fuse bay to collocators' telecommunications equipment, as well as SBC Missouri's equipment, to be smaller and thus less expensive than the larger, less numerous power cables extending from the power plant to the battery distribution fuse bay.

The *DC Power Plant* is necessary because virtually all telecommunications equipment operates on DC power (or direct current power), whereas the power that is purchased from the electric utility is AC power (or alternating current power). SBC Missouri uses several pieces of equipment to convert this AC power to DC power (for its own use and the use of collocating carriers) and to provide for redundancy. That equipment consists of: (1)

rectifiers, which actually convert the AC power to DC power; (2) batteries, which stabilize the DC power and provide for short-term backup in the event of an AC power failure; (3) controllers and power distribution service cabinets, which manage the DC power elements and distribute the power throughout the central office; and (4) the emergency engine, which provides long-term backup in the event of a lengthy AC power failure.

The final component of providing DC Power to telecommunications equipment is that actual *AC Power* that is purchased from the electric utility that is then converted into DC Power.

Q. PLEASE BRIEFLY DESCRIBE HOW THE DC POWER DELIVERY INFRASTRUCTURE IS SIZED.

A. The DC Power Delivery infrastructure, i.e., the cabling between the battery distribution fuse bay and the telecommunications equipment as described above, is typically sized using a standard formula that is related to the amount of voltage drop that will be permitted across the cables. In layman's terms, the power cables installed between the DC Power Plant and the telecommunications equipment actually have a measurable resistance across them. This resistance causes a voltage drop that occurs between the DC Power Plant and the telecommunications equipment. The telecommunications equipment requires that it receive a specific voltage – typically 48 volts.

There are three main variables in the voltage drop formula that lead to the necessary sizing of the cables. *First*, the amount of current (measured in amps)

that must be placed through the cable is the primary variable. As the amount of power needed to run across the cable increases, the larger the required cable diameter that must be installed to carry the current. *Second*, the longer the DC power cable, the greater the voltage drop that will occur, all other factors being equal. In other words, the greater the distance DC current has to travel through a cable, the greater the potential for resistance, thereby causing a greater degree of voltage drop. *Third*, the larger the diameter of the DC power cable, the lower the voltage drop that will occur, all other factors being equal. Basically, if the current has more room to move around as it passes through the cable, there is less potential for resistance, thereby causing a lesser degree of voltage drop.

When sizing the cables, the engineer simply has to identify the allowable voltage drop between the DC Power Plant (or battery distribution fuse bay) and the telecommunications equipment so that the thinnest diameter cable is used based on the distance that must be traversed for the given amperage of cable.[3] The thinnest cable is chosen, in part, because the cost of the cable increases dramatically as the diameter of the cable increases.

Typically, the cables are sized using what is known as the List 2 Drain for the equipment being served. The List 2 Drain is the current that the equipment will draw when the power plant is in distress, meaning that the power plant's batteries are nearing the point of complete failure. When a power plant is in

[3] The voltage drop between the power plant and the telecommunications equipment is a fixed value – normally around 1.75 volts. The engineer will attempt to use this entire voltage drop so that the cable diameter can be minimized corresponding to the length of cable and amperage that must be carried across the cable.

distress, the voltage on the batteries begins to decrease. For the telecommunications equipment to continue to draw the same amount of power, the current has to increase proportionately. This adjustment in the current and voltage all occurs automatically because the telecommunications equipment, to continue operating properly, will draw the same amount of power by increasing the current drawn as the voltage drops.[4] However, the cable diameters must be sized for this worst-case situation.

Q. ARE ANY OTHER FACTORS TAKEN INTO CONSIDERATION IN SIZING THE DC POWER DELIVERY INFRASTRUCTURE?

A. Yes. Importantly, it is common engineering practice to design the DC Power Delivery infrastructure for the ultimate demand of the equipment to which the power cables are being installed. This practice is reasonable primarily because: (1) the installation of DC power cables is costly; (2) the DC power cables take up a significant amount of space in overhead racking; and (3) the rearrangement of DC power cables poses operation risks for the equipment that can easily be avoided by sizing the DC power cables for their ultimate demand initially, as opposed to changing them repeatedly over time. It is not reasonable to constantly adjust the diameters of the cable and reinstall them as the DC power needs of the telecommunications equipment increase. Accordingly, the sizing of these cables

[4] Power equals current times voltage (P = V * I). As the voltage drops, the current will automatically increase to compensate so that the same power amount can be drawn. This will occur until a minimum threshold of voltage is exceeded on the telecommunications equipment, at which point it will no longer work properly at all.

is based off of the List 2 Drain of the telecommunications equipment being served at its ultimate demand.

Q. PLEASE EXPLAIN THE IMPLICATIONS OF THIS ENGINEERING APPROACH TO SIZING THE DC POWER DELIVERY INFRASTRUCTURE.

A. *First*, when a collocator orders a DC Power Delivery arrangement, the CLEC is most likely not ordering the DC power that the CLEC needs immediately but, rather, the DC power that the CLEC will ultimately require in its collocation arrangement. Again, as discussed above, this is reasonable because the CLEC does not want to be in the position of routinely having to modify the DC Power Delivery arrangements coming into its collocation arrangement or constantly having to perform DC power augments. However, it is also true that the CLEC's requirements for the size of the DC Power Delivery arrangement, in terms of its ultimate current carrying capacity, has no bearing on the amount of DC Power that the CLEC needs currently to operate its equipment or should be required to pay for.

Second, any reasonable ordering process for DC Power must recognize the important distinction between the ordering of the DC Power Delivery arrangement, which sizes the cables extended into the collocation arrangement, and the *separate* request for DC Power itself. In other words, the CLEC's need for DC power capacity on the cables extended into the collocation arrangement will not match its usage of DC power except in those very rare instances when the

collocation arrangement is fully built out and operating under peak conditions. Because of this, any attempt to equate the sizing of the DC Power Delivery arrangement to the CLEC's collocation arrangement and the CLEC's actual usage of DC Power is inappropriate and not cost-based.

Q. PLEASE BRIEFLY DESCRIBE HOW THE DC POWER PLANT IS ENGINEERED.

A. The previous engineering discussion concerned the cables extending from the DC Power Plant to the collocation arrangement or telecommunications equipment generally. In sum, with DC Power Delivery arrangements, the engineering approach used sizes the cables for ultimate demand in a situation where the DC Power Plant is operating in distress. By comparison (or, more appropriately, contrast), the DC Power Plant is engineered quite differently. The DC Power Plant consists of a collection of components, all of which are designed to provide uninterruptible DC Power sufficient for the peak usage of the telecommunications equipment within the central office. Each component (batteries, rectifiers, backup generator, controllers, and power distribution service cabinets) is rated or evaluated based on the number of DC amps of power that the component can provide.

The DC power engineer is responsible for monitoring the use of the DC Power Plant, noting the peak DC power usage that occurs on the power plant. Typically, this peak usage occurs during what is known as the "busy hour" for the central office. Generally, the busy hour is the hour during the year when the load

on the central office telecommunications equipment is at its greatest, thereby creating the highest load on the power plant as well. Normally, this day is typically on the Monday after a long holiday (such as Thanksgiving) and occurs at around 10:00 in the morning. This is not the case in all central offices. Central offices that exclusively serve a residential community may have a different busy hour – i.e., a busy hour that occurs in the evening. In any event, there will be a point during the year where the DC Power Plant is used at its maximum level. It is the responsibility of the DC power engineer to ensure that there is sufficient power capacity (through the batteries, rectifiers, and backup generator) to meet this peak demand on the power plant.

Q. WHEN SIZING THE POWER PLANT TO ENSURE SUFFICIENT POWER CAPACITY EXISTS TO MEET PEAK DEMAND, DOES THE DC POWER ENGINEER CONSIDER ANY OTHER FACTORS?

A. Yes. A fill factor is normally applied to the sizing of the DC Power Plant as well, so that the peak demand on the power plant may only be approximately 80 percent of the actual capacity available within the power plant.

Q. DOES THE DC POWER ENGINEER MODIFY THE DC POWER PLANT INFRASTRUCTURE BASED ON AN ORDER FOR NEW EQUIPMENT PLACED BY A CLEC OR EVEN BY AN SBC MISSOURI EQUIPMENT ENGINEER?

A. Typically, the answer would be no. The DC Power Engineer simply monitors the use of the DC Power Plant so that if the engineer observes peak usage increasing

to a point that is too great for the capacity in the power plant (accounting for fill), the engineer will ensure that sufficient capacity exists in the DC Power Plant. However, the addition of a piece of collocation equipment in the central office is not the driving factor causing the DC power engineer to modify the plant. Rather, the driving factor is the collective peak use of all of the equipment within the central office. This, of course, includes the requirements of the equipment of SBC Missouri as well as any CLECs with collocation space in the office.

Q. DOES THE DC POWER ENGINEER MODIFY THE DC POWER PLANT INFRASTRUCTURE BASED ON AN ORDERED AMOUNT OF POWER ON A COLLOCATION ORDER FORM?

A. No. Consistent with the above discussion, the driving factor for sizing the DC Power Plant infrastructure is not individual collocation power orders, but the total peak usage of the central office equipment as a whole. To the extent the equipment of a particular CLEC contributes to that peak demand during the busy hour, that CLEC should bear its pro rata share of that usage measured in amps. However, the CLEC should not be required to pay for recovering the cost of DC power plant growth (as SBC Missouri intends) simply because it places an order for power to its collocation equipment because that individual order by itself has no bearing on SBC Missouri's sizing of the capacity for the DC Power Plant.

Q. HOW DO YOU RECOMMEND THAT THE PRO RATA SHARE OF THE DC POWER PLANT COST BE APPORTIONED TO THE VARIOUS USERS?

A. Ideally, and this is the solution that AT&T recommends, all of the various users of the DC power plant (SBC Missouri, collocators, etc.) would have their power consumption metered. Then, each of the users of the DC power plant would pay, on a quarterly basis, its pro rata share of the total investment that was driven by its usage (by paying the already established per amp charge times the number of amps actually used).

Q. WHY IS IT IMPORTANT TO METER ELECTRICAL USAGE AT ALL?

A. It is vital to meter electrical usage because this is the only way to ensure that the CLEC pays for the DC Power that it actually causes SBC Missouri to provide. It is not appropriate to require the CLEC to pay for power based on the amount of DC power it *orders* because SBC Missouri does not build the power plant based on or according to carriers' specific orders for DC power. It is also less than optimal to use the manufacturer specifications for the typical usage of the equipment (often referred to as the List 1 Drain); these specifications tend to overstate this usage because the manufacturer defines usage assuming all carriers are operating all their equipment at the same time – an unlikely scenario. Therefore, metering is the best and most accurate means to ensure that the CLEC (and each other user of the DC power plant) only pays for its approximate pro rata share of the cost of DC power.

Q. HAVE OTHER STATE COMMISSIONS DETERMINED THAT METERING IS APPROPRIATE FOR DC POWER?

A. Yes. The Illinois Commerce Commission ordered that DC Power be billed on a metered basis and, to my knowledge; Illinois was the first state to implement such an arrangement.[5] Other states have made similar determinations. The Georgia Public Service Commission made the following determination in a recent UNE cost proceeding:

> The Commission agrees with AT&T/WorldCom and NewSouth that usage-based pricing is consistent with TELRIC principles. BellSouth should only charge CLECs for the DC power they actually consume. Although the order in Docket No. 11901-U authorized fused-based pricing for DC power, that holding was based on the evidence before the Commission in that proceeding and on a finding that installing and reading meters would impose an undue burden on BellSouth. The evidence presented in this docket, however, establishes that BellSouth does have the ability to install and read meters. In addition, the Commission notes that after it issued its decision in Docket No. 11901-U, the Authority voted to install meters in Tennessee.
>
> The most sensible solution is to order usage-based pricing, while recognizing the costs BellSouth may incur to install and read meters.[6]

The Tennessee Regulatory Authority made a similar determination that the only appropriate manner by which to bill a CLEC for DC power is on a usage basis.

> BellSouth has indicated its willingness to engage in a cooperative effort to develop a method and procedure for

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[5] ICC Docket Nos. 96-0486 and 96-0569, *Illinois Commerce Commission On Its Own Motion – Investigation into Forward Looking Cost Studies and Rates of Ameritech Illinois for Interconnection, Network Elements, Transport and Termination of Traffic – Illinois Bell Telephone Company – Proposed Rates, Terms and Conditions for Unbundled Network Elements*, Second Interim Order, pp. 98-100 (February 17, 1998).

[6] Georgia Public Service Commission, Order, Docket No. 14631-U, *Review of Cost Studies, Methodologies, Pricing Policies, and Cost Based Rates for Interconnection and Unbundling of BellSouth Telecommunications, Inc.'s Services*, p. 41 (March 18, 2003).

> monitoring power consumption levels in order to generate a bill. Further, under cross-examination, BellSouth's witness, Mr. Keith Milner, admitted that it is inappropriate for BellSouth to charge WorldCom for amperes not used or requested by WorldCom. Accordingly, the Arbitrators voted unanimously that the per ampere rate for the provision of DC power to WorldCom's collocation space should apply to amperes used and not to fused capacity.[7]

My point in referring to these decisions is simply to demonstrate that several commissions are finding that it is appropriate to charge CLECs based on the amount of DC power that they actually use. Further, in each of their territories, SBC and BellSouth have figured out how to implement metering to comply with these commission orders.

Q. WHAT HAS AT&T'S EXPERIENCE BEEN IN OTHER STATES WHERE METERING HAS BEEN IMPLEMENTED?

A. The cost impact of SBC's overcharges for collocation power is dramatic. In Illinois, after the installation of meters that measured actual power usage, AT&T's cost of power declined by as much as 90 percent compared to "fused amp" power cost per month SBC Illinois was charging prior to meter installation. For 33 collocation locations in Illinois, in June 2002, AT&T's power costs after the implementation of metered power were less than one-tenth of what AT&T's power costs had been for the same facilities prior to installation of meters.

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[7] Before the Tennessee Regulatory Authority, Docket No. 00-00309, *In Re: Petition of MCIMetro Access Transmission Services, LLC and Brooks Fiber Communications of Tennessee, Inc. for Arbitration of Certain Terms and Conditions of Proposed Agreement with BellSouth Telecommunications, Inc. Concerning Interconnection and Resale Under the Telecommunications Act of 1996*, Interim Order of Arbitration Award, p. 43 (April 3, 2002).

Q. HAVE ANY OTHER STATE COMMISSIONS ADDRESSED THE MANNER BY WHICH DC POWER CONSUMPTION SHOULD BE BILLED PURSUANT TO SBC'S COLLOCATION TARIFF?

A. Yes. The Texas Commission ruled last year in Docket No. 27559 that, under its tariff, SBC was only authorized to charge for that DC power actually consumed by the collocator. Specifically, the Texas Commission arbitrators noted: "Consistent with the tariff's clear language, the Arbitrators find that it is inappropriate to charge collocators for the DC consumption based on the total current carrying capacity of the A and B feeds rather than the actual usage, either retroactively or on a going forward basis."[8] The arbitrators further found that while metering arrangements were not currently in place in Texas, SBC must nonetheless develop a process for charging CLECs that is consistent with the tariff. Thus, the arbitrators suggested that SBC Texas may base its monthly recurring charge for the DC Power Consumption element on a per-amp basis as specified in Section 21.6 of the tariff using one of the following options:

1. Total DC power consumption in terms of ampere draw of all equipment collocated by the CLEC based on the information obtained from the CLEC through its collocation application form; or

2. The maximum current carrying capacity of either A or B feed; or

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[8] Texas Public Utilities Commission, Arbitration Award, *Complaint of Birch Telecom of Texas Ltd., L.L.P., AT&T Communications of Texas L.P., TCG Dallas, Teleport Communications of Houston, Inc. Against Southwestern Bell Telephone Company, LP for Post-Interconnection Dispute Regarding Overcharges for Power Under SBC-Texas' Physical Collocation Tariff*, Docket No. 27559, September 15, 2003, p. 10.

3. Based on the establishment of a mutually agreeable metering arrangement.[9]

The Texas PUC further evolved its decision on this matter as part of the Texas proceedings on a successor ICA between the parties. Regarding the three alternatives listed above the Texas PUC said:

> Based on the testimony in this proceeding, the Commission agrees with AT&T that the first two options may overstate the power usage rate and thus result in higher charges. … [T]he Commission directs parties to work collaboratively to establish the metering arrangement and present a solution within 60 days from the final order in this proceeding.[10]

In short, the Texas Commission arbitrators clearly understand that DC power consumption should be metered. That is exactly the same issue that is presented in this arbitration - whether metering is a reasonable method of identifying the level of CLEC power consumption.

Additionally, the Administrative Law Judge in the Kansas Corporation Commission's successor ICA proceedings issued findings in favor of AT&T's position on this issue. The Arbitrator found that "AT&T's split core transducer and the CLEC coalition's mini-BDFB do not constitute unwarranted intrusion upon SWBT's property interests and that these devices will provide the CLECs with the opportunity to provide service to their customers with the same level of quality as SWBT does to its customers on a non-discriminatory basis." The *Determination of Issues* continues, "the Arbitrator finds that the CLEC coalition

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[9] *Id*. at p. 6.

[10] Texas PUC Docket No. 28821, *Arbitration Award – Track 1 Issues*, AT&T Collocation Issue 2 (February 22, 2005).

may undertake power metering …". (*See* KCC Docket No. 05-AT&T-366-ARB, *Arbitrator's Determination of Issues*, ¶¶ 256-257, February 16, 2005).

Q. WHAT IS THE LANGUAGE THAT AT&T RECOMMENDS BE ADOPTED IN THE ICA TO ADDRESS THIS ISSUE?

A. The contract language proposed by AT&T that will permit AT&T to pay for power based on AT&T's usage is found in attachment 13, sections 19.2.3 through 19.2.3.7. This language calls for the installation of "power metering units" to measure AT&T's actual power usage for the collocation space, with measurements to be taken on a quarterly basis. The language further requires that AT&T inform SBC Missouri when AT&T removes existing equipment or installs new equipment in its collocation arrangement. In such events, a new measurement is taken to identify the actual usage after the changes in equipment are completed. The AT&T proposed language also calls for a non-recurring charge for the establishment of a metered power usage system and recurring charges for meter reading, both to be paid by the collocator, AT&T. The AT&T language in section 19.2.3.7 provides for an alternative method of assessing charges "using the rated ampere capacity in the Collocator collated space." This refers to the List 1 Drain information reported on AT&T's collocation order form.

Q. HOW IS AT&T'S PROPOSED LANGUAGE SUPPORTED BY THE TESTIMONY YOU HAVE GIVEN?

A. This testimony provides important background information about what elements make up DC power and how it is delivered to the CLEC. Of great significance is

the distinction between how SBC Missouri sizes the overall DC Power Delivery infrastructure for the ultimate demand of all the CLEC collocation equipment[11] versus the CLEC's initial (and much lower) power needs for its current equipment. In other words, the CLEC's ultimate current capacity requirements for DC Power Delivery to its collocation equipment has no bearing on the amount of DC Power it needs currently or should be required to pay for.

It is crucial to recognize the important distinction between ordering DC Power for the CLEC's collocation equipment, which sizes the cables extended into the collocation space, and the quite separate task of ordering/requesting DC Power to operate the equipment in the CLEC's collocation arrangement. AT&T should pay for the latter based on the amount of power its equipment actually consumes. The CLEC's need for DC Power capacity from the cables extended into the collocation arrangement will never match the actual usage of DC Power until the collocation arrangement is fully built out and operating under peak usage conditions. This is why there is a need for meters to measure the actual amount of DC Power the CLEC is using in order to be billed appropriately.

Ideally, consistent with AT&T's recommendation, all of the various users of the DC Power Plant would have their power consumption metered. That way, each carrier can pay its appropriate pro rata share of the total investment that is driven by its usage, and why AT&T strongly urges the Commission to adopt

[11] The DC Power Delivery infrastructure, because it is engineered to meet the ultimate demand of all CLEC collocation equipment, is routinely engineered and sized not only for equipment that the CLEC intends to place in its collocation space initially, but also for equipment that the CLEC anticipates its business plans may require in the future.

AT&T's proposal requiring it to pay for the power its equipment actually consumes. Other state commissions, as discussed herein, have determined that it is fair and appropriate for the ILEC to bill AT&T for DC power consumption on a usage basis. This Commission should similarly adopt AT&T's power consumption proposal and proposed language.

VI. SUMMARY AND CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. The portion of testimony addressing right of way issues presents a number of detailed proposals related to the work inspection and associated cost recovery responsibilities of AT&T and SBC Missouri. In many instances, SBC Missouri inappropriately proposes, with scant justification, to depart from time-tested agreements contained within the existing ICA. SBC Missouri proposes multiple, newly-named and unnecessary inspection processes all of which it plans to charge to AT&T. These SBC Missouri proposals should be rejected.

With respect to space license rates, I explained why AT&T's rates for space license DS1 port terminations and multiplexing are neither arbitrary nor excessive vis-à-vis corresponding SBC Missouri rates. These rates have been agreed to by SBC in a number of other states. The rates proposed by SBC Missouri are not reasonable by any standard. As a result, AT&T's rates should be adopted.

Finally, regarding collocation power, I explained why metering is the most appropriate method of measuring and assessing charges for electrical usage. This

method is consistent with the manner in which SBC Missouri's costs are incurred and has been ordered by a number of other state regulatory commissions, some very recently. The Commission should require that collocation electrical power be metered.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.